

# making games

DESIGN | BUSINESS | ART | TECHNOLOGY



TOM CLANCY'S

# RAINBOW SIX | SIEGE

# UBISOFT GOES eSPORTS

TACTICS, TEAMPLAY, PRECISION  
THE EVOLUTION OF A MULTIPLAYER GEM

PROMOTION BEST PRACTICE  
NEVALY GIVES TIPS ON EFFECTIVE  
INFLUENCER MARKETING

ART DESIGN BEST PRACTICE  
AMERICAN HORROR STORY:  
HOTEL CORTEZ RECREATED IN UE4

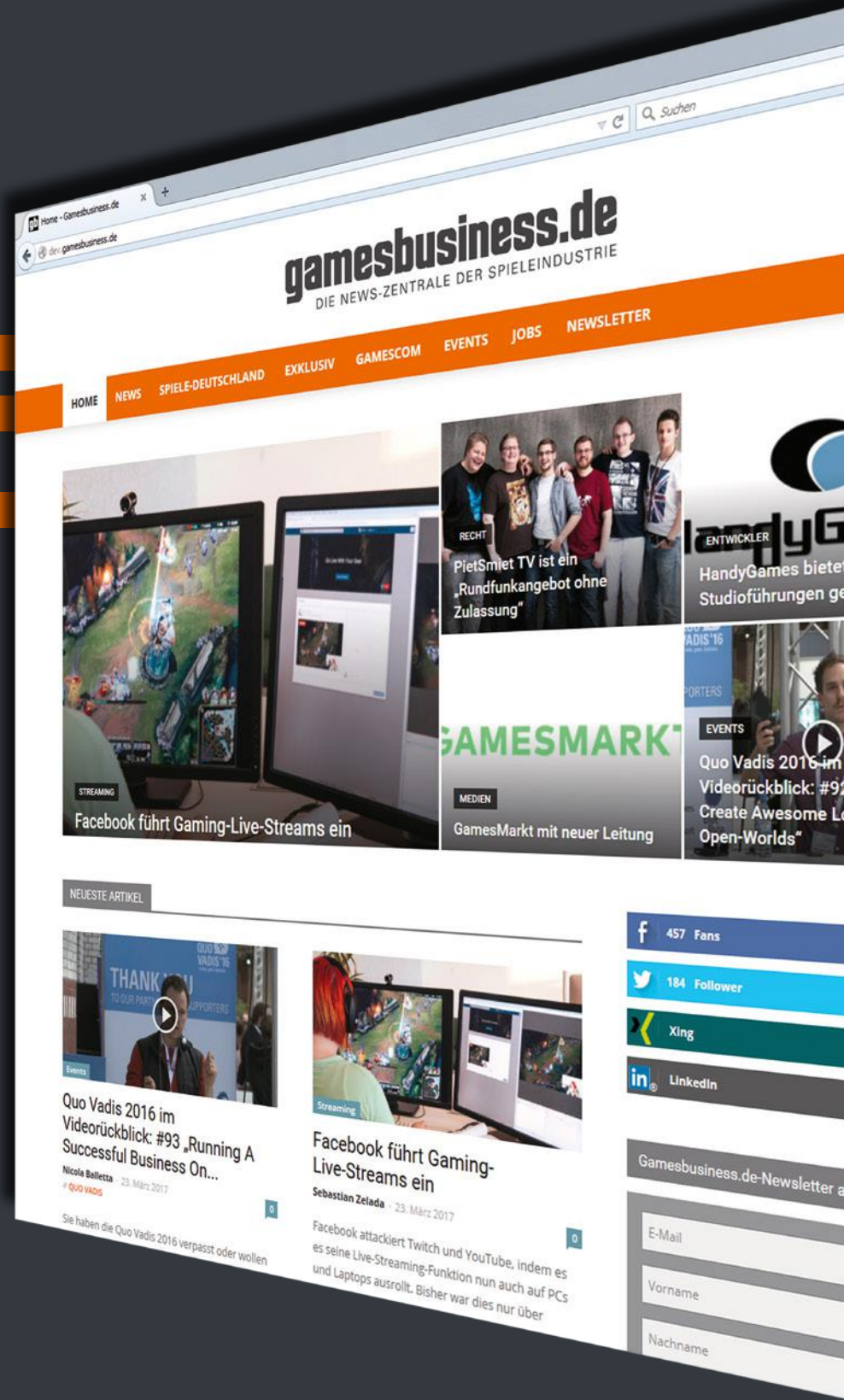
MEDIA ANALYSIS  
HOW TO READ FACEBOOK DATA  
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# SOME THINGS JUST TAKE TIME

Some things can't be forced, no matter how hard you try. Success is one of those things, no matter what area you want to be successful in. It's probably less surprising that we're referring to games here, but the principle may generally be applied to all sorts of aspects in our lives. Of course, you may have a positive influence on your chances of success. And although it may sound like a stereotype: The most important key to success is hard work, a spoon full of love for detail, a scoop of passion, a pinch of dedication and a dash of persistence. If you approach a project – no matter what kind – with the right attitude, the »other side« will notice that. Be it jurors at a sports event, the audience at a concert or, like in our case, the players of a video game. Hard work pays off, and even if the end result isn't immediately perfect, in the end it will always show if the performer did everything he or she could or simply didn't care!

Success can also be jump started, if you know which buttons of your target audience to press. How long this success will last though, is a different matter.

## Some things take time to grow

Time is getting more and more precious, everything needs to be done faster and faster. Some things can't be forced though. Some things take time to grow and mature, they need to be tended to for them to develop

their full potential. Games are no exception to this, especially titles which are prominently labeled "Games as a Service".

For this reason, we're happy to dedicate the cover of this Making Games issue to a game which likely wasn't perfect either at first, but which had a dedicated team behind it and was constantly nurtured. The result of this commitment and the care in the form of regular patches and new content could be seen in early February in Montréal: We are, of course, talking about Ubisoft-Montréal's »Rainbow Six Siege« which not only celebrated its first anniversary, but also made the jump from casual shooter to tactical eSports gem. All this wasn't forced, it just happened during the maturation process. You can learn about everything the brains behind Rainbow Six had to say in our cover story from page 16.

## A heartfelt thank you

I would also like to take this opportunity to thank my predecessor Sebastian Weber once again, whose final official act was the journey to the Six Invitational in Montréal. He not only lent his support before, but also after the transition of the job. I'd like to thank him a lot for that and wish him every success for his future projects. And as for you, dear readers ...

## Enjoy the latest issue!

Your team of Making Games



**Dirk Gooding**  
Editor-in-Chief  
at Making Games Magazine



**Nico Balletta**  
Managing Editor  
at Making Games Magazine

»Some things take time to grow and mature. They need to be tended to for them to develop their full potential.«



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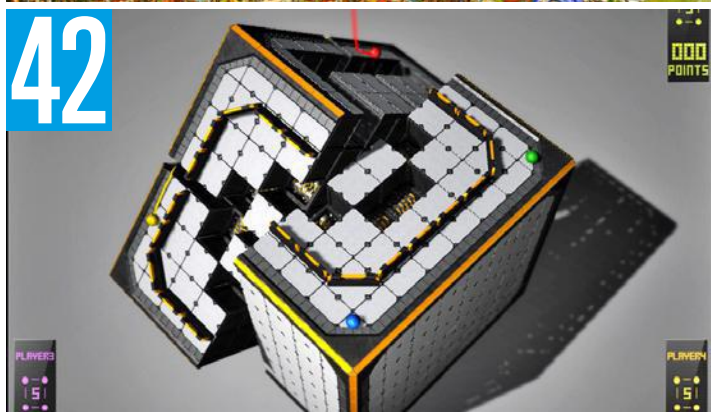
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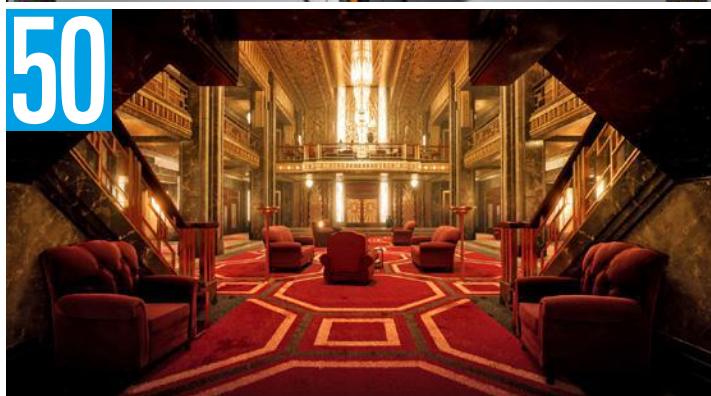
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# FOCUS GAME

## SUSTAINABILITY AND POTENTIALS OF GAME TECHNOLOGIES AND COMPETENCIES



**Prof. Dr. Linda Brettlauch**  
Deputy Chairman of GAME,  
the German Games Industry  
Association, and Professor for  
Game Design at Trier University  
of Applied Sciences.

Virtual and Augmented Reality have an enormous potential that goes way beyond mere entertainment, but that's still hard to grasp for many outside of games.



**Y**ou can either earn money or do VR« – this is basically what a lot of game producers say at conferences and events. It's understandable and the right thing to do for the games industry to shift its focus again and again back on its core business: the development and production of entertainment games.

A global sales market of nearly 100 billion euros also documents the relevance of this entertainment market compared to other media markets. But only because more money can be made with entertainment media, this doesn't mean that other business areas aren't interesting from an economic point of view – especially considering that true AAA productions are currently rather underrepresented in Germany.

The buzzword »Technology Transfer« summarizes what should actually be referred to as »Sustainability and Potentials of Technologies and Competencies«. While words like »Serious Games« and »Gamification« have been used in context with business areas beyond the traditional entertainment industry for a while now, other – maybe more exciting – words are hardly used with reference to the games industry. The main reason for this is that the industry isn't openly establishing a connection with these business areas in the same way.

### Beyond the entertainment boundaries

Let's talk about Serious Games again: The only reason they have an impact at all is because developers of entertainment games know how to make games entertaining and fun for the players. Game developers are very well aware of the fact that Serious Games need to be »engaging«: They have to be fun, make you forget the actual learning goal, and impart the intended knowledge »incidentally« along the way. In addition to this, technologies, formats and design of computer games have a growing potential for other areas of application: in research, development or production. Even if VR and AR aren't

explicit industry developments, the industry is an innovation driver for these technologies especially and also a new business market and thus a multiplier that mustn't be disregarded. Even if these technologies were sustainably applied mostly in the B2B market (outside the industry) and didn't make a breakthrough in the consumer market, invaluable competencies would develop within the industry which could tap into additional sources of income on the long term. This innovation power of the industry, whose impact reaches way beyond its own boundaries, is hardly reflected in societal discourse though.

### Time to think outside the box

What's also often disregarded in the discourse is that besides the actual technology, significant potential, too, can be brought out in the field of visualization, the procedural generation, but also in the collection and use of user data and in dealing with communities. Design aspects like interfaces and user experience design,

in particular, as well as the use of game design concepts to optimize the accessibility and user navigation are adaptable for applications beyond game development.

All of these application and thematic areas demonstrate

that games technologies have long grown beyond the actual entertainment market and that other high technologies continue to develop due to the know-how gathered in our industry. It's time to discover business areas beyond our own industry and to maintain and further develop the innovation power together with research and other industries. Above all, this may be another necessary step to develop an adequately social and political self-awareness.

**»Serious Games  
have to be fun and  
make you forget  
the actual learning  
goal.«**



## THREE QUESTIONS FOR ... STEFAN MARCINEK

Stefan is Chairman of the German Games Industry Association GAME, co-founder of the Kalypso Media Group, organizer of the German Dev Days, and CEO of Assemble Entertainment.

**The German Dev Days will celebrate their first anniversary in May when they will be held for the second time. What's making you particularly proud this year and what are you looking forward to the most?**

The first GDD last year was a huge success. Above all, people talked openly and honestly about success and failure in the lectures and panel discussions – like I had never seen in any other conference, and it would make us really happy if this openness continued to show in the second year as well. Altogether, GDD managed particularly through their visitors and speakers to be more like a community meeting instead of a dull conference. That's what we're particularly happy about.

It remains to be seen what the ticket sales will be like this year. The first event was free of charge for everyone; this year we have to somehow cover the costs. Hence, the tickets for business and private visitors will be available at a reasonable price, while it's still completely free for students, trainees and lecturers. We have also introduced one or two new features, like a surprise panel or a surprise lecture where nobody knows in advance who's going to talk about what. The audience will, e.g., vote for the

surprise lecture by applause, so everybody can submit an ad-hoc suggestion. And if there's something else I'm particularly proud of (smiles) – you better ask me again after the event.

**Are there any program features that you would have liked to have offered but had to abandon (for the time being)? If so, what would they be?**

Not the second time around when our focus is to elaborate on the content of the first year with the one or two new features mentioned. More innovations will come in 2018.

**German Dev Days – Episode III: Did you already spend some thoughts on this, or do you want to take a break after this year?**

We actually started a bit late with the planning of GDD 2017. The new company had just been launched and the first game productions had begun, so there was a lot to do and there still is. For GDD 2018, we will start with the planning a lot earlier. After this year's conference, we will take a quick breath before we start all over again, maybe by gathering a few ideas, maybe checking out a bigger location – we will see.



Outstanding event and a great atmosphere – the German Dev Days.



# Event calendar [www.makinggames.biz](http://www.makinggames.biz)

Online event calendar with search function and event infos

### APRIL 2017

#### QUO VADIS 2017

**Location** STATION, Berlin  
**Date** April 24 through 26  
**Topic** Conference  
**Fee** 99 to 749 euros  
**Homepage** [www.qvconf.com](http://www.qvconf.com)

#### Making Games Festival

**Location** STATION, Berlin  
**Date** April 24 through 26  
**Topic** Festival  
**Fee** 13,95 to 39,95 euros  
**Homepage** [www.makinggamesfestival.com](http://www.makinggamesfestival.com)

#### Deutscher Computerspielpreis

**Location** Berlin  
**Date** April 26  
**Topic** Award Ceremony  
**Fee** tba  
**Homepage** [www.deutscher-computerspielpreis.de](http://www.deutscher-computerspielpreis.de)

### MAY 2017

#### re:publica & Media Convention Berlin

**Location** STATION, Berlin  
**Date** May 8 through 10  
**Topic** Conference / Convention  
**Fee** (only) 99 to 1.499 euros  
**Homepage** [www.re-publica.com](http://www.re-publica.com)

#### Casual Connect Asia

**Location** Hard Rock Hotel, Sentosa Island, Singapore  
**Date** May 16 through 18  
**Topic** Conference / Award Ceremony  
**Fee** 350 / 500 dollars  
**Homepage** [www.asia.casualconnect.org/](http://www.asia.casualconnect.org/)

#### Nordic Game Conference

**Location** Slagthuset, Malmö, Schweden  
**Date** May 17 through 19  
**Topic** Conference / Award Ceremony  
**Fee** 59 to 800 euros  
**Homepage** [www.conf.nordicgame.com](http://www.conf.nordicgame.com)

#### Games Bavaria Vernissage

**Location** WERK1, Munich  
**Date** May 19  
**Topic** Exhibition  
**Homepage** [www.gamecampmunich.de/vernissage-2017](http://www.gamecampmunich.de/vernissage-2017)

#### GameCamp Munich

**Location** Mediadesign Hochschule Munich  
**Date** May 20 through 21  
**Topic** Conference / Exhibition  
**Fee** 7 euros  
**Homepage** [www.gamecampmunich.de](http://www.gamecampmunich.de)

#### German Dev Days

**Location** Mainhaus Stadthotel, Frankfurt/Main  
**Date** May 23 through 24  
**Topic** Conference  
**Fee** 0 to 119 euros  
**Homepage** [www.germandevdays.com](http://www.germandevdays.com)

### JUNE 2017

#### SemesterGameJam

**Location** Garching Hochbrück  
**Date** June 9 through 11  
**Topic** Game Jam  
**Fee** Free  
**Homepage** [www.semestergamejam.de/signup.html](http://www.semestergamejam.de/signup.html)



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# NEW DATES FOR »BIU ACADEMY« – WEBINARS

The webinar series »BIU Academy« initiated by BIU, the German Games Industry Association, in cooperation with Making Games in January 2016 will dedicate its next session to the topic Player Acquisition.

**B**IU Academy« in cooperation with Making Games is a webinar series for developers, founders and all those who are interested in its topics; a training scheme without travel expenses about all topics surrounding game development and sales, like business models, design, management, legal, marketing, and much more.

- **Duration:** 60 minutes
- **Monthly; Tuesdays** at 5pm
- **Fee:** 19,00 EUR (free for members of BIU)
- **Register once at:** [www.edudip.com](http://www.edudip.com)
- **Book a webinar at:** <https://biu.edudip.com>
- **Current information at:**  
[www.biu-online.de](http://www.biu-online.de)  
Facebook: BIUeV  
Twitter: BIU\_eV



## Player Acquisition on Facebook

### Date and fee

- **Duration:** 60 minutes
- **Tuesday, May 09** at 5pm
- **Fee:** 19,00 EUR (free for members of the BIU network)



**Felix Janzen**  
Director of Performance  
Marketing at InnoGames

In this session, InnoGames' Director of Performance Marketing, Felix Janzen, covers the importance of bringing your own data to the table to drastically increase ROI on Facebook marketing campaigns, how to gather this data and, finally, how to optimize campaigns with it.

He also gives advice on the important additional aspect for success on the platform: a creative strategy.

## Become a Speaker!

You're an active member of the games industry and there's a topic you know all about and you would like to present in a webinar? Wonderful – BIU is always looking for speakers.

For more information, please contact:

**Stephanie Lang**  
Services Manager /  
Consultant for Funding Programs

+49 30 240 8779 0  
[lang@biu-online.de](mailto:lang@biu-online.de)

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## SemesterGameJam in Garching Hochbrück

From June 9 through 11, 2017, the 6th SemesterGameJam will take place in Garching (near Munich). Those who have already taken part in such a GameJam know that it's not just a great deal of fun, but the experiences you make are also invaluable. And sometimes it happens that notable indie gems are created during these events. The SemesterGameJam is mainly targeting students and graduates from media- and games-related subjects. Also, the participation in the three-day event is free.

### Event FAQ

For questions regarding the conditions of participation, directions, food and accommodation, please see the event website at: [www.semestergamejam.de/faq.html](http://www.semestergamejam.de/faq.html)



## Mad Catz is filing a petition for liquidation

The US manufacturer of video game accessories Mad Catz has closed its doors: The company founded in 1989 decided to take this step after reviewing strategic alternatives. Its international branches will follow suit.

The bankruptcy became increasingly

likely since the Mad Catz stocks were hardly worth a cent any more. Just one week prior to the petition for liquidation, Mad Catz submitted the request to the exchange supervisory

authority to be delisted from the NYSE MKT.



## Sony looking for new markets for PlayStation VR

Although Sony's PlayStation VR headset has the highest installed hardware base on the market, the company still doesn't seem to be happy with the current status. Wall Street Journal reported that Sony is therefore considering introducing the device in Japan's »location-based« entertainment sector, meaning arcades and public entertainment attractions.

### In-house team is looking for partnerships

For this purpose, Sony has built a special team since March 2017 to introduce PSVR to new markets. Sony is looking for partnerships with arcades, amusement parks and similar facilities. The plan is to increase the transparency for consumers to boost sales. Sony is thereby tapping into business areas which are already served by HTC, Starbreeze, IMAX and Fox.



## Facebook introduces gaming live streams

Facebook is taking on Twitch and YouTube by bringing its live streaming functions to PCs and laptops. Until now, this was only possible on mobile devices. This is particularly interesting for content creators like Let's Players: Facebook Live will now be able to stream PC software and allow for live gameplay broadcasts.

### Attack on Twitch

»For gamers, this new feature is making it easier than ever before to stream their PC gameplay to friends and followers and interact with them while playing«, the company explains. »If you show your friends or followers a tutorial or how-to-guide, you can include on-screen graphics, titles

and overlays. For artists, it's possible to go live and quickly switch between camera perspectives while commenting the process.«

This big announcement will probably start an interesting battle for the streaming crown since Facebook is technologically on a par with Google (YouTube) and Amazon (Twitch), and the market is still growing strongly. For developers, the new option is also worth to be closely observed since the tool might prove to be a good marketing tool.

## Apple's former lead designer switches to Facebook

Michael Hillman is going to be Head of Hardware at Oculus VR. Hillman started to work for Apple in March 2000 where he first was Lead Designer for the iMac product range, before becoming Product Design Manager. He spent seven of his fifteen years at Apple as Chief Architect for all consumer desktop products, working from Cupertino. According to LinkedIn, he spent the last four years working on a confidential hardware project which hasn't been revealed yet.

### Oculus with all-star team

Now with Hillman on board, too, Oculus' management looks like an all-star team of the tech industry. The new Head of Hardware is going to work closely with COO Hans Hartmann who came to Oculus from Fitbit in May 2016.

It was only in January of this year when the company also announced that Hugo Barra, former Lead International Executive at Xiaomi, signed to join the crew. Barra has not taken up his work at Oculus yet though. In the meantime, the VR company expresses its happiness about signing Hillman: »We're very pleased to have him as the head of the hardware organization. We have a world-class hardware team which led the development of Rift and Touch, and we will continue to invest in hardware while pushing the boundaries of VR technology and building the next generation of consumer VR products.«



## Oculus co-founder Palmer Luckey leaves Facebook



The controversial co-founder of Oculus VR, Palmer Luckey, left Facebook on March 31. After Facebook had acquired Oculus for an exorbitant amount of money, he was heavily criticized

more and more often.

Tasteless campaigns against Hillary Clinton during the US presidential election campaign and the accusation that he built Oculus on the intellectual property of ZeniMax apparently made him intolerable for Facebook. Hence, not much was to be heard from the once vibrant personality in the last twelve months. The company even sent other representatives to official presentations. Whether Facebook and Palmer Luckey came to an agreement acceptable for both sides in the end or whether Luckey was laid off against his will, is unknown.



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# WELCOME TO BERLIN! CASUAL CONNECT 2017

Casual Connect Europe 2017 started at full speed, turning Berlin into a hotspot for long-established and young representatives of the international games industry for three days.



Jessica Tams  
Managing Director of Casual  
Games Association

»It was great being back in Germany and organizing another successful Casual Connect Europe. Experts from the games industry of leading companies and indie developers from all over the world came together for this conference to meet and share their expertise with one another.«

Casual Connect«, organized by »Casual Games Association«, has been around since 2005. Unlike previous years, the European leg of the event did not take place in Amsterdam. Instead, in 2017, STATION Berlin became the hub for more than 1,800 visitors of the international games industry from February 7 to 9.

A vast number of hotspots were available for the event visitors to casually meet, talk and network with one another – with plenty of food and drinks provided. Those who preferred to listen to one of the many lectures not only had plenty of opportunities to do so, but every so often were also spoilt for choice: During the three day-event, over 170 speakers of international industry giants like Amazon, CCP Games, Electronic Arts, Epic Games, Facebook, Google, Hasbro, King, NC Soft, Nexon, Rovio Entertainment,

Square Enix, Supercell, Team 17, Twitch, Ubisoft, Valve, Wargaming, Wooga, Youzu Interactive, and many more offered insight into a range of exciting and informative areas surrounding games. The main topics of this year's event were: Industry Insights, Market Navigation, Growth, Funding, Data & Analytics, Design & Development, eSports & Casino, and obviously Next Gen Technologies VR and AR.

## Top-class speakers

Casual Connect's YouTube channel (see button) offers more and more clips of the lectures from this year's event. Among them are Chet Faliszek of Valve on »Virtual Reality in 2017«, Masaru »Nogi« Ohnogi on »Asia, the World and the Future of VR«, Chris Early and David Votypka of Ubisoft on the topic of »VR Games – Key Learnings and Insights from Ubisoft« or Thor Gunnarson on the



# Casual Connect in Singapore, Seattle and Kiev



Those who were busy in February and instead consider a trip to Asia, the United States or Ukraine, should take a note of the following dates:

- **MAY 16 - 18, CASUAL CONNECT ASIA, SENTOSA ISLAND**  
1,200 industry visitors, 150 speakers and 120 Indie Prize exhibitors
- **AUGUST 1 - 3, CASUAL CONNECT USA, SEATTLE**  
3,000 industry visitors, 300 speakers and 96 Indie Prize exhibitors
- **OCTOBER 2017, CASUAL CONNECT KIEV**  
1,000 industry visitors, 80 speakers and 50 Indie Prize exhibitors

development of »Everest VR«. The category »Industry Insights« featured speakers such as Debbie Bestwick, CEO at Team17 on »Survival of the Indies«, the Performance Director of AdColony, Paul West, on the »Top 10 App Install Marketing Trends in 2017« in the Market Navigation section, and Riana McKeith of Wooga on Design & Development with her lecture »Who needs a Story? Narration Through Art Direction«.

### Indies in the spotlight

Another obvious highlight of Casual Connect Europe was the centrally located indie exhibition area. More than 130 young developers from 63 different countries, who got randomly picked from 470 applicants, got the

chance to present their titles to the industry visitors of Casual Connect for three days and to qualify for one of the sought-after awards of the »Indie Prize Berlin«.

It wasn't an easy choice for the jurors who consisted of veterans from the games industry and representatives of renowned companies like Yodo1Games, Rovio, Zep- tolab, Unity Technologies, RI Games, Game Founders, Tenjin, Eye For Games, Amazon. com, Demiforce, BANDAI NAMCO Entertainment Europe, Stugan, ExitGames, I Teut You So, Affiniti Ventures|AV(M) & IPC, Big Boat Interactive, VK.com, and more. On Wednesday afternoon, as part of the finale of the three-day event, the following ten winners were announced:

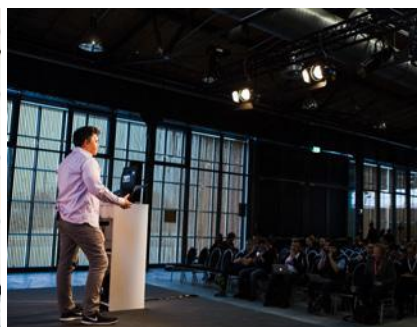
- **Best Game Design:** Shadow Tactics: Blades of the Shogun, by Mimimi Productions (Germany)
- **Best VR Game:** Anshar Wars 2, by Ozwe Games (Switzerland)
- **Most Innovative Game:** FRU, by Through Games (Netherlands)
- **Best Game Audio:** Blink and Die, by Sureksu (Argentina)
- **Best Game Art:** Figment, by Bedtime Digital Games (Denmark)
- **Best Game Narrative:** Empathy, by Pixel Night (Sweden)
- **Best Multiplayer Game:** Lightfield, by Lost in the Garden (Austria)
- **Best Kids and Family Game:** Blink and Die, by Suresku (Argentina)
- **Best Mobile Game:** Super Pet Hero, by Amused Sloth (Romania)
- **Best in Show - Audience Choice -:** CoverFire, by 1MBand (Spain)



City rotation: The next Casual Connect Europe will be held in London in 2018, in Amsterdam in 2019 and in Germany in 2020. A full overview of all Casual Connect events can be found at:

<http://www.casualconnect.org/events.html>

Over the course of three days, visitors of Casual Connect in Berlin could watch more than 170 speakers in lectures and panels or use one of the many hotspots to make new contacts and cultivate existing ones in a casual atmosphere.





# WHITE NIGHTS CONFERENCE PRAGUE

Prague is always worth a visit - and even more so when the city hosts such an atmospheric conference like the White Nights. We were live on site to report for Making Games.



Only a few days after Casual Connect in Berlin, the next event was ready to open its doors from February 13 to 14, 2017 – White Nights, in the Czech Republic's picturesque capital of Prague. Around 1,000 visitors from over 35 countries made their way there, and all those who didn't already pick up their badge on Sunday night at the official start of the spectacle, checked in the third floor of the Clarion Congress Hotel Prague the following morning.

In addition to the vast reception area where plenty of food and drinks were served, the visitors of the conference could sit down for a chat while having a coffee, move to the exhibition floor featuring way more than 70 booths, or visit numerous

talks, panels and workshops in one of four themed lecture halls.

## White Nights meets Casual Connect

Not only did Casual Connect Europe and White Nights Prague take place in relatively quick succession – they also featured a similar line-up of speakers like Masaru Ohnogi of Gumi, Michael Schade of Rockfish Games or Valve's Chet Faliszek. This didn't bother anyone, but rather offered the industry visitors of both conferences the chance to explore specific topics in depth or to attend alternative talks, panels or even workshops – especially with regard to the clearly recognizable focus on industry representatives from Eastern Europe, Russia and the Asia region. In accordance, the more than 60 speakers had to offer a wide array of topics: Matthew

Steinke of successful Polish studio CD Projekt Red, e.g., took the audience on a tour behind the scenes in »Witchcraft: The Alchemy of a Crafting-Based Economy«. Melinda Montano of Kongregate shared her experience on »PC and Mobile: Going Cross-Platform Post-Launch«, and Jiri Kupiainen of Matchmade.tv talked about »Alternative User Acquisition Strategies«.

Those who didn't come for the lectures, could use both days to look around the vast number of exhibitor booths, make new contacts and deepen them in a casual atmosphere in Prague's night club Duplex whilst enjoying an exquisite buffet, cold drinks and live music. Alternatively, one could also check out the potential candidates for the »Indie Game Cup Award« presented at the event's big finale.

### The Indie Game Cup Awards

The big finale of the two-day event wasn't just the obvious highlight of White Nights for the nominated young developers, but regular visitors also had the chance to win a prize: Those who threw their business card into the raffle box during both days had the chance to walk away with a valuable prize. Industry visitors, too, were rewarded for excessive use of the White Night's Meet&Match app – hence a huge crowd attended the award ceremony in the »Blue

A large number of speakers, developers and trade visitors from the games industry created an amiable atmosphere during the conference.

Hall« where prizes were announced and awarded to the following games:

- **Best Game Design:** Flotsam (Pajama Llama Games)
- **Best Art:** League of Arosaurus (MintFrogs)
- **Best Storytelling:** Tower of Time (Event Horizon)
- **Best VR Game:** Drunk Or Dead (4 I Lab)
- **G5 Choice Winner:** League of Arosaurus (MintFrogs)
- **Amazon Choice Winner:** Fresco (Yannick Gerometta)
- **Grand Prix:** Flotsam (Pajama Llama Games)

The Grand Prix, which was awarded to Pajama Llama Games and their game Flotsam this year, is another link to Casual Connect since the winners of the main prize get to present their title together with 100 of the world's best indie developers at Casual Connect in Singapore.

Nico Balletta

## White Nights in Saint Petersburg and Moscow

After the successful conference in Prague, the next two events are already drawing near:

- **June 14/15, White Nights Saint Petersburg**
  - **October 10/11, White Nights Moscow**
- More than 1,500 industry visitors from over 35 countries, more than 70 speakers and over 150 exhibitors
- **February 13/14, 2018, White Nights Prague**

For additional information on all White Nights events, please visit:

<http://wnconf.com>





# »OPERATE THIS!«

## CLASS & MAP DESIGN IN RAINBOW SIX SIEGE

Game Designer Jean-Baptiste Halle and Level Design Director Yann Silvestre shared some insight on class and map design and how becoming an eSports title changed their approach on the game.



**Jean-Baptiste Halle**  
is Game Designer at Ubisoft  
Montreal for Rainbow Six Siege.

Jean-Baptiste worked in user research for various games at Ubisoft Paris and Ubisoft Montreal. He has worked on Rainbow Six Siege since its beginning in 2013, today in his role as a Game Designer.

**What was your main reason for choosing classes – the operators – over usual weapon, equipment and perk loadouts like it is sort of a standard in regular tactical shooters such as »Call of Duty« or »Counter-Strike«?**

**Jean-Baptiste:** I remember very well how the idea came to life. The main push came from our will to create legends, to create heroes. The problem we basically had with the class system was that even if you had options you were still forced into a certain role like being a medic, infantry or something like that. Then we started thinking in terms of fantasy, of a story you can tell about a character. They do that a lot in MOBA gaming and a lot of us actually were some pretty invested

MOBA players. You work out stories so much better when you have a hero with his or her own name. So in terms of the character design this aspect became pretty big and important.

When playing »Battlefield« or Call of Duty we noticed – from the gameplay side – that there are always lots of ways to theoretically optimize a class to your liking but looking closely it always ended up in only a couple of different builds that proved to be most effective. So even though the number of possible options of customizing a class, character or loadout was apparently immense, there actually wasn't any serious variety at all.

Having heroes and therefore sort of locked out abilities you can add a lot more of those



heroes and stories. There are still ways to customize your character, as every hero can chose between at least a small number of different weapons and gadgets. But you have to stick to the core idea of a hero. By choosing a certain character you have to play the role he or she was designed to fulfill. So in terms of combinations and team compositions, we are convinced the hero system actually grants players a lot more variety.

**So fully customizable loadouts only seemingly grant more flexibility because in the end everyone chooses between the same few but most effective cookie-cutter builds.**

Exactly! Just a quick example: If we'd look at Rainbow Six Siege today and say »Ok, every operator now has the option of choosing whatever weapon he likes.«, then we'd be absolutely convinced that in the end – you can observe development like that pretty quickly – every player would choose between the same three or four guns and only those! And because of that the actual variety within the game would suffer. If you have an operator with a given set of weapons you can choose from, you sometimes actually have to make tough choices. If you can, however, choose between everything there is,

the actual variety would decline as everyone would pick the same and normally most powerful pieces of equipment.

**Classes in Rainbow Six Siege and their unique and defining pieces of equipment follow the »stone paper scissors«-principle: Operator A beats operator B but gets owned by operator C. What are your first steps when you actually began the design process of your operators, in terms of looks, weapon loadouts, gadgets and equipment? Did or do you start by matching opponents 1:1? Or do you pick a certain piece of special equipment you want to implement and then start building the operator and an adequate counterpart around it?**

**»The main push came from our will to create legends, to create heroes!«**

In the early beginnings of the development of Rainbow Six Siege there were already many different gameplay pillars that existed long before the actual addition of our operator-system.

The destruction system within the maps, for example, or the idea of going for asymmetrical game modes and stages or having only one life – we had all those components already. Not being able to respawn puts a completely different focus on the concept of gathering intel. All those gameplay elements existed before said operator-concept came to life. And I think all of this prior groundwork

Many of the actual maps ingame are inspired by real-life events. Not every map, however, is equally suitable for eSports-events.





Pre-made class loadouts seemingly grant only a limited amount of picks and choices, but provide way more variety overall in comparison to fully customizable loadouts.



made the actual operator design quite a bit easier because we now had a pretty clear focus on how we wanted to proceed.

For example: We knew that we wanted the defenders to be able to lay traps, to reinforce certain parts of the stages and to gather intel on where the attackers were supposed to enter. On the other side we knew that we wanted the attackers to have some bridging devices or methods of gathering intel on where the defenders were hiding. Everything else emerged from that. I don't think we started by matching opponents against each other. But very quickly, of course, you think about having someone on one side who's able to set up barricades or reinforce certain spots like Castle does with the help of his unique armor panels. Then you start thinking about the opposite side, the attacker side, and how you would want to have someone to be able to counter those installments. At this point, yes, you start thinking about all those different interactions between your operators that you want to have in your game.

**The number of operators you have by now is pretty impressive. Do you have some kind of diagram that helps you to keep track of all the different heroes and their abilities, how they match up with other team members and how they stand their ground against each other in battle?**

Yes, we do use sort of a visual representation of the different functions that exist in the

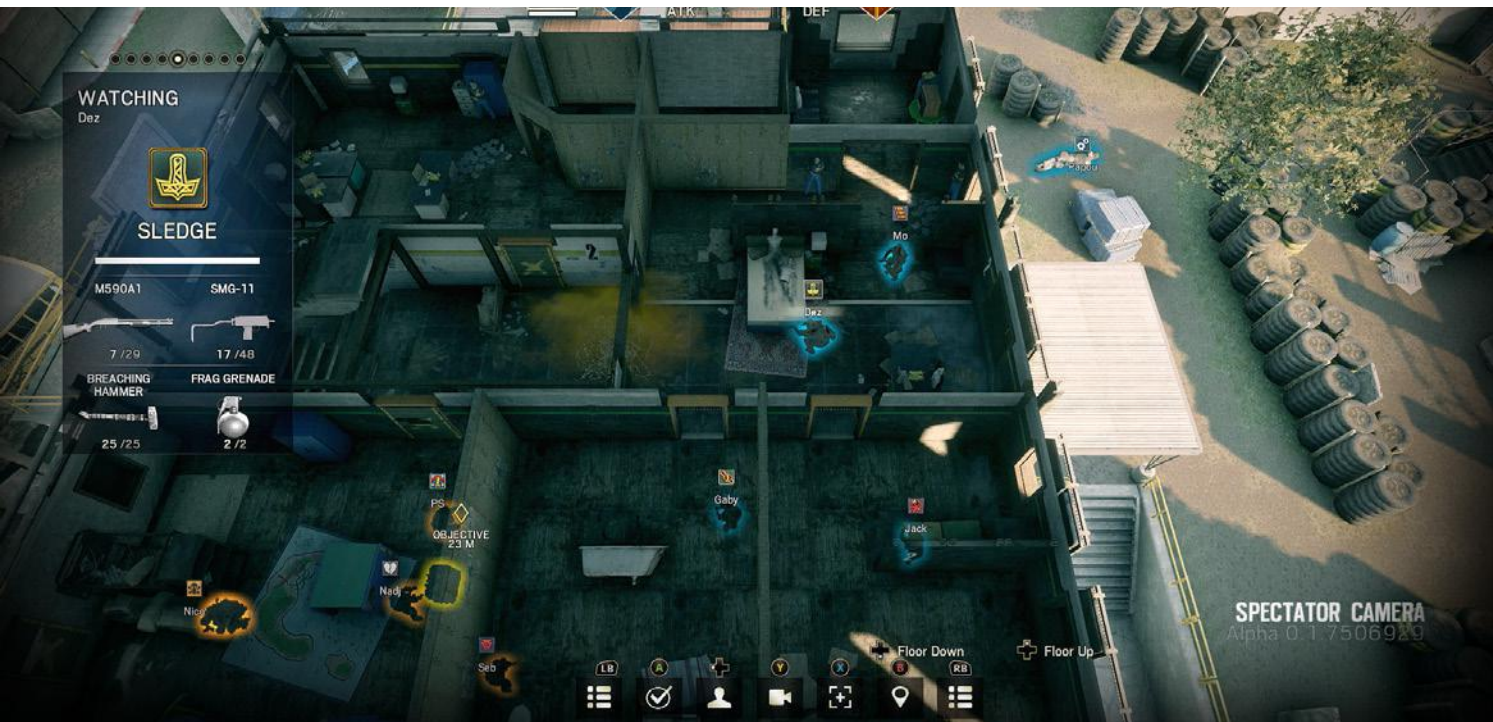
game so far, whether it's combat gadgets or unique abilities. It's kind of like a road map to see how every operator reacts to each other.

Actually keeping track on all the different characters, however, isn't even that hard because we've always been working on the game while having the idea of adding more operators in mind. We have that idea for quite a while now, for way more than a year. And yes, in the beginning it can become a bit overwhelming. Whenever we add a new operator we basically exercise their strengths and how he or she will interact with everyone on the team. Then we go a step further and check out how he interacts with every character on the enemy team. It's quite some work but that actually is one of the most fun parts.

**»Not being able to respawn puts a completely different focus on the concept of gathering intel.«**

**Does Rainbow Six Siege being played in eSports make the creation of new operators harder than in the beginning? I would imagine – especially after more than a year – that implementing a new character with a fresh set of unique abilities into sort of a closed and more or less balanced environment can be quite a tricky task.**

Bringing in a new operator into the game and being sure that it's perfectly balanced is simply not possible. We know that and we also know that we are not good enough to do it. What you can and must do, however, is to prepare for what will happen when bringing in a new hero. You know this new operator will not be perfectly balanced, you know



you are going to miss some things and you need to keep all the things in mind that can happen as well as what you will have to do to make a new operator stronger or weaker.

We have our ways of preparing for these situations. For instance we have players that come into our studio to excessively play new operators before we release them at all, so we can do the first tweaks. What we always make sure, however, is that we have a lot of parameters to play with, especially parameters that help and allow us to tweak the config on the server side and change data without having to do a title update. If there is a really big balancing emergency and we need to fix something super badly because something is completely broken we can hotfix those issues really fast. But most of the time it's nothing too serious and we can wait a couple of weeks until the next real patch. Anyways we need a lot of data to be sure that our players had the time to actually understand how a new operator is meant to be played and how to prepare against it. And when we have enough of this data we can reasonably start to balance these issues.

**So, now that Rainbow Six Siege is a valid eSports title, do you also bring in eSports-players for testing new content?**

Inviting pro players for every balancing issue would be way too complicated. We normally test in two big waves: in the early beginning of the production of a new operator and a little bit later, during the polish, shortly before we are about to release the character. Most of the time we just do and watch what happens.

**When you work out a concept for a new operator, do say “Hey, I’ve got an idea for a really cool piece of equipment, we absolutely need that in the game, no matter what!” and then you start building a new character around it? Maybe for filling certain gaps within in the story? Or do you see the bigger picture - like specific team-ability-combos - before you start working on new characters, in terms of “hero A will work absolutely brilliant with operator B and C and will most certainly wipe the floor with character D”?**

We do both, actually. We don't have a general rule on how we have to approach the design and concepts of a new character or where a new idea has to come from. So for instance, if

Breaking and entering: Not being able to respawn makes the process of gathering intel and choosing your characters a crucial component of every match.

Every hero can choose from a certain selection of weapons and gadgets. Unique abilities, however, are fixed as they determine every character's individual role within the game.





A mission's success highly depends on the team compositions. Still, not every team combo works equally effective on every map within in the game.

an artist comes to us with a super awesome idea for a new piece of equipment, maybe because he found something on the internet or just because he had some sort of epiphany, and manages to convince us that it could fit in and work, then we'll go for it and give it a shot for sure.

Other times we have very high-level game design meetings during which we discuss how a new operator comes to life. Let me give you an example: Operator Hibana came in with season 4 and clearly from a high-level game design intention because we had what we considered a big problem in our meta-game. Operator Thermite was pretty much required for every attacking team because of the importance of his breach charges and that's something that we do not want to have in our game – requirements like these kill the overall variety. If you have to pick something then it's not a choice anymore and therefore not interesting! So we really wanted to have an adequate alternative to Thermite and that's how Hibana and her grenade launcher came to life.

**You said in the beginning that the idea for the operator system came in after the concepts for destructible stages. Need a wall blown up? Give people an operator who can do that. Want a character to prevent just that? Take Mute and his signal jammer! But how much do operators and their unique abilities actually influence the design of the stages or is it the other way around: We have this map and these**

**peculiar spots and it would be great to have an operator to enter through there, blow up this wall, rappel down here or mine this corner. And: Are there any maps on which some of the operators are completely useless?**

The teams designing operators and maps are working very closely together. What we do not do, is create operators that are specialized for certain maps. It might happen coincidentally but never on purpose. It does happen, however, that on some maps individual operators are way stronger than others and

we're fine with that, at least to a certain degree. We think that it is absolutely ok if some maps favor a dedicated bunch of heroes respectively a special selection of unique equipment. So yes, there are maps, especially in combination with specific game modes, that require you to choose a Thermite or whoever. Should we, however, observe that some

operators are way too weak on the majority of maps in the game, we give them a push because otherwise it can become a real issue. We always want the other operators to be a valid option.

For instance we recently buffed Glaz with one of the last patches. Glaz was really, really strong on the map Plane but thing was, that Plane was pretty much the only map that he was good for – and for us that is not a good situation at all. We want our operators to be good on lots of our maps – sometimes weaker, ok, but still and always a solid option.

Interview: Nico Balletta

**»We think that it's absolutely fine if some maps favor a dedicated bunch of heroes.«**



# YANN SYLVESTRE

## ON MAP DESIGN IN R6S



**Yann Sylvestre**  
is Level Design Director at  
Ubisoft Montreal for Rainbow

Yann is in the games industry since 1997. Throughout his career he worked on several Ubisoft projects as a Tester, Game Designer, Technical Director, Level Designer. He's been working on the Rainbow Six Brand since Ubisoft bought Red Storm Entertainment. Today, Yann is Level Design Director for Rainbow Six Siege at Ubisoft Montreal.

**Where do you get your main inspiration from when you start working on the concept for a new map?**

We get our inspiration from a lot of different sources on locations and buildings but some ideas you get by simply taking a walk and looking around.

**It reminds me of a picture of Florence's famous cathedral. Some Assassin's Creed fan drew sort of a route Ezio would climb, with the caption "What people see. What I see!"**

Yeah, just like that. You walk around and see some cool buildings and then you automatically start thinking about how you could turn this location into a map. Where would attackers have to breach, where would defenders likely have to reinforce walls and so on? That's one of the best parts about the design process.

**One of the biggest differences between Rainbow Six Siege and tactical shooters like CoD or CS:GO are the operators and their unique equipment. How big is their actual influence on map design? Do you have to take all of these different abilities into account when you start working on a new stage?**

The influence of our operators and their equipment on the map design isn't even that big. We actually don't put that much thought into it when we start working on a new stage. First there is the general idea of what we want to build. This basic concept has many different layers that we micro down step by step. We start really big before we go into detail and so far it always worked out. We also never had to trash a map because certain operators would have been completely useless on them.

**With Rainbow Six Siege becoming a valid eSports-game did your approach in terms of map design change? Are there certain rules of eSport-map-design, you have to consider?**

Yes, it did. We are now starting to work closely with some pro players and teams to get their feedback on the new maps or on some possible legacy maps improvements/tweaks. It is important and we want them involved with

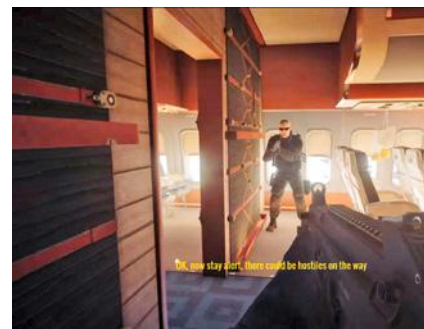
us. When we started we had no idea if the game was going to work as an eSports title. We built the first batch of maps to the best of our knowledge at the time. Now, we know more about the size, amount of destruction, numbers of accesses, etc, required. I see our maps in two categories; the very competitive ones and the casual ones. We are always trying to make all the maps as balanced as possible but for a few we try to give it a different flavor for variety. Those will not always fit the mold of the pro community, they are meant for the casual players. Examples: For plane, the layout concept of the map is a very long narrow box. For Favela, however, the destruction is put on the shell of the building instead of the interior.

**Are there any maps you would love to design but you can't for whatever reason?**

The map of my dreams is an oil rig you have to raid during a hurricane. That would be awesome – but I guess that will never happen. You see, on the one hand there's the performance issue but the far more obvious hurdle is the oil rig itself. An oil rig consists of 99 percent metal. Metal, however, is an indestructible material in Rainbow Six Siege (laughs). You could argue it's the same with a boat but in that case you can exchange enough metal with wooden parts so it becomes playable. We'll see!

Interview: Nico Balletra

A real classic: maps like Plane are a ton of fun to play but rather seen in casual matches than in eSport tournaments.





# »WE WANTED TO DELIVER THE BEST MULTIPLAYER GAME POSSIBLE«

Alexandre Remy, Brand Director of Rainbow Six, explains why you can't force eSports onto a game and how the ESL's expertise and the feedback by the pro gamers significantly improved Rainbow Six Siege.





The event Six Invitational which took place in Montréal in early February was basically a celebration for the first anniversary of Rainbow Six Siege. The visitors were able to meet the developers, there was a big eSports tournament, and everything was broadcast live via Twitch. Depending on the success of the game in its second year, there might be a similar event again in 2018.



**You already contacted the ESL during development. Did you plan from the beginning to develop «Rainbow Six Siege» for eSports, or did this focus emerge in the course of the development?**

It was basically a series of events and incidents which eventually led to it. We knew from the very beginning that we wanted to develop a multiplayer game with a focus on PvP, which would naturally be played competitively. For this reason, we wanted to expand on the competitive character, which quickly brought us to eSports. Generally, this has a lot of benefits for us developers because as soon as professional gamers get hold of your product, they exert a lot of influence on it, so that we push the envelope as far as design but also technology is concerned. Basically, these guys put every aspect of the game you can think of to a kind of stress test, which again helps to constantly improve and expand the game. And in the end, all users benefit from it, not only the eAthletes.

That means we knew from the very beginning that if we manage to build a community of professional players, the game would significantly benefit from

that. Hence, we made all sorts of decisions with the notion in mind to develop an eSports-compatible game. But as with so many things in life – you do your very best, but in the end somebody else makes the decision. In our case, it was the players who needed to fall for Rainbow Six: Siege, so that the game would have a chance at all to establish itself in the eSports sector.

**What role did the ESL have in the end? What were these partners able to support you with?**

The partners from the ESL helped us in several aspects. Early on in the development, at the end of the conception phase, for example, they gave us feedback on which options we still had to change to be able to build a competitive community at all or on how it could be expanded. We were a little lucky as well though since, for various reasons, we had already planned some key aspects, like a spectator mode, which not only targeted eSports.

I think we had a lot of the required ingredients already on our list from the very beginning, and the guys from the ESL helped us fine-tune them. Also, together we started evaluating quite early in what frequency



**Alexandre Remy**  
Brand Director for Rainbow Six  
at Ubisoft Montréal

Alexandre Remy has been working for Ubisoft since 2004. He started his career in the group as Strategic Marketing Senior Analyst and then switched to the team at the time of Splinter Cell: Conviction where he took on the role of Senior International Product Manager. Before becoming Brand Director for Rainbow Six at Ubisoft Montréal, Alexandre led various teams in Paris, Montpellier and San Francisco and also helped strengthen brands like Far Cry, but also the indie game Child of Light. Today, he coordinates the collaboration of the brand marketing teams in the various territories with regard to Rainbow Six, and he is also in charge of the eSports program of Siege.



The ESL has a lot of experience in eSports and is regarded as one of the biggest organizers of such events. Ubisoft Montréal got in touch with them early to collaborate with their experts (photo credit: ESL).



we could or should plan events to build our eSports program in the best and most promising way possible.

**From your experience with the ESL, to what extent did it help that you are working on a brand like Rainbow Six and that you are Ubisoft? Or do you think it's not that important to the ESL whether it's a big company like you are or a smaller team?**

Having a strong brand and being a company like Ubisoft always helps when you publish a game, especially when it's a series like Rainbow Six, which has an 18-year history and a lot of popular titles on PC, plus – with the two «Vegas» parts – successful competitive games, too. When you have all these big names to show off, it opens many doors, which is, of course, really positive.

At the same time, this kind of background also entails a lot of loud and controversial discussions during development when it comes to making decisions or design adaptations. And yet it obviously helps a lot to have a certain degree of popularity to start with.

**When looking at the traditional eSports shooters like «Counter-Strike», those are all games which weren't primarily developed for eSports. Instead, a community has been built over the years, which at some point**

**started competing against each other in competitions and turning into professionals. How did you proceed to build such a community relatively quickly?**

**»It obviously helps a lot to have a certain degree of popularity to start with.«**

First I need to set something straight: It wasn't our goal to develop an eSports game per se, rather we wanted to make a game for people to compete against each other. But, obviously, we wanted it to be compatible with eSports as much as

possible. This differentiating is important. Because in the scenario that we're in the goal is to deliver the best game possible, which ideally is compatible with eSports. If we manage to achieve that, there's a chance for it to be accepted by the community.

On the other hand, when you say from the beginning that you want to produce a game that's 100% targeting eSports, the priorities are different. In that case, the focus is not, e.g., on as much content as possible, but rather on content that's perfectly targeted on eSports. From my point of view, that's a different approach there.

As I said, our focus was rather to deliver the best game possible, which can assert itself in multiplayer and PvP. Of course, this entails that it has to be suitable for competitions as well. Getting the other aspects that are important for eSports on the way, fell organically into place with this approach.



**With the Six Invitational, you organized the first major event around Rainbow Six Siege. Is your goal here to sort of service the fans, or is it a long-term goal to host events like the ones, e.g., for »Dota 2«?**

Primarily, it was meant to be a birthday party since Rainbow Six Siege has been on the market for a year now and has also been really successful since its release. For that reason, we wanted to celebrate with the developers, the players, our partners and the pro gamers since all these people played a part in the success which we can look back on.

Besides, we also wanted to use this opportunity to talk openly and transparently about what we have planned for the coming twelve months. We simply believe that it makes sense to disclose to people what they can expect in the near future. A game that's meant to be for the long-term probably wouldn't work any other way. It just helps to win people's trust, and the players can make better plans on how to be involved. Those are basically the two main goals we pursue with the Six Invitational.

Obviously, the longer Rainbow Six will last, the more such anniversary events we can host. In the end, it also depends on whether everything goes well and the community's feedback isn't that they don't like the format – which I don't think will happen. Hence, I very much assume that we are going to host another Invitational next year, then again the year after, and so on.

**When you look back on the first year of Rainbow Six, were there any decisions or other things that you regret or would do differently today, maybe because they didn't work out as planned?**

I can't really think of anything that I really regret, although I think the answer would be different if the game was less successful. In that case, we would have learned completely different lessons from it. Of course,

we also learned a few lessons from certain things, e.g., how to build the right team with the right attitude to develop a game that's designed to last for the long-term. We definitely learned a lot in this respect.

Of course, we also made a few mistakes. But in the end, you have to make them in order to learn from them. For that reason, it's hard to say that we shouldn't have done this or that since this would mean that maybe we then also wouldn't have

**»We did not have the goal to develop an eSports game per se.«**

done other things that were important.

A concrete example for Rainbow Six would be our anti-cheat system which we developed in July/August. That was something that took a long time and was a lot of work to implement, but at the same time it significantly changed the game and its perception in the community once it was finally up and running. We learned a lot from that, e.g., how to integrate complex systems into a running game, how much work this involves, and how to find the right people on the team to do it.

Interview: Sebastian Weber

A game that's accepted by eAthletes as a discipline, benefits significantly from that. The pro gamers have extremely high demands on the game and completely take it apart. In the end, the »normal« players, too, benefit from the improvements resulting from this.



Producing a competitive and eSports-compatible title requires a different approach than making a 100% eSports game from the beginning. For Rainbow Six Siege, Ubisoft chose the first path and was rewarded with success.

# »THE ESPORTS NOTION HAD AN INFLUENCE ON THE GAME FROM THE VERY BEGINNING«

In our interview, Xavier Marquis, Creative Director of Rainbow Six, explains why a multiplayer-savvy development team is decisive for an eSports game and why there's hardly a difference between console and PC gamers.



**Xavier Marquis**  
Creative Director of Rainbow Six  
Siege at Ubisoft

Xavier has been in the video games industry for eleven years, starting his first job at Ubisoft in 2007. He has dedicated a major part of his career to the shooter genre and first worked as Concept Artist and later as Artistic Director. Since Xavier has been a big fan of the Rainbow Six series since 1998, he didn't hesitate to sign the contract in 2013 when he had the chance to work on the latest part as Creative Director, and since then he's been one of the creative minds behind the gameplay concepts.

**D**uring the development of »Rainbow Six Siege«, did you make any decisions regarding the game design, which were related to your focus on eSports? In other words, did you take a different approach for the game than you would have done for a regular multiplayer title?

Absolutely. Rainbow Six Siege was influenced by the eSports notion from day one. When we started out with the project, we already knew that the focus would be on multiplayer. We knew that this focus wouldn't exactly make life easier for us, but that's what we agreed on. I'm not a professional eSports gamer myself, but I've always preferred games which were compatible with eSports. We knew though that it wasn't going to be easy, especially compared to a more casual game. For a game that may be played as eSports the players' demands regarding content, tactical depth, replayability, controls, etc. are considerably higher. Plus, even if these demands are met, one can't still be sure that the game will be accepted as an eSports title by the community. Back then I said, e.g., that Rainbow Six: Siege needed to run constantly at 60 frames per second

– something that wasn't negotiable for me. Also, every game mode had to be designed as balanced as possible. That's why all game modes, all weapons, operators and options in the game are always designed to keep it compatible for eSports. This prerequisite was always our core motto.

When the development picked up speed, it was also important for us to only bring people on the team who'd have the right attitude towards multiplayer and eSports. It wasn't about only hiring people who played nothing but multiplayer games themselves. It was more important that these people liked multiplayer games at all. For me, e.g., this was my first project as Creative Director, but I had been playing nothing but multiplayer games for years.

**How complex is above all the balancing when you work on an eSports game? Especially since you regularly release DLCs with new maps and operators, you probably need to be careful not to dilute the existing content?**

We're sort of taking the unbeaten path by giving up a perfect balance for a »perfect imbalance«. That's how MOBAs work since MOBAs are never perfectly balanced. With



every decision a player makes in an MOBA, he's aware of the permanent chance to lose the match. We wanted to go a similar path and thus decided against perfect balancing. Due to the decision to go for »perfect imbalance«, the players need to constantly find the right configuration and tactics to react to situations and thus succeed in a match.

That doesn't mean though that we can introduce a new operator who completely ruins the system, is much too strong and against whom there's basically no counter-measure – even if our operator »Blackbeard« is admittedly close to it in some game situations. In some aspects he's really quite powerful, almost too powerful. But we run a lot of tests in advance and let professional gamers try the content before we publish it, and so we try to improve the operators step by step. In other words, we do a lot of fine-tuning, boost attributes or lower other values until we think they're right, based on the feedback of these players.

Besides, we have a few developer colleagues who are or were sort of semi-professional players and are thus also able to assess whether the balancing modifications work or not.

**Other major eSports shooters like »Counter-Strike« or »Call of Duty« don't feature destructible environments in their levels like Rainbow Six does. Did you receive feedback from the players as to how this affects the game?**

They like the creativity that this allows. According to them, in both Counter-Strike and Call of Duty the game very much depends on the skills and reflexes of the player. What I wanted was for the players to not only need good reflexes, but even more to use their brain. The destructibility of our levels is a kind of sandbox, and all those operators running around in a match are the tools to work with in the sandbox. We thought this was the best way to get the players to use their minds in the matches. If you play »StarCraft«, for example, you build something. The same goes for MOBAs where you build your character step by step. There's always the pressure in the background for the player to build the right thing. The thrill is therefore resulting from what the player wants to achieve, so it's not just down to reflexes. And this is exactly the kind of tension that I wanted to trigger in the players: They should realize that the game doesn't just





Xavier has always been a fan of multiplayer games himself and participated in online tournaments, like in the days of WarCraft 3.

depend on their playing skills, but even more so on their mental performance.

**Based on your experience with Rainbow Six Siege, do you have any advice for other developers on how to make a good eSports game?**

The most important thing is to be a gamer yourself. I can't imagine developing a game which you don't have the slightest understanding of. I'm convinced that this couldn't work. A decision like the compatibility for eSports can't just be set as a target – it has to be a matter that's dear to the entire team.

I, for example, have always taken part in competitions, etc., like in the days of »WarCraft 3«. Of course, I was never as successful as today's eAthletes. But even that bit of experience in the world of tournaments helped me realize what meaning it has for the players. It's these insights that you need in this microcosm, otherwise you don't develop a bond to it and to your goal with the project.

What's just as important is that you prioritize all decisions within the development. There's simply no way to fix all problems that a game may possibly have. That's why all of the game content needs to be defined in a precise list which you can work through step by step. If you take our case as an example, one of the prerequisites was, as I mentioned, that the game needed to run at 60 frames per second. If you don't define these things right from the start and factor them into your engine right away, you will never be able to do them in the end. You'd then have to start pretty much from scratch.

But since all this isn't easy to bear in mind, it helps to maintain a detailed list and – patiently – work it through step by step. Because the players, too, will be patient when they realize that the developer is going to implement the right things.

Compared to other eSports games, Rainbow Six Siege features destructible levels. The players like them especially because of the creativity the levels allow.

**Rainbow Six Siege was released about a year ago. When looking back at that time, are there any decisions you made that you would do differently today?**

In hindsight, I think we should have released the game without the ranked mode from the get-go. Instead, we should have delivered it after release, some time in the middle of the year, so we could have spent a bit more time on it instead of improving it during the actual game development. But that's just a tiny detail, and that's about it really.

**Traditionally, eSports has always been a big thing primarily on PC. Judging from your experience, to what extent do professional console players differ from PC players? And even more importantly, how does a game need to be designed in order to serve both target groups?**





First of all, the different controls on console and PC result in a difference in gaming behavior, too. That's something that can't be avoided. Basically, this can be compared to two different kinds of cars that are just handled differently. But at the beginning of the development I made a bet since I believe that there's no difference between console and PC players when it comes to what they expect from an eSports game, what their consumer behavior looks like, etc. From a historic point of view, the PC is slightly ahead in terms of eSports, but the consoles are well on their way to catch up. To be honest, when we made the commitment at the beginning of development to make an eSports game, also serving the console market, a lot of people thought we were crazy since they thought there'd be no market for it. But I'm convinced that things are very much changing right now. Of course, the PC controls are somewhat more direct, making the gameplay faster and more captivating for the audience, but there's no

**»I wanted the players to not only need good reflexes, but even more importantly to use their brain.«**

big difference in what the players want. People want to compete against each other and share their gaming moments – after all, it's what the »share« function on consoles is for. That's why I think it's the right decision to not only develop eSports games for PC, but for consoles as well and to take up traction now, even if the PC community is still bigger and stronger. It's only a matter of time for this to change.

**How hard was it in the end to optimize and adapt the game for eSports?**

Apart from the controls, etc., the first challenge from a technical point of view was obviously to make the game run at 60 frames per second, despite the destructible levels, etc. Our technicians laughed at me at first, telling me it would be impossible... but I wanted them to give it a try. And in the end it worked out, but as I already said, it was our highest priority after all.

Interview: Sebastian Weber



Operation Velvet Shell is the latest DLC for Rainbow Six Siege, which Ubisoft released in February. These DLCs add new operators and maps to the game, which are constantly being improved based on feedback provided by professional players, until they finally make it into the game.





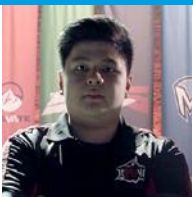
# »A GOOD ESPORTS GAME MUST BE ENTERTAINING FOR THE AUDIENCE«

What makes a game a good eSports title? Two pro gamers are providing insight into what's important for their audience and how a game can captivate it.



**Adrian Wui**  
is a member of the »Rainbow Six Siege« team Envy.

Adrian is playing in team Envy under the name »nV.Ysaera«. Before Adrian joined Rainbow Six Siege with his team mates, he was a successful Dota 2 player in South East Asia.



**Glen Suryasaputra**  
is a member of the »Rainbow Six Siege« team Envy.

Glen is the team leader of team Envy, playing under the name »nV.Lunarmetal«. Apart from pursuing his still young eSports career, Glen studies Economics at Singapore's Management University.

**W**hat drove your decision to play »Rainbow Six Siege« professionally, and what's your background? Have you played other titles as eSports before?

**Adrian Wui:** I used to spend what felt like 10,000 hours with »Dota 2«, having played in the semi-professional league. I was already quite popular in South Asia back then. But then I had to do my military service, which was at the time I first heard of Rainbow Six Siege on Facebook. I immediately contacted my Envy team mates, and we started playing Rainbow Six just for fun. Since we all studied or had jobs, we never thought we'd make it this far as a team at all.

**So, it just happened by accident that you play the game seriously as eSports these days?**

**Adrian Wui:** Yes, pretty much.

**Glen Suryasaputra:** To be honest, there was actually a time when we wanted to quit

playing Rainbow Six. But just then, the ESL organized the first tournament in South Asia, and so we thought why not take part for fun. Then we won the tournament, and from that moment on, we just kept playing, and now we're here at Six Invitational.

**From your experience as professional players: What does it take for a game to be suitable for eSports?**

**Adrian Wui:** As I said, I played Dota 2 before, and people there literally freak out at events – so for me, a good eSports game must be entertaining for the audience. Fans should be able to share in the excitement. What should definitely be avoided is a match where basically nothing exciting happens.

**Glen Suryasaputra:** Exactly. It's absolutely important that the game is suitable to be played in front of an audience. Also, if we take Rainbow Six Siege, for example, a lot more would have to be done with regard to the interface to make the lobbies more user-friendly. A



replay system would be awesome from the players' point of view. But it's got to be said that the game is constantly being updated with new content, and Ubisoft is still doing a lot of polishing. If the developer keeps this up, I think the game is well on the way to quickly become an eSports hit.

**Is cheating a big problem in Rainbow Six, or do you think there's a problem with cheating in eSports in general?**

**Glen Suryasaputra:** Since the release of the anti-cheat system BattlEye I haven't spotted a single hacker or so in Rainbow Six any more, neither in casual games nor in ranked mode. Before that, it was definitely a big problem, but it shows that it can be fixed if people are determined to. But it's not that big an issue in other games either. In Dota 2, there's basically no cheating at all, and in »Overwatch« there's only very little.

**Glen, you mentioned before that the interface of Rainbow Six could be improved, or that a replay function would be useful. From your point of view, are there any other features or functions, be it technical or with regard to gameplay, which would have to be improved for eSports?**

**Glen Suryasaputra:** The replay function would really be the most important improvement for us players since it would allow us to better analyze our matches. At the moment, we have to record everybody's gameplay in order to evaluate it later.

**Adrian Wui:** Another important change would be that it should be as easy as possible for players to create a lobby with a certain game mode etc. to play there. Because if somebody has ambitions to become

a professional gamer, the first obstacle is actually the lobby system.

**Glen Suryasaputra:** And there should be more than one spectator slot in the games.

**How do you players regard the future of eSports and the role of Rainbow Six in it?**

**Glen Suryasaputra:** eSports as an industry is already big and is becoming even bigger very quickly, it's more and more turning into a multi-million-dollar industry. Hence, I think this is the perfect time to become involved as a professional gamer.

**»I'm pretty sure that you can actively play eSports until about 40.«**

**When looking at traditional sports, most professionals quit around 30 to 40 years of age. What do you think things could**

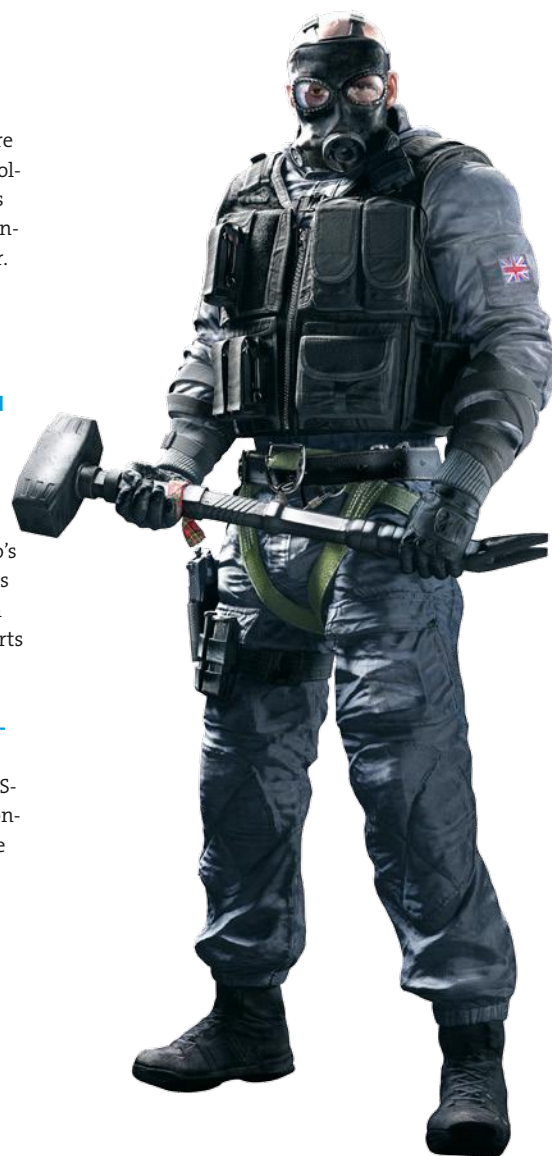
**look like in eSports in the future? Can you imagine still taking part in tournaments when you're 60?**

**Adrian Wui:** Well, maybe not at 60. No. As far as I know there's no eSports gamer who's older than about 40. But I have seen players above 40 who were still really good. So, I'm pretty sure that you can actively play eSports until about 40 ... at least.

**And then people become coaches or managers just like in traditional sports?**

**Glen Suryasaputra:** Yes, exactly. Basically, eSports is getting closer and closer to traditional sports because the physical performance you need to demonstrate in traditional sports is equal to the mental performance we show in eSports. At least that's my personal view on that.

Adrian's and Glen's team accidentally came across Rainbow Six Siege and started playing together just for fun. At that point, nobody had thought that they would become so successful one day.



Interview: Sebastian Weber



## EVENT-REPORT:

# SIX INVITATIONAL

In February, Ubisoft hosted the eSports and community event Six Invitational in Montréal. We went all the way to Canada to experience the enthusiastic fans of the multiplayer hit Rainbow Six Siege.

It's Friday, February 3 – the day Ubisoft's first major eSports and community event for »Rainbow Six Siege« kicks off. The three-day »Six Invitational« is supposed to be a mix of birthday party, fan festival and intense eSports tournament where the best teams on PC and Xbox compete for 100,000 Canadian dollars in prize money each. On the first day, we were live at the event location Usine C in Montréal where a huge stage was set up in a big event hall for the pros to battle each other in virtual arenas.

The hall accommodates approx 450 spectators, and even though Ubisoft didn't officially announce how many tickets were sold in advance, an astonishing number of fans made their way to wintry Montréal to support their favorite team in the tournament or to listen to profound discussions held by the developers in between battles. Ubisoft had professional eSports support by the ESL who was in charge of the tournament, the broadcasting and the match commentaries, spurring on the fans and thus keeping the mood and atmosphere in the hall on a constantly high level.

Three ticket categories were available in pre-sale: The least expensive ticket for 30 Canadian dollars included a one-day entry, 600 credits of in-game currency and access to the demo stations of the new Velvet Shell DLC. For 75 Canadian dollars, fans were able to visit the event on all three days, and on top received a talisman which was added to their player account as a cosmetic item. All those who were willing to pay the double amount of 150 Canadian dollars for the VIP pass, were able to enjoy a 30-minute tour before event kick-off, a 30-minute meeting with developers and special guests, quick access to the demo stations and an exclusive Six Invitational hoodie.

American players ruled the tournament, with team »Continuum« (four US and one Canadian player) taking first place on PC, while »Team Elevate« (US players only) dominated the competition on Xbox One.

### Regular content updates as the key to success

The day before, the media representatives already had the chance to play a few

ZEITPLAN		
TIME	TEAM 1	TEAM 2
10:00	Continuum (PC)	Team Elevate (Xbox One)
11:00	Team Elevate (Xbox One)	Continuum (PC)
12:00	Team Elevate (Xbox One)	Continuum (PC)
13:00	Continuum (PC)	Team Elevate (Xbox One)
14:00	Team Elevate (Xbox One)	Continuum (PC)
15:00	Continuum (PC)	Team Elevate (Xbox One)
16:00	Team Elevate (Xbox One)	Continuum (PC)
17:00	Continuum (PC)	Team Elevate (Xbox One)
18:00	Team Elevate (Xbox One)	Continuum (PC)
19:00	Continuum (PC)	Team Elevate (Xbox One)
20:00	Team Elevate (Xbox One)	Continuum (PC)

The Six Invitational in Montréal was a three-day event where, in addition to the two eSports tournaments on PC and Xbox One, interesting discussion panels with the developers were held as well.



matches of Rainbow Six Siege themselves since the developers invited them to the offices at Ubisoft Montréal where they showed off the new Velvet Shell DLC which was released a few days after the Six Invitational.

Instead of playing the new DLC though, we found it more interesting to see that Ubisoft adheres to their successful »Seasons« model. Just like in the year after the original release, the second year will be divided into four seasons. Each season, the team expands the game by a new level as well as two new characters, but also new weapons and other items to keep the community happy and the game alive.

Of course, this also adds to the excitement of the matches since ever new game characters and maps force the teams to adapt to new situations and constantly work on their tactics. Hence, shortly after the Six Invitational, the ESL also started to prepare for Season 1 of 2017, when the teams can once again qualify for the competitions.

This constant supply of fresh content is likely also one of the keys to the success of the game, especially in eSports. The developers confessed in an interview that they included eSports in their brainstorming early during development, but they also

pointed out that this aspect can't be considered for every game at all costs. Instead, it takes the right content, a correspondingly big community and a fitting partner like the ESL to achieve a breakthrough. And now it's the professional gamers who help calibrate the new content in a better way than the developer team could do on their own, which then benefits the regular players and thus the longevity of Rainbow Six Siege. So, one could say that all in all it's really a »win-win-win« situation.

**Sebastian Weber**



Overview of the tournament in progress on PC and Xbox One. The final winners were Continuum (PC) and Team Elevate (Xbox One).



# „YOUTUBABILITY“

## BEST PRACTICES FOR INFLUENCER MARKETING IN 2017

Let's Plays and Twitch streams have evolved into a serious means of promoting games. Camille Martinache of nevaly shares some light on how to properly profit from today's influencer marketing.



**Camille Martinache** is Product and Partner Manager at marketing agency nevaly.

Camille Martinache is one of the founding members and current Product and Partner Manager of the influencer marketing agency nevaly. During his studies in Business Innovation at the University of St. Gallen, Camille already followed his entrepreneurial drive and co-founded an online distribution company. After a brief but elevating experience in a social co-working space, he decided to combine his passion for gaming and an entrepreneurship by joining the founding team of nevaly. Kontakt: [linkedin.cim/in/camille-martinache](https://www.linkedin.com/in/camille-martinache)

If you want your game to stand out in a digital landscape full of marketing messages on the one side and ad blockers on the other, cooperating with YouTubers and Twitch streamers should be a key part of every marketing strategy. However, rules, if there are any, for this new and young phenomenon change quickly, as the market starts to develop.

Camille Martinache, Partner Manager at the influencer marketing agency nevaly, gives an overview on the latest guidelines you should consider when planning to work with influencers.

### Handle with care

Influencer marketing is so much more than just another marketing channel. If done right, it can move mountains – if you do it wrong, however, you may be left looking at more than just wasted marketing budget. When planning to work with influencers to promote your game, it is essential to bear in mind both the content they can produce and the content the game can deliver for them.

All influencers have their own style and approach to the way things work on their individual channel, just as their communities have certain expectations towards what



From the heart of Berlin, nevaly is crafting multinational influencer marketing campaigns.

they want to see. Purely looking at follower numbers and whether the genre of a game would be a fit is simply not enough. More importantly, the game itself needs to fulfill certain requirements and be able to provide content that works for the influencer, resulting in an authentic presentation of the product.

Let us look at all these aspects more closely:

### **YouTubability**

The very first step in planning an influencer marketing campaign is to evaluate whether a game is »youtubable«, meaning whether it can provide entertaining content that influencers can use to create enticing videos. Linear single-player games, such as adventure games or single player campaigns of many shooters, for example, create a nice viewing experience for an influencer's community. However, classic Let's Play videos might not excite viewers to play the game after watching the videos, as their experience will be exactly the same. Promoting these kind of games requires a different approach than a regular Let's Play. The key is to tease and generate interest without showing too much. Potential alternatives to classic »Let's Play«-videos include creating real-life stories/situations around the product, or, if budgets and workload of the development teams allow it, integrating the influencer avatar into the game, allowing for long-term branding opportunities. Also, quick accessibility is an important thing to consider. Influencers usually create gaming experience videos the

same way a new consumer experiences a game: They dive straight into the game without much direction or self-set goals of accessing and displaying certain contents and features. If a game doesn't offer much of a tutorial explaining the fundamental gameplay mechanics, influencers will usually spend some time trying to learn a game's controls or camera. This can lead to (involuntarily) funny scenes.

### **Authenticity rules**

Marketers should strongly consider that fun and making fun of something are common elements of influencer videos. It is this human factor that makes influencer marketing one of the most effective ways of creating and nurturing brand awareness. What followers like about their YouTubers and Twitch streamers is that they are »authentic«: They play what they like, the way they like, and say what they like (and don't like). In order to allow maximum authenticity, marketers should give up the creative control over a campaign at some point and allow the influencers to do what they do best: create entertaining content. It's important to understand that you cannot simply use influencers as your marketing puppets and dictate what they should say, just because it makes sense from a marketing point of view.

Because of this, when researching influencers, marketers should already dive deep enough into an influencer's portfolio to get an idea of how a product can be presented, and to discuss alternatives. One option could be the production of tutorials or guides by

## YouTubability

### **What works well**

- Open world experiences
- Multiplayer experiences
- Community interaction and involvement
- New experiences
- Exclusive experiences & early access

### **What doesn't work so well**

- Linear games
- Overly static games
- Games that aren't intuitively accessible
- Pay to win-oriented MMO gaming experiences



Not a one-man show: nevaly is comprised of a team of experienced marketers and gaming-enthusiasts.

the influencers themselves. Not only will this drastically increase views, as even people outside of their communities may become aware of it while searching for the product, it also serves as long-lasting educational content for new and existing players of the game. Apart from the general game content, granting exclusivity or revealing something that's actually bringing a new experience also helps influencers in finding additional angles to create their videos in a way that draws their viewers' attention, and helps content to be shared beyond the usual communities.

### Choosing the right influencers to work with

Each influencer and their respective followership form a community of their own, one that shares certain mutual interests and works according to complex dynamics. This can mean that certain genres may not work with a given viewership, because they're expecting their YouTuber or streamer to showcase a different kind of game.

Especially when considering rather casual-oriented mobile games, often typical gaming influencers aren't the best choice. Lifestyle or other topic-related influencers, however, can find new and additional ways of presenting such games, reaching audiences that will find the displayed content interesting and attractive.

Choosing the right influencers to work with is by far the most time consuming, but probably also the most important task.

When considering an influencer's audience, size doesn't matter that much: For many projects (and budgets), a well-researched choice of medium sized and also smaller influencers works much better than focusing on one of the few influencer celebrities with millions of followers. Reach admiration aside, scattering losses are an issue, and well-targeted channels help in reducing unwisely spent marketing money. High subscriber and viewing numbers don't necessarily mean that all viewers are sharing the same interests, and thus are potential customers. Furthermore, highly popular influencers do also have a certain share of followers that rather follow a channel and watch videos to see their favourite celebrity, instead of intensively caring about the games shown.

In addition, spreading activities over multiple channels and talents offers the opportunity to try different approaches, and display a game in many different ways, focusing on different features etc. As a side effect, results created through multiple channels tend to create a good foundation for better analysis, as feedback originates from different sources, allowing for added conclusions.

### Content is king

A Let's Play is a Let's Play is a Let's Play – wrong! To stand out from the masses, finding innovative approaches and formats to cover and showcase the game is another mandatory task. The more unusually a game is being presented, the higher the attractiveness. Of course, at the end of the day, a game needs to work on its own, the in-game content needs to be right (»you-tunable«) to make videos work. Even better, anything creatively surrounding actual in-game footage helps form stories around a video, thus promoting it.

Many influencers like weaving real-life scenes into their videos that match the in-game content. Creating car content around a racing game will not only lead to spectacular pictures, but also very unique scenes, and ways for the influencers to both express

themselves, and act uniquely. Press or even dedicated influencer events can offer such opportunities, creating once-in-a-lifetime experiences both for the influencers as well as viewers.

Another option is to arrange multiple influencers to collaborate together on the same campaigns: Most influencers act alone in the majority of their videos, but sometimes have influencer friends online they're cooperating with. Communities enjoy seeing these co-produced videos, as

**»The more unusually a game is presented, the higher its attractiveness«**

they are featuring many of their stars as well as fun, friendly interaction. Ideally, influencers start mutually promoting each other, generating additional positive effects for the attention for a campaign.

### When the price is right

Naturally, exposing your game in a positive way to thousands or even millions of consumers comes at a price. The good news is: Influencer marketing doesn't need to be expensive! While you certainly can spend hundreds of thousands of Euros on the biggest channels out there, campaigns with just a fraction of that budget can be just as effective, provided the right channels have been selected to promote your game.

When it comes to paying the influencers, there are several business models that are currently in use. The most common way is to spend your money on a per-video basis. This is also the most preferred option for many influencers because it guarantees a fixed income they can calculate with. At the same time, it rewards them not only for the exposure they are offering, but also the work they are putting into the creation of the video. Other models start to include a performance-based remuneration and while you certainly can arrange payments on a CPM basis, many influencers – especially in the top markets – will quickly shy away from accepting payment based on the registrations or installs they deliver. While this business model is certainly the most predictable for the advertising company, it leaves the content creators with a lot of uncertainty over things they do not have full control over.

In the end, it all comes down to your own KPIs and expectations. Views, clicks, registrations, active players, and purchases are all metrics that can be measured and calculated (to a certain degree) and aligning your financial goals with the rates and performance of the influencers is the key to a successful campaign.

### When to plan Influencer Marketing

Considering that influencers mostly act as one-man-shows, and with increasing popularity receive many inquiries, longer-term planning is advisable: Contacting, planning, and booking take their time – from a few weeks to a few months all in all. This should include planning the actual content for the campaign already: Letting influencers choose what they're playing is mandatory, of course, but offering some advice helps them in finding special and interesting scenes in and of a

game that could bring value to the video content.

Allowing enough time for conceiving can also mean that content specials can be realized, e.g. filming real-life scenes at a special location.

When thinking about the right time to start a campaign, considering pre-launch influencer videos is a good way to move forward. These are great to prepare audiences for an upcoming release. However, you should consider that even if influencers treat unfinished development builds as carefully as possible, their audiences might not be able to tell whether a feature will still be improved until release, and what it might look and feel like at a later stage. That's something industry professionals tend to under-/over-estimate, and with influencers treating a game in their very own way, it's also something that works out completely different to everything the industry is used to from other PR and marketing activities.

### How to get in touch with influencers

Personal contacts are important, but of course, one can't possibly know and talk to all influencers out there. Contacting influencers directly through their business emails, or Twitter are always valid options (don't bother with the overcrowded YouTube Messaging system) – however, working through an agency can save time, plus add a lot of expertise: Agencies help with screening, planning, contacting, and negotiating. From their various clients and

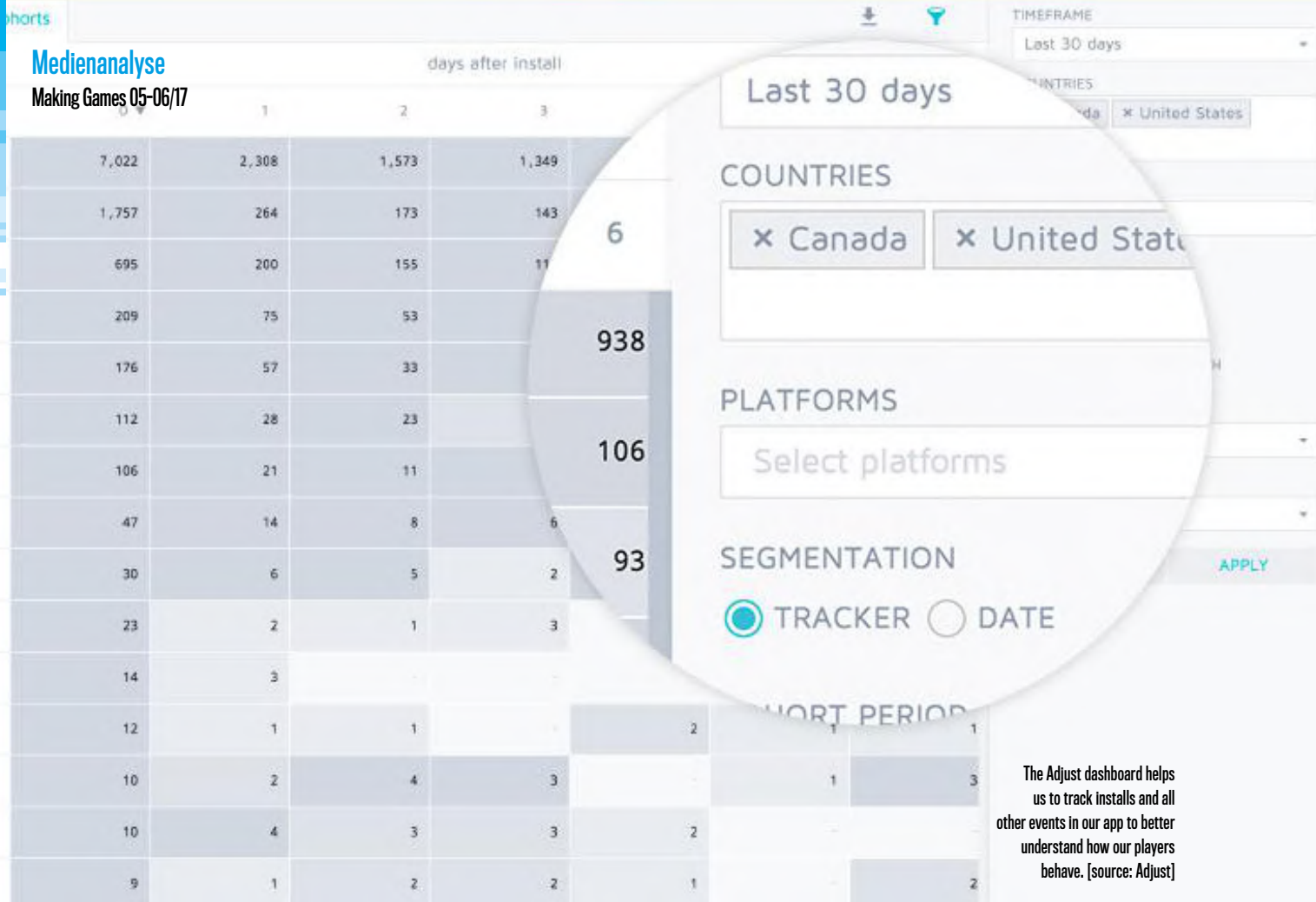
projects, they bring in the latest experience, plus constant contacts, and can also share the benefit of better pricing conditions. It's important though to make sure that the agency follows the same rules as you would do when booking yourself. They should analyze a game properly based on the aforementioned aspects, and work out a tailored, unique campaign concept for a project, which will help the game stand out from the masses.

Camille Martinache

»What followers like about their YouTubers and Twitch streamers is that they are authentic!«

## Additional Influencer Marketing rules

- Keep briefings brief: Send a few bullet points on what makes your game special – or a one-pager max. Focus on the most important USPs only.
- Don't forget to brief influencers about pricing and sales channels for your product.
- Prohibiting prohibited! Allow freedom and express trust. "No negative feedback allowed" and "don't show XYZ" are no-gos. Instead, be transparent about the development process of the game and which parts are still being worked on.
- Make sure to provide a contact whom the influencer can get in touch with if they have questions regarding your game or the campaign.
- Give your influencers something for their communities – keys for giveaways, exclusive items, ideas for how to implement their communities etc.
- Try to find a way to track the campaign performance. If you can't track sales, at least track clicks!
- Keep an eye out for the organic uplift or exposition of your game.
- Ask your influencers for feedback regarding your product, and take it to heart!



# PLAYER ACQUISITION ON FACEBOOK USING THE POWER OF DATA FOR GREAT RESULTS

Knowledge is power, data is knowledge - and Facebook is full of it. Data like gender, age, location and behaviors can help you enormously in planning and executing player acquisition campaigns for your game.



**Felix Janzen**  
is Director of Performance Marketing at InnoGames.

Felix has been in the gaming industry for eight years, and prior to that, worked in product marketing at Beiersdorf. He is credited with implementing mobile knowledge into InnoGames' marketing team, which is now the key driver for the company's growth.

**T**hink of the last time you set up a campaign. You probably used Facebook's user information (like gender, age, location, interests and behaviors), chose a bid and casted a creative ad as a blanket over all your chosen targets. Seems simple enough, right? While this seems like targeting at its best, it is not as efficient as it could be. At InnoGames we developed a process to ensure we get the most out of our money, through a combination of retargeting strategies that focus on making the best use of Facebook's in-depth data. Through these strategies, we generated higher click rates, close to three times higher player values and almost 50% higher conversion rates. How did we do it? It's all about unlocking the right information.

## Your data + Facebook's data = \$\$\$

InnoGames has worked with Facebook over the last several years to create extremely optimized user acquisition campaigns. We've taken the social network's data a step further by analyzing and observing patterns in our audiences to create the right appealing content for them. Notably, we look at log-rates, churn rates, lifetime value of players, and other important behaviors to a game's success. Next, we partner with Facebook to only target certain audiences displaying similar behavior patterns— in other words, only those who currently match our most valuable players. Through this process, we minimize the amount of money we spend bringing players into the game with high churn rates or low pay-rates, and in the end, have a great return on

investment (ROI). This concept works as a never-ending cycle. Our Facebook campaigns generate installs, our mobile tracking partner collects and sends the data to our Reporting Systems. We match our campaign information with the app data and then we use this knowledge to optimize our Facebook campaigns. This means, we gather specific data brought into the game via Facebook, then we optimize our Facebook campaigns based on this information. After that, we gather figures once more from those players to create the perfect audience profile for the largest ROI.

Most importantly for us, we have been able to discover loads of untapped potential in target audiences because of our close partnership with the social media platform. At the beginning of this year, we set out to acquire more female players, as we saw very positive behaviors from this gender. Unfortunately, while we had tons of data on our male players, we had very little based on women. With Facebook's demographic data, we were able to scale up our female targeting budget by 136% from Q1 to Q2. This was significant because we could guarantee that the information we were getting was actually from female players. This allowed us to create specific campaigns that catered to their interests and needs.

### Campaigning for Elvenar

Another great example of the benefits of discovering and using untapped resources is our cross-selling campaign for our newest game »Elvenar«. We analyzed the behaviors of existing players who had played our other titles, especially »Forge of Empires«. This information was used to cross-sell our fantasy city-builder. Even though this strategy can also be executed via email, low opening rates tend to restrict reach quite a bit. By using Facebook as a channel, we could reach lapsed players and drive them to our landing page with click-through-rates that were 10 times higher than what we saw from email campaigns. This helped us to reactivate an audience group we had previously been unable to reach to its full potential. Yet, this isn't the only way you can reuse existing data. Facebook offers various tools to make your campaign more successful.

We quickly found that custom audiences were a great way to combine our business intelligence with Facebook's targeting options. With this tool, we could link our audience's data to Facebook via their audience API. That way we could build statistical twins or lookalikes based on segments, like high-activity players or players that made purchases in one of our titles. For example,

**»While it's great to talk about how helpful data is, it is meaningless unless you know how to actually get it.«**



we used this tool during one of our Forge of Empire campaigns to better understand and reach a desirable audience. We used our already large female player base from Elvenar as a seed for female lookalike audiences. We then used that information to market Forge of Empires to this group as the game fits their interests. Through this approach, we managed to fine-tune our strategy towards finding the right female audience for a product that used to have a predominant male player base. By now their share in ad spends increased to up to 40 percent on a monthly base. While all these approaches are impressive, they wouldn't be possible without the correct data.

### How to get your hands on the data

While it's great to talk about how helpful data is, it is meaningless unless you know how to actually get it.

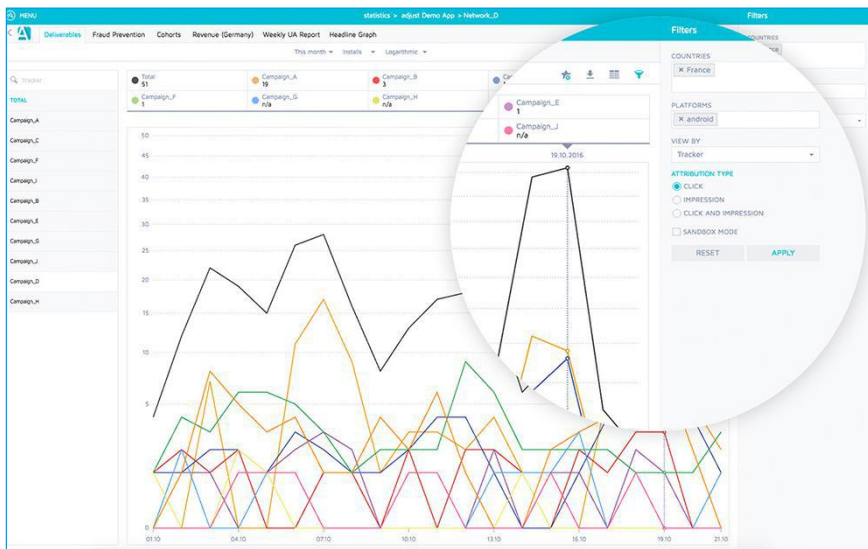
The first thing you'll need is a well-running tracking system which can handle multiple in-game events per day. The reason for this is that identifying events is important for calculating the value of a player. Once you have this number you will need to develop key KPIs relating to the player's value out of it. This will be the basis for your internal data set.

The second step is to get your hands on the very valuable data that Facebook offers. In

the gaming industry, it is quite common for companies to lack information on their players; they just install the game and that's it. While companies sometimes get some information from third-party suppliers, Facebook's data is more reliable. Demographics, interests and leisure activities are just some examples which will help you segment your customers even more.



InnoGames from Hamburg is specialized on browser and mobile-online games.



Via the Adjust dashboard you can check out multiple campaigns at once and e.g. filter by platform and country. [source: Adjust]

A smart campaign set-up is a key to being successful on Facebook. You can collect data based on your own segmentation and enrich the knowledge on your audience, day by day. This is where you can really see the importance of having a specialized Facebook team in-house. A dedicated team is crucial to handling all the campaigns and knowledge build up within your company. Think of your campaign strategy as an exclusive, high-class equipped sports car - you still need a great driver to win the race.

**Great targeting is nothing without great creatives**

Facebook is a content driven network, so creatives are the language of all users. You compete for attention against friends' holiday pictures, celebrity stories and the latest trending news. The best targeting is nothing without a great creative. In fact, placing a higher bid won't compensate for a

»Facebook is a content driven network, so creatives are the language of all users«

bad one. On the contrary, you will lose a lot of potential volume if your creative doesn't perform as well as the competition's. Relevance is also important, in fact, CTR (Click Through Rate) and CVR (Conversion Rate) are the main KPIs that influence the relevance of a creative. After all, if one of the main strengths of Facebook is its ability to make ads relevant to your audience, a bad creative is wasting the potential of an ad.

If you have used your knowledge and Facebook's information to identify multiple important segments, you should also think of different creative strategies for each of them— an obvious example is creating a different strategy for your male target group that varies from your female one.

How do you know which creative strategy is right for each segment? Good question! If someone says they know the definitive answer to this, they are either lying or a magician. I would even question if there is one overall perfect strategy for every specific target segment. The only way to find your "best case scenario" is by testing – a lot.

Without A/B testing, you can't survive on Facebook! Be creative, think outside the box, make use of trends, and always focus on the actual goals for your campaign. Creative types like video ads or carousel ads should always be part of your tests.

Another factor to consider when testing creatives is the output. Facebook rewards your campaigns for using new and quality creatives. Therefore, our graphics department creates

4 to 5 new images for us per week per game. This allows us to consistently try out different ideas, test them and collect data. It is also one of the main reasons behind our marketing success on Facebook.

At InnoGames, our in-house team established a close collaboration with the graphics department to work on focus topics like optimizing creatives for gender. Facebook's information helped this project by supplying affinity reports for our audiences based on page likes. That way, for example, we learned that our female Elvenar players had a high affinity towards topics like magic, which we could then use to inform our creative strategy. By doing that, we've opened

Elvenar is InnoGames latest release. The information on player behavior in titles like Forge of Empires helped putting up campaigns for this cross-selling fantasy city-builder.



another creative pipeline for experimental banner concepts and doubled the total number of banners produced. Testing them helps gather additional insights and these are considered for the upcoming production cycles. Besides that, all the creative output is also transferred to conversion optimization where we can run landing page tests based on a group's gender or even age.

The exciting part about testing is that every creative has the chance to be a game changer. For example, we launched a new creative concept for one of our mobile games in Q2 this year and saw a heavy increase in install volume the following weeks. Thus, enabling us to drive twice as much traffic than expected.

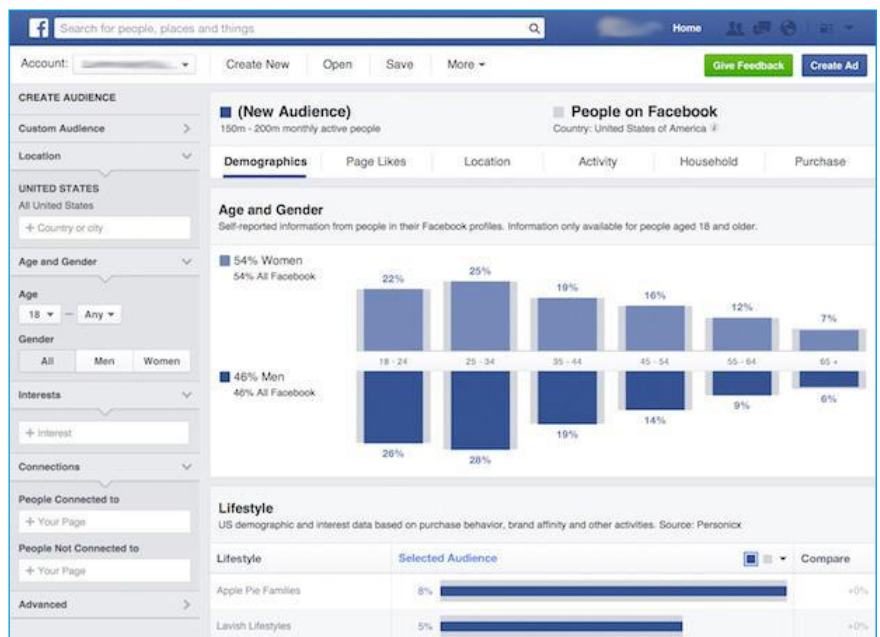
For us, testing even gave us interesting unexpected results. For example, we used the website Custom Audience retargeting solution to retarget players who had visited our landing page but not registered. Through our cyclical approach to retargeting, we were able to collect new information, target audiences, track the results and build better ways to bring people to the game.

Banner-wise what seemed like a logical strategy could not compete with a creative approach. While it seems obvious that giving players an incentive would increase registrations, humoristic creatives overperformed in the end. At first, we tried to retarget potential new players by offering them in-game currency. Our creatives read something like this, "are you having trouble with registration? Try it again and we'll give you 100 diamonds". In the end, Humor was the best approach for driving conversation rates. Ads that taunted players with headlines like, "Don't judge a book by its cover!" performed better than incentives. This goes to show that sometimes unexpected approaches are the best way towards success which only builds a case for testing and experimenting.

### The recipe for success

Since the early days, we've been a strategic partner with Facebook because of their massive reach potential and exceptional targeting capabilities. Forming a close relationship with Facebook has been a powerful tool to our success: Our partnership includes regular face-to-face meetings, in which we can discuss performance reports, regular benchmarks and our joint business plan. Other advantages from Facebook include exclusive reports, first-mover advantages and top-executive-level knowledge sharing. The integration of Facebook's reports and ours is crucial to our success, as we fill in each other's gaps.

At the beginning, it's especially important to have a clear plan and to split between poor performance and exploration budget. Usually, you should have a rough idea about



We use the Audience Insights tool by Facebook to identify our players favorite topics - you can also filter by location, age, gender and lifestyle. [source: Facebook/Fialkov Digital]

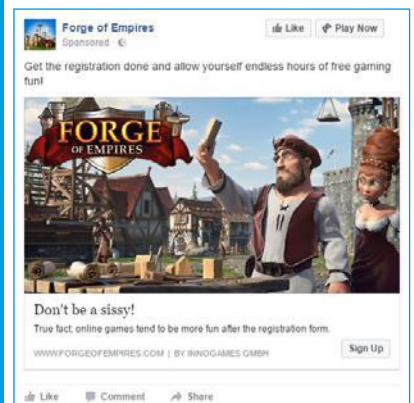
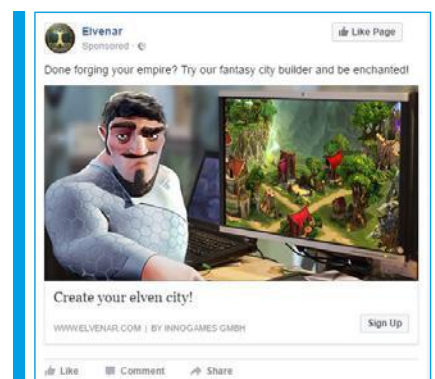
your target group and in an ideal case, you would already have past experiences with other products that you can use for your new campaigns.

The key is to start and optimize the basics. Define your audience, break it down into many different target groups and use smaller segments to identify the behavior of every single target group. Your campaign should be set-up according to the various groups you are able to identify and target through Facebook.

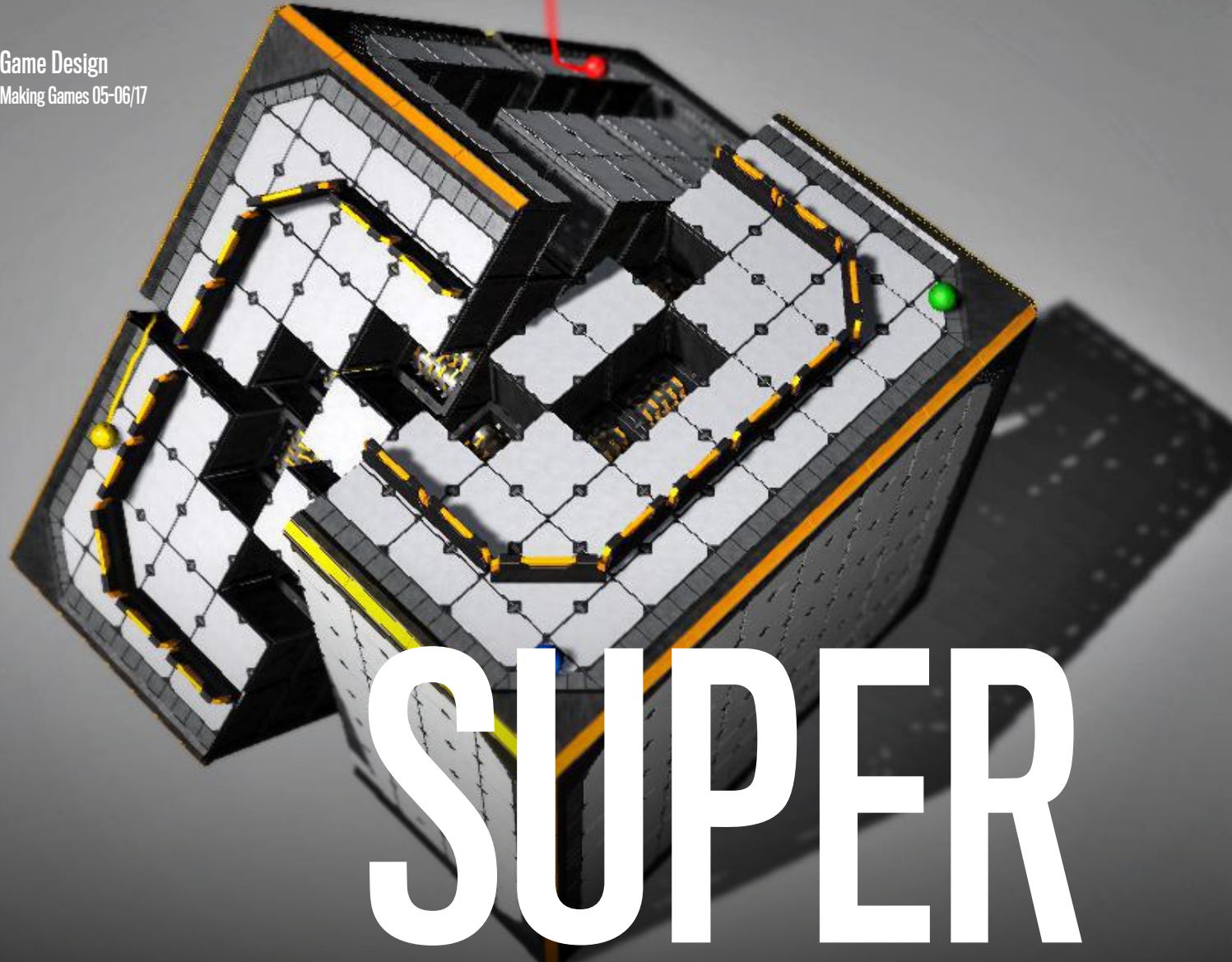
To find an untapped audience you should also set up some broader targeting and use Facebook's data to identify new potentials. Doing this will allow you to slowly scale your performance campaigns. At the beginning the share will be higher, depending on the database you start with. As a goal, I would aim an exploration budget share of up to 10% to keep your eyes open.

Expect to invest in the early days to learn more about the behavior of the various target groups in your game. But, don't be discouraged. The learning curve should rise steeply and you will be able to optimize your bids accordingly. Once you are in the flow, you will constantly see your results improving, your team will gain a lot if insights and you will enjoy "playing" with the data to scale your campaigns on a very profitable level.

Felix Janzen



Facebook is an almost endless source of data on player behavior and lots of other important factors to be considered in planning a promotional campaign.



# SUPER

# DASHMATCH



**Mandy Götz**  
Project Manager and Scrum  
Master at Super Dashmatch

Mandy is finishing the final semester of her Game Production studies and is in charge of project management and production at Super Dashmatch. Apart from project-related tasks, she also looks after the team and the processes.

**More than just a semester project: With Super Dashmatch, BerlinGamesClub proves that great things can be achieved in a short time!**



**Ruben Hübchen**  
Game Designer and Product  
Owner of Super Dashmatch

As the Product Owner, Ruben is in charge of the game from a quality and business perspective, and as a Game Designer he focuses on the mechanics of the game.

**T**ime is a highly valuable resource – especially in game development. So, what to do if you have only little time on your hands, but still want to deliver great results?

We, too, had to deal with this question, and maybe it was for exactly that reason that »Super Dashmatch« was created. As a student project group at Games Academy, bearing the team name »BerlinGamesClub«, we developed the local party game Super Dashmatch as part of our second semester. In the game, players take control of a sphere and compete against up to three opponents in an arena. The goal is to push the opponents' spheres off the cube, while keeping an eye on the constantly

transforming and rotating Rubik's Cube-like arena that's packed with all sorts of traps and obstacles. The player who keeps »rolling« till the end, wins.

## **Sprint 0: How it all began – the path to the vision**

In the summer semester of 2016, due to structural changes we had to start a new project in the middle of the running semester. At that time, we were already about 1.5 months in. Each semester consists of alternate teaching and project units, so that theory and practice are always going hand in hand. During the project weeks, we can work on our games all day long. In order to keep

the development as close to the reality of our industry as possible, we also have milestone approvals through the Games Academy's project support as well as a final gold master at the end of each semester.

In our case, the challenge was to create a game within a period ranging from the end of May to the beginning of August, meaning that the net project time was limited to just four weeks. In order to have the new project approved, we needed to prepare a convincing pitch presentation which would show that we were able to get the new project also done in less time. Obviously, for that to be the case, we had to find a vision as quickly as possible since we had only one week to do so.

Despite that time limit, it was important to us to start a creative, but targeted process to provide room for all ideas. In order to be creative in a result-oriented way, we first defined all basic conditions beyond the actual game content, such as: Which engine will we use? Are we going for 3D or 2D? Which genre do we use? How many players should be able to play the game?

On the premise of »feasibility« we brainstormed and discarded a lot of ideas. While we tried out a variety of games together as part of the brainstorming process, we kept coming back to the two words »party game« and »schadenfreude« (that malicious joy you experience when something happens to your opponent). We wanted to make a game that would be a lot of fun, but at the same time get you to politely but doggedly dash your opponents out of the game. It was especially the classics on the old consoles which inspired us during this phase, which is why we often talk about the »old couch concept« when local multiplayer matches were still common practice. We made the first, very pragmatic approach when we designed the characters. No matter whether multiplayer or singleplayer, the player characters had to be as simple as possible and allow us to implement them with only little effort. For that reason, we decided in favor of spheres, with the addition of the spheres being physics-based. Not only are spheres simple in their basic design, usually they are also immediately understood. This decision also answered the question of how to move around in our game: by rolling. Plus, it determined the core mechanics of the multiplayer aspect, at least as far as the essential features were concerned. The goal would be to kick the opponents' spheres out of the game.

During the original arena design, we didn't plan on using a cube at first. Only when we started thinking about the arena

concept, which featured a multi-tiered gaming area, the concept of the cube sort of developed automatically – as a kind of contrast to the spheres. However, we didn't like the idea of having a cube merely as a visual counterpart, which is why the following creative step was to add an exciting touch to the cube. Maybe the cube should be modifiable? Or even a »hostile« cube? Should the players be fighting the cube itself, too? Is there anything extraordinary about cubes? Shortly after, it was clear that our arena was to be a modifiable »Rubik's Cube«!

»It was important to us to start a creative, but targeted process to provide room for all ideas.«

Since the communication within our team was very good, we quickly mastered the first challenge – to agree on a joint vision: »Super Dashmatch is a one-screen multiplayer party game where players take on the roles of spheres and try to kick each other off a modifiable Rubik's Cube arena in order to win.«

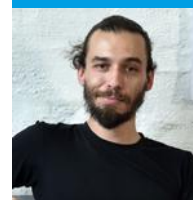
Other risks we couldn't assess at the beginning included the technical implementation of the arena transformation and whether our concept would have the two desired effects – fun and schadenfreude – for the players.

### Sprint 1: The basis – physics, prototypes and technical challenges

After we had found a joint conceptual vision, the next important step for us was to come up with a playable prototype which would particularly deliver the »proof of fun« and declare the planned technical aspects as feasible. Apart from making the game fun, we immediately started to work on the physics aspect, too. At first, we tried out to what extent we could use unique physics for the game to then have more control over the sphere in the level. The greatest challenge here was to develop a physics-based game which would run without issues and bugs.

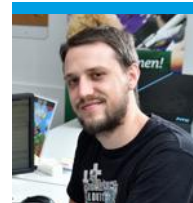
Parallel to that, we started to work on the concept of the arena rotation since we wanted to find out as early as possible what was feasible in terms of arena rotation at all.

We managed to implement basic horizontal and vertical collision detection. Also, the effect of the forces on a body based on Newton's laws of motion and the way they are correlated didn't prove to be a big problem. The bigger challenge was a collision detection in a three-dimensional space and the treatment of a number of special cases, e.g. when a body falls very quickly, colliding with another object on the way. Situations like this caused considerable concerns for us during the brief prototype period. Hence, we started to abandon the idea of using our own physics-based approach, simply



**Adrian Raeder**  
As the Product Owner, Ruben is in charge of the game from a

As a Game Designer, Adrian is particularly in charge of designing and linking the technical component of the game design features.



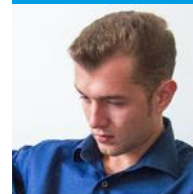
**Martin Reumund**  
Programmer for Super Dashmatch

Martin is finishing the final semester of his Programming studies and looks after the technical implementation of the features on the programming team.



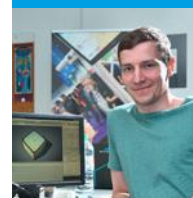
**Stefan Schulz**  
3D Artist for Super Dashmatch

Stefan is finishing the final semester of his Art & Animation studies and is responsible for the Art department. Apart from doing the art work for the assets, he works closely with Design to create a perfect bond between the Art and Design departments.



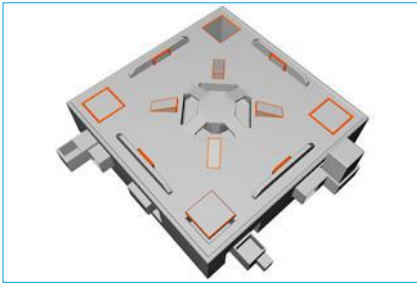
**Maksim Sosnovskij**  
UI/UX Designer for Super Dashmatch

Maksim designed the user interface of Super Dashmatch to create the perfect arcade feeling.

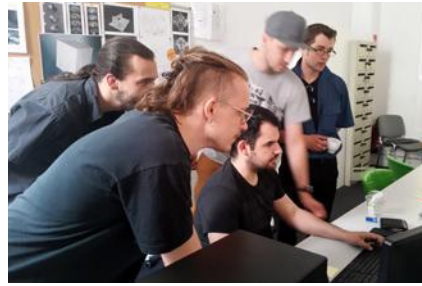


**Michael Oelke**  
Programmer for Super Dashmatch

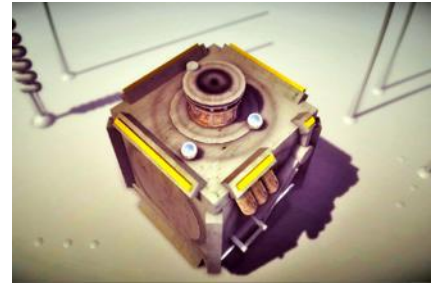
As a Programmer, Michael was in charge of gameplay implementations and also looked after the integration of UI elements.



The first rough cube prototype with regard to gameplay and arena battle mechanics.



Looking at prototypes from all angles and perspectives is best done with the whole team.



This cube prototype features the first arena equipped with additional obstacles.

because there wasn't enough time to do it properly, and instead decided to go with Unity physics which met most of our demands. The proof that this was the right thing to do was delivered by the resulting prototypes which were very close to the conceptual design that we had created.

We crafted several prototypes since they are always a lot more conclusive than any concept on paper. Apart from physical prototypes, we also created a number of visual prototypes which were to provide information about the camera position and image compositions. We had a functional prototype in terms of cube arena and playability. Unity is a great tool to put one's own ideas quickly into practice. The rather extensive editor allowed us to particularly get to the bottom of visual questions, e.g. regarding required textures or the level of detail of the models. Generally though, our prototypes were to provide answers to the most tricky and difficult core questions rather than to those issues which were comparably easy to implement.

The show must go on: Super Dashmatch is granted another semester to work on the project.



### Sprint 2: The »arena change« mechanics

It was important for us to not only develop a »Player vs Player« game, but to also implement the additional »Player vs Arena« thought. The arena transforms through code and animation. At the same time, during development we had to watch closely how the arena changed in terms of timing. This kind of information needs to be provided to the player, i.e. the player needs to know at any time which side is going to change. Assets need to despawn, then the side needs to change, and new assets need to spawn. In addition to the in-game implementation, we developed a level editor to make it easier for the game designers to create and time the cube. It was especially during this conceptual phase that programming, development and game design were closely linked to one another. It was important that each gameplay vision could be implemented in a foreseeable period of time. A lot of ideas involved movement and thus the physics engine in terms of what we wanted to create visually and which particular art assets we'd require for that.

We worked together very closely in this respect and decided again and again very pragmatically which areas would be mutually dependent, e.g. whether we'd create arenas as independent objects or in a modular way. The former would have required completely differently structured assets in much larger numbers. After the initial vision brainstorming period, we had a lot of good ideas laid out (mostly in our heads) and also some from our helpful friends at Games Academy Berlin. So we started to filter all things important from the many talks, sketches, references and prototypes. Another modification of a cube segment (1/8 of the whole Rubik's Cube) where it can flip open, detach or slide out: On the one hand, we didn't have time for this, on the other hand, it makes a level design or a concept very complicated since you need to know exactly which side is where at what time, and whether this modification causes other

areas to be covered or to become inaccessible. We made a conscious decision against randomly generated levels since we wanted to keep permanent control of the game design due to the general technical challenges. With regard to the limited time, this was the best option to avoid frustrating moments in the game.

### Sprint 3: Look & feel – the art challenge

After we had completed the prototype and vision phase, in the next phase of the project we could mainly focus on working on the look and feel that we wanted to get across.

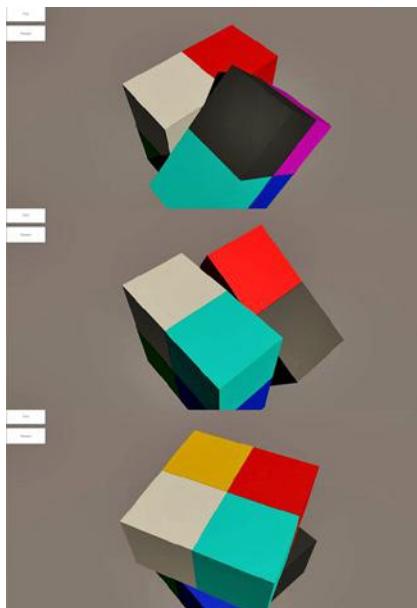
Our game had an arcade feel, which is why we decided to visually go for an »arcade-like« miniature look. Apart from determining a certain art style as well as the scale and the level of detail of the assets, our highest premise was always the implementability since our art department consisted of exactly one person: an environment artist.

For that reason, we eventually outsourced the »character art« department and were since then also supported by an external artist who took care of the sphere, turning it into a drone which would flip open at every jump animation to indicate that these spheres weren't just »ordinary spheres«.

The implementation of the art assets then added the ultimate visual touch to the game. The »lowpoly miniature« look was to be emphasized through the 3D objects, the various camera effects and the different materials. In support of this, the 2D art was then to create the classic arcade feeling and round off the retro look. One of our highest premises was to constantly give the player the nostalgic feeling of past evenings on the couch. Hence, we also tried to turn the UI elements into a basic arcade module which would run through the entire game as a recurring theme. Since the UI development ran parallel to all other processes, we had a hard time to find a final style for it at first. A lot of visual concepts for the strategic menu introduction were created during this phase. The UI went through various iterations and was adapted to the game in the course of time. A special challenge for multiplayer games is also the in-game display. Questions that came up during development included: Where can I find enough space on the screen to display the necessary information for up to four players, and how can I design everything, so that it remains also clearly visible during »local couch sessions«?

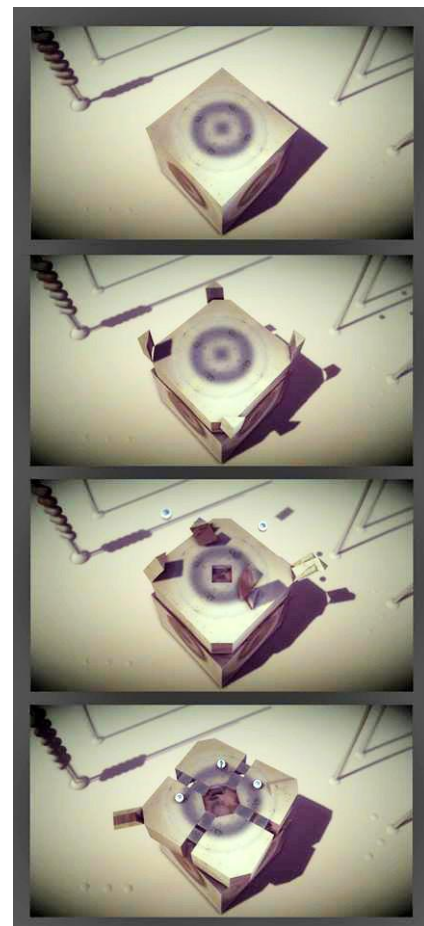
### Sprint 4: Play tests & opinions

During development, we regularly carried out play tests with people who weren't part of the development team. This way we wanted to avoid overlooking important



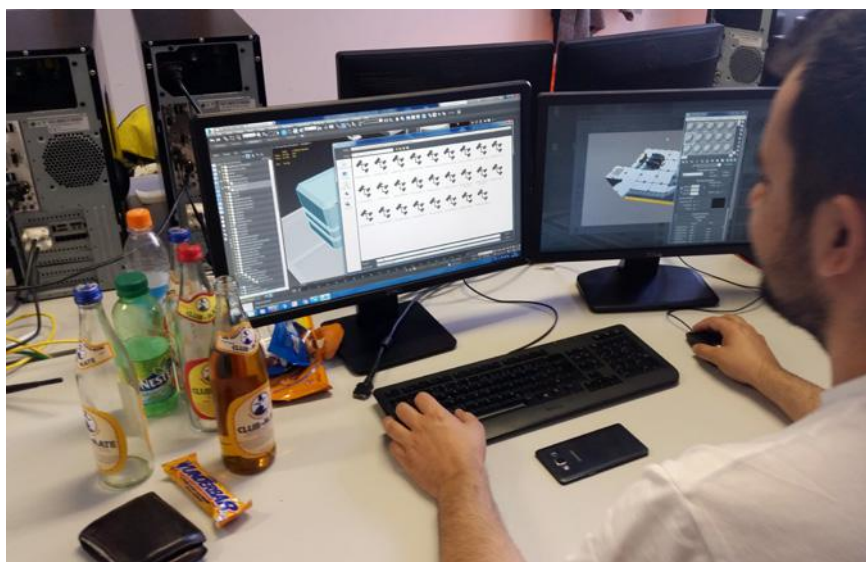
We used this design pattern to demonstrate the arena change mechanics and which sides could be rotated in which direction.

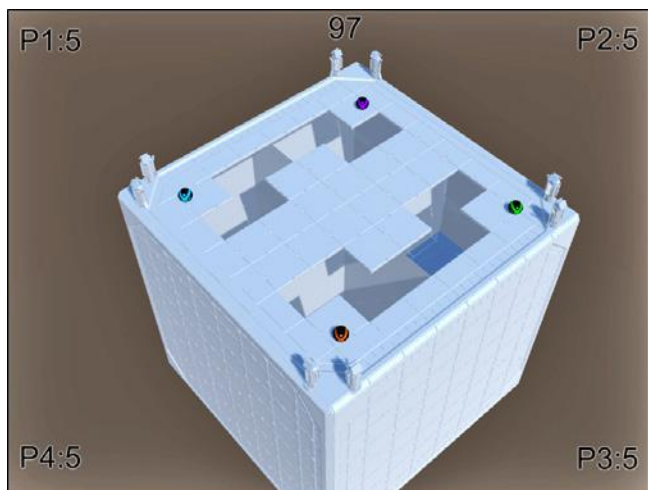
aspects, and we also wanted to gather as much feedback as possible. We also really appreciated the feedback we got from our fellow students who took time again and again to test our game. In addition to our colleagues, we found other testers without a developer background, which was especially interesting to observe. For us, the most important thing was to see whether players would be able to familiarize themselves with the controls and the general feeling of the spheres. Since the stress level in Super Dashmatch is permanently kept up and also caused by the players themselves, readability is an important issue which runs through all areas of the game. The game designers had to create the cube in a way that player figures wouldn't disappear behind extendable arena elements and get lost. The



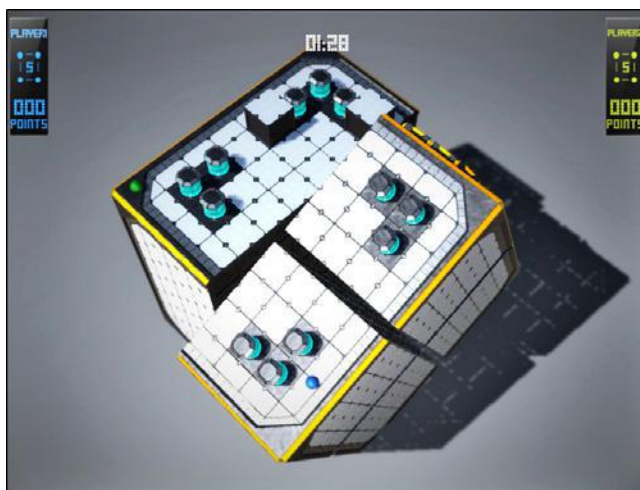
A prototype to demonstrate the arena modification in various stages.

3D Artist Stefan Schulz working on the 3D environment assets.





Pitch (before)



Gate 1 (after)

assets couldn't be too detailed, so that the contents of the arena would remain clearly visible, and the spheres, too, needed to stand out from the surroundings and be clearly recognizable. There was even a special play test to find out which color combination was best to read and therefore good to play with. Apart from the readability, our main focus was on the controls. Especially at the beginning, the players were very much dependent on our instructions, which we thought wasn't ideal. We wanted the game to be self-explanatory; one look at the control screen should be enough to know which controls needed to be pressed or operated at what time. The evaluations of the play tests also led to the fact that we kept iterating the controls almost until the end in order to guarantee an optimal handling.

### Sprint 5: Assembly-line work & polish

If we had to describe the »polish period« in one word, it would be »consistent«. A word which makes us smile in hindsight since we used it more and more frequently as the deadline for the gold master drew nearer. We aspired to create a »vertical slice«, i.e. a section of the game with all kinds of features and content in final quality. Since we had no time for the development of a tutorial or a »familiarization cube«, we were struggling with a few issues towards the end. We still had some trouble with the controls in this phase since picking up and using power-ups was triggered by various interactions. With regard to the »plug and play« concept, this wasn't satisfactory, which is why we decided to revise the entire controls system two days before the gold master and assign all power-up interactions to the same button. Since we had only worked on one cube, we had no possibility to get players adjusted to

our controls. And since we didn't want to hack a »beginner's cube« two days before gold master either, we decided in favor of the probably easiest solution which took the least time at that moment: to adjust the controls. The »dashing« feature, too, included the option for the player to decide which button to use for it. This option was also abandoned during our comprehensive controls adjustment session two days before gold master and replaced by more simple controls. Generally, it can be said that we wanted to keep the controls as simple and intuitive as possible – knowing that we wouldn't be able to provide ad-hoc support if people had questions while playing our game.

The quality assurance we carried out internally was then to break the game in the end. We took the process very seriously and this way produced the most hilarious errors and bugs, some of which were indeed »game-breaking«, but our programmers were able to fix all of them. We like to describe this phase as »assembly-line work« since we were busy in the final days doing just that: to fix bugs, make further modifications to the UI design and 3D objects and to generally make everything else a bit nicer and bug-free.

### Sprint 6: Gold master at the Games Academy – completed!

The final build was produced and all test guidelines met. On the day of the gold master you hold a presentation about the game, while you also demonstrate it. We had the honor to present our title in front of an external audience, thus receiving direct feedback from the industry.

We were very happy with the overall result we had achieved in such short amount

In regular play test sessions, we constantly put the game to the test.





of time. And yet, we as a team were very nervous about that day since after all you never know what people will think about it. It was therefore all the more pleasing that the feedback was very positive and the game was very well received. At that time, the project had achieved all targets: We managed to create something original within an incredibly short amount of time and with a simple basic idea. We thought this was a super ending to the project.

### Behind the scenes: The game is based on many iterations

From the beginning on, we wanted to avoid devising a fixed plan only to find out during development that parts of it wouldn't work or wouldn't fit the gameplay and thus pose a threat to the entire project. In order to eliminate this risk, we already had a very simple basic vision which allowed us to iterate, and in addition, we defined a number of project phases that would allow us to channel the game in the right direction at any time.

Our project phases – the sprints – lasted for two weeks each and were often split up into one week of school and one week of project work. Each phase began with planning and defining which features and content to implement and ended with a review of the product and a subsequent feedback round: What went well during the process and in the team, and what do we need to improve? The quick communication in the team and the short feedback loops allowed us to deliver an exact status quo of the project at any time, which was obviously extremely helpful with regard to the feature and content design.

### And then everything was turned around:

German Developer Awards: Blue Byte Newcomer Award 2016

The submission phase for the German Developer Awards 2016 was already well underway when we decided to try our luck, too. While we were pursuing our university life, nobody had the slightest idea what consequences our submission would eventually have. At the time of the announcement, we had already started the following semester. It was during recess that we found out that we were actually nominated!

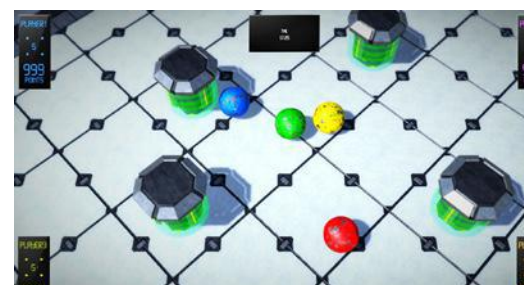
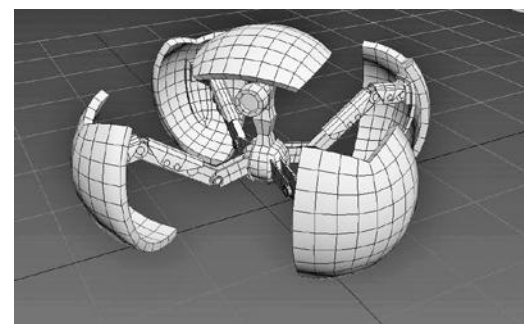
In disbelief, we double-checked the announcement and realized once again that we were indeed among the nominees. We were obviously beyond excited when we then travelled to Cologne in December. We watched how the other categories were read out and awarded, and the moment of truth

»The quality assurance we carried out internally was then to break the game in the end.«

was drawing closer and closer. When the Newcomer Award was up next, we were in two minds about it. On the one hand, we kept our fingers crossed for our Games Academy colleagues who were nominated as well; on the other hand, we were of course hoping for a place on the podium for ourselves. In any case, this nomination was an incredible honor – never in our lives would we have expected that. And then the moment came: »Third place is awarded to the team of Games Academy...!«. It felt like five minutes until the name of the game was called out. The relief, happiness and excitement were tremendous when it was actually Super Dashmatch – our very own game. We walked on stage, incredibly thrilled, still wondering whether this was actually real. And since our

In regular play test sessions, we constantly put the game to the test.

A simple sphere was turned into an expandable drone during development.





The moment of truth: The gold master presentation at the Games Academy Berlin.

colleagues' games are just incredibly good as well, we were even happier to share the Newcomer podium with them.

### Could it be more than just a semester project?

We could still feel the aftershocks of the Developer Awards for quite some time. Among others, Berlin-based radio station FluxFM invited us for an interview, and we were also contacted by a number of different dev teams. We were constantly asked how things would go on with Super Dashmatch, and there were many ideas on how we should proceed from here. On the one hand, half of the team was still enrolled at Games Academy, while others were already working or had just graduated from Games Academy. For many of us, Super Dashmatch was the project that somehow made unknown dreams come true. We couldn't just »tick it off«, so we all soon agreed to keep the fire burning!

»Our goal is to make Super Dashmatch market-ready in the next semester.«

What if somebody from the development team needs to drop out? How long do we want to keep doing this? And what would potential release dates look like?

We had a few obvious options: to make it a kind of weekend project alongside our jobs and studies; to wait for everybody on the team to graduate from Games Academy and then continue the project; or to ask whether we could pitch the game again as a semester project.

At first, option number one was our favorite. The timing was already scheduled, and all internal legal affairs were agreed on and cleared within the team. We met a few times to clarify what we still wanted for the game, what we thought was absolutely necessary and to what extent

we thought all of this was feasible. All this brainstorming suddenly made the former emergency project become serious. However, all our excitement and euphoria have since then met with a great deal of respect for our declared goal as well.

### Organization, licenses, opportunities

First, we thought about which steps to take next to get closer to our goal. Expand the game? Extend the game? Publish the game? A merely legal obstacle were the licenses for all the programs that we used for the development at the Academy. Educational editions are intended for use at schools, which is why they are significantly cheaper and hence not allowed for commercial use. These restrictions can easily be evaded though by later acquiring the regular versions and thus the licenses.

It was more important to clarify other aspects: What happens if we sell the game? How do we arrange the development time?

### Round #2 at Games Academy

We weren't sure whether it would be possible at all to officially pick up an already completed semester project again, especially since one semester had already passed since then, so we submitted a non-binding request to Games Academy which highly appreciated the idea. Of course, we'd have to pitch the game again, and it would also have to pass the pitch, but in theory there was a chance to keep working on Super Dashmatch for another semester.

This news involved other challenges though: Half of our team members weren't on site anymore, so they would only be able to work on the project externally. Therefore,



Iterations were important to achieve the best result possible and to be able to react to changes. How things could be arranged within the time we had was often discussed at the 'Game Wall' where everything could be visualized better.



German Developer Awards 2016: Super Dashmatch by BerlinGamesClub took third place of the Blue Byte Newcomer Award.

the question soon arose whether we should take other students on board. When we looked at the items on our list, which we wanted to implement, we quickly realized that a bigger team would actually benefit the game, not only because we'd receive new expertise and support, but also because a fresh look at the game is often helpful, and so is a lively discussion about potential new content.

### Super Dashmatch 2.0 – planned content

Originating from our vision of the game, our next goal is to develop the best additional content possible for Super Dashmatch. On top of our wish list is the item »network« – players should be able to play our game online, too.

Generally, we would like to revise our assets again and provide a level editor for the game design in order to make the production and the testing of cubes more effective. Besides this rather technical innovation, providing new content is obviously one of our top priorities. This includes, e.g., a higher number of cubes, the implementation of additional game modes as well as the useful development of new 2D and 3D assets. We'd also like to offer players various customization options to modify their spheres, e.g. with the help of new drone skins. We're also considering a kind of practice mode to give players the chance to familiarize themselves with the arena rotation, controls and power-ups.

Another important aspect is the IP. Even if our game won't feature a deep storyline, there should still be at least one reason for four spheres to be on a Rubik's Cube, trying to eliminate each other. Maybe we should originate a cool new type of sports or even an entirely new universe?

What's still impossible is the random rotation of the arena as well as the introduction of an enemy AI. The effort and the associated costs of a bug-free implementation to avoid frustration during the game would simply be too high and the actual benefit too low. We're still lacking experience for things like that, plus the time to satisfactorily implement all of those planned features – above all the big network issue – within one semester.

### Project completion – preview and release

Our goal is to make Super Dashmatch market-ready in the next semester to be able to publish it subsequently. Of course, the ideal experience for us would be to get Super Dashmatch to be successfully released, while learning a lot about the problems, highs and lows of a game release in order to be optimally prepared for entering the industry. The worst that could happen to us, of course, would be not to release the game at all. All we could learn from that is for what reasons such a project can struggle and fail on its way to release.

Being able to make such an essential experience, especially as part of your education, is incredibly valuable since for most of us, Super Dashmatch is going to be the last project at Games Academy before we will all be unleashed on the industry.

Mandy Götz, Ruben Hübchen,  
Adrian Raeder, Martin Reumund,  
Maksim Sosnovskij, Stefan Schulz,  
Michael Oelke



Addictive game: Super Dashmatch will soon be back with new content.



# WELCOME TO THE HOTEL CORTEZ

Eerily beautiful: Fans of American Horror Story's 5th season will love what Ubisoft Massive's Senior Environment Artist Johannes Böhm created in three months of his spare time with the help of Unreal Engine 4.

**W**henever I start working on a new personal project, one of the primary concerns for me is the effort and time involved. When you have a full time job, a family and hobbies other than 3DArt, it can be a daunting task to start a project that will potentially cost you hundreds of hours. Being efficient is therefore of the utmost importance, as well as selecting the right project for you.

In this article, I will try to outline the choices I made, both in the way I worked and the way I structured my work on my latest project, the Hotel Cortez from American Horror Story's Season 5.

Disclaimer: I used a bunch of techniques that would probably not be very good for an actual game production.

## 1. Project Selection

When I was looking for a new project, I knew I wanted to build something that

required relatively little texture work, was very modular and wouldn't require a lot of small, individual props. One of the places that came to mind was the Hotel Cortez from »American Horror Story«.

At first, it seemed very ornamental with a lot of detail, but upon further inspection I realized that there really wasn't a lot of variation and I would be able to reuse and adjust a lot of the details. The whole place also consisted mostly of four different Materials, namely Gold, Wood, Marble and Carpet.

## 2. Blockout

I started blocking out all the major architectural pieces in a very rough for to make sure the modularity and the scale worked. I also started looking for camera positions for the final screenshots already so I could focus my efforts more on the areas that would be prominent in those. In Unreal there is a nice function to remember camera positions. You just move your camera to the view you want and hit CTRL + any number. When you



**Johannes Böhm**  
is Senior Environment Artist at  
Ubisoft Massive.

Johannes Böhm studied Philosophy and History of Arts at the Friedrich-Alexander University in Erlangen as well as Visual Communication at the Academy of Fine Arts in Nuremberg. He got his first job in the games industry at YAGER in Berlin in 2012. Since then he has worked on titles such as Tom Clancy's The Division, Spec Ops: The Line, Dead Island 2 and Dreadnought. Besides his job and whenever he isn't sitting in front of his PC working on personal projects like building Hotel Cortez, he likes being outdoors, climbing mountains and taking photographs.

hit that number again, the camera will snap to that view.

### 3. Modeling/UVing

I wanted to bake and normal map as little as possible because it is one of the most time-consuming and, for me, boring parts of environment production. So instead, I used a lot of geometry for details. It's maybe not the most performance-efficient way of building an environment, but it does save a lot of time and in a lot of cases it looks better (especially if the details have as much depth as they do in the Hotel).

I always tried to break down the wall murals and reliefs into repeatable parts, modeling one section, UVing it properly and then copying it as much as I needed. Being thorough with every single part saved me the need to tweak things later. I asked my good and substance-talented Friends Mathis Widrat and Oskar Johansson Möller to create tileable textures for the gold, the marble and the wood for me. I then set those up in a Multi/Subobject Material in 3DsMax as well as in Unreal. One of the most important things to check for with tileable textures is that you achieve an even Texel density. If you have a very high-res object next to a bunch of low-res ones, it will stick out and the end result will often look worse than if that object was just as low res as the rest.

There were some objects where I couldn't really get around baking, such as the flowery details on the pillars or the room keys but most of the props were textured using those few tileable textures and just building mid-poly objects with a bunch of Material IDs. That meant that most objects by themselves would look rather mediocre without tons of details.

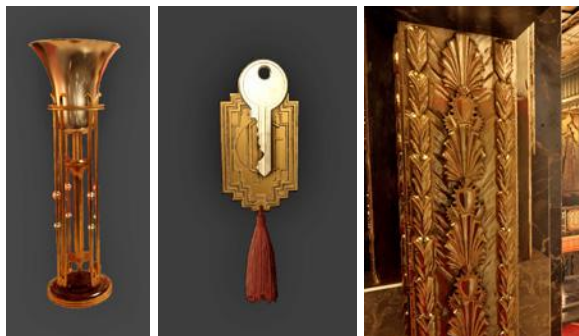
However, I do believe that good composition, color, light and consistency in quality always trump crazy amounts of details. In a lot of pieces that are posted online every day, you can see that they were done by expert modellers that put a lot of effort into every tiny detail, but forgetting the overall composition of the piece and not giving the eye areas to rest on which leads to an Image that is somewhat exhausting to look at.

### 4. Shaders

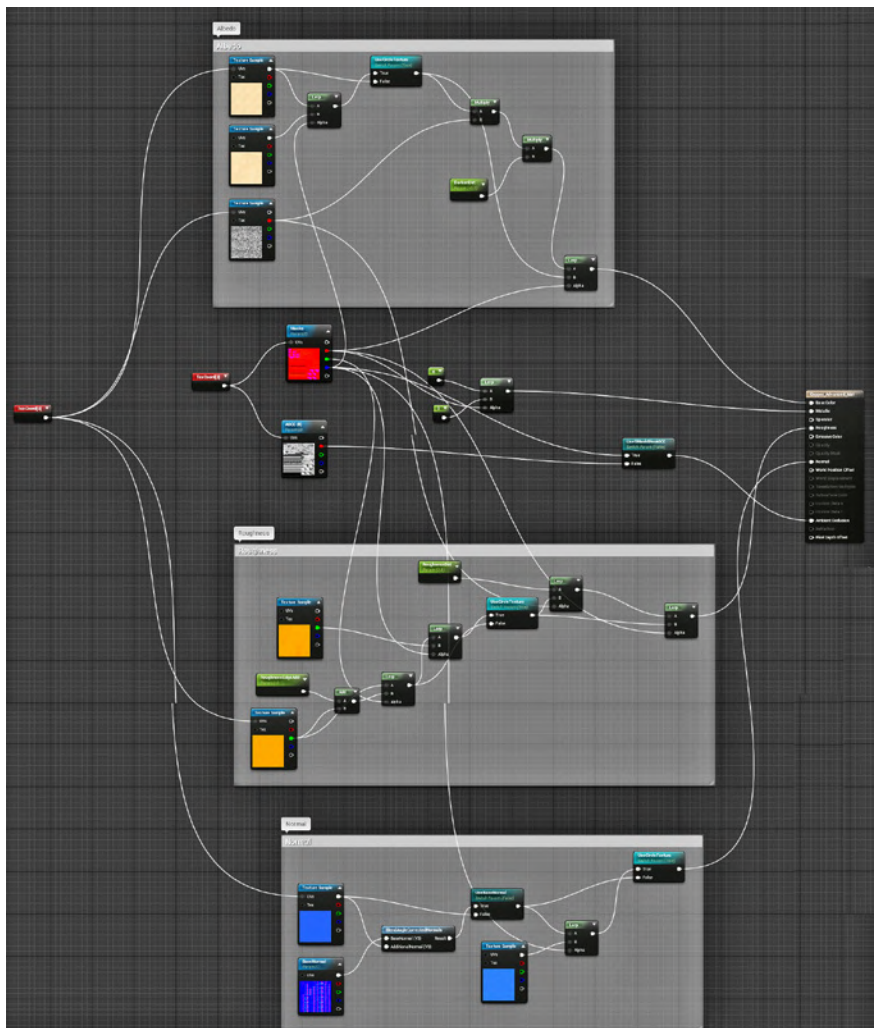
Most of the Shaders in the scene are very straight-forward PBR-Shaders. For the velvet chairs and Sofas, I used a combination of Fresnel and Fuzzy Shading Nodes. The Carpet shader is a modified version of the carpet shader from the Unreal Realistic Rendering Demo with custom Masks and textures. That shader was probably the thing that took most time tweaking. I found that just a single tileable texture



On some props, baking Normalmaps couldn't be avoided.



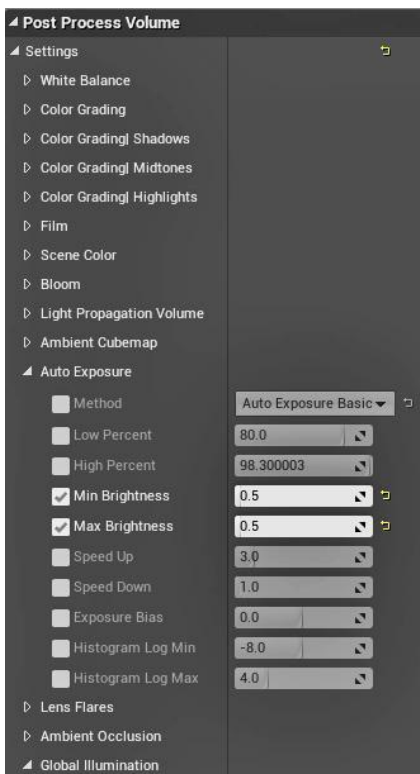
The Shader that was used on most of the Golden models.





A look at the histogram in unlit mode shows quite well balanced texture values.

Settings to turn off the Auto Exposure in the Post process Volume.



on the golden reliefs wasn't really making the details pop enough. What I ended up doing is giving all of those models a second, uniquely unwrapped UVChannel. In that channel I baked an AO map, used Quixel to create an edge mask and hand-painted a mask for cavities (I experimented a bit with baking and quixel but didn't get satisfying results). I stored all these masks in the RGB channels of a relatively low-res texture (each of the golden objects would have their own texture).

In the Shader I then slightly multiplied the AO into the albedo (a tech or lighting artist will probably tell you not to do that, but I found for this particular it helped a lot to make details pop), the edge map to decrease the roughness on the edges (again, maybe not exactly physically correct, but I liked the look) and the cavity Map to blend between the gold and a dirty gold map (creating dirt in the cavities). It's all rather simple from a shader standpoint, but it helped bringing out the details a lot.

## 5. Lighting

First thing I do when I start lighting a scene is to go into unlit mode and check the color values to make sure I don't have too bright or too dark (especially since I multiplied the AO into the Albedo) so the light and GI can still do their work.

The second thing is to turn off the Automatic Eye adaptation in the Post Process volume. Otherwise the brightness/exposure will be adjusted by Unreal directly. The next step was to set up the reflections since they were going to influence the

overall lighting greatly due to all the reflective surfaces in the scene. I ended using Screenspace reflections and a mixture of Box and Sphere reflection Capture actors. Since I chose a static lighting approach, I also adjusted the lightmap resolution on all actors to be relatively low, but evenly distributed, so that the lightmass baking would be quick and iterating would be easier.

From there, it was just placing lights where the lights are in the real scene, beginning with the big ones and working my way to the smaller ones, always baking and checking how the overall scene looks. I used the "Source Size" and "Source Length" setting quite a bit to match the lights up as much as possible with the real light sources. A lot of the time, I placed the actual point light within the light-model and deactivated "Cast Shadows" on them.

When I was happy with the overall look, I started increasing the light map resolutions and settings and continued tweaking. For the carpet, I couldn't get the shadows of the sofas strong enough (I think it had to do with the way that that shader was set up or the bounce light that was too intense), so what I ended up doing is taking a screenshot of the existing shadow in unlit mode and using that as a decal. This is a very hacky way that I would not recommend using in any actual game environment, but it worked very well in this case and saved me a lot of time trying to figure out what exactly the problem was.

In the very End, I started to edit the Baslightmass.ini according to an ArchViz

article on [ue4Arch.com](http://ue4Arch.com). I didn't end up using the highest settings they suggest because build times were insane, but instead used the following:

*NumIrradianceCalculationPhotons = 4096*  
*StaticLightingLevel = 0.4*  
*NumHemisphereSamples = 128*  
*IndirectPhotonDensity = 6000*  
*IndirectIrradiancePhotonDensity = 3000*  
*IndirectPhotonSearchDistance = 180*

## 6. Screenshots and PostProcess

I used roughly the same camera positions that I had set up earlier, but used real cameras in Unreal that allowed me to tweak the DoF for each one separately. I tried using the HighResScreenshot function to take screenshots bigger than my screen resolution, but that gave me a lot of reflection artifacts, so I ended up using the Nvidia Control Panel to overwrite my Screen Resolution and then just taking Screenshots using the »F9« key.

I then sent all those shots to my good friend and former art director Eric Cochoineau who did some final color and contrast adjustments in Lightroom. I could probably have achieved similar results using UE4s post process settings, but that would have taken a lot more time.

## 7. Keeping the spirits high.

The project ended up taking a bunch more time than I initially anticipated. I started working on it in early October and finished in Mid-January. I find it very hard keeping the initial excitement for a timeframe that is that long.

Especially towards the end of a project I always have force myself putting in the effort and not just accepting what I currently have but pushing it further. I find that this phase often decides if your piece is going to be good or great looking. What helped me this time was having a very clear Image and a written down plan of what assets I would have to create. I would update that plan every month or so, listing the highest priority Items for that stage.

Another technique I used was asking friends and colleagues to list the top three worst things they see in the scene. If there was something that a bunch of them mentioned, I knew that that was the first thing I should fix.

## 8. Conclusion

Building 3D scenes takes time. Focusing on the final output rather than on the process will help you get more efficient. Not every

nook and cranny has to be perfect. What counts is the overall image and how well it transports the Ideas you want to talk about (visually).

Finally, I would like to thank Eric Cochoineau, Mathis Widrat, Oskar Johansson Möller, Kunal Luthra, Damien Tournaire and Geoffroy Calis for all their support.

If you want to see more of my work, check out my Artstation:

<https://www.artstation.com/artist/fraeger>

Johannes Böhm



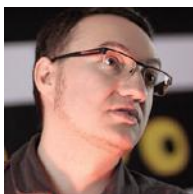
The Lightmass settings I ended up using.



A final, color-graded screenshot.

# THE MAKING OF PAPERVERSE THE ART-STYLE THAT BINDS R2G

Creating an art-style that fits various games from different genres and settings can be a hard task - here developer Thing Trunk explains how they approached this process to finally come up with a coherent paper art-style that just works perfectly.



**Maciej Biedrzycki**  
is Founder and  
Chief Game Architect  
at Thing Trunk.

Maciej is the founder and chief game architect at Thing Trunk, a pretty small game development studio behind »Book of Demons« - a deck-building hack and slash, where it's the player who decides the length of quests. Book of Demons is also the first title from the »Return 2 Games«-series, a series of unique mid-core games, inspired by the early golden days of PC gaming.

»Book of Demons« is a mid-core  
hack & slash game and at  
the same time the first title in the  
upcoming »Return 2 Games«-series.

A little over a month ago we revealed »Book of Demons«, a mid-core hack & slash game, the first title in our upcoming »Return 2 Games«-series (R2G in short). That's a big deal for us, as we're finally showing to the world what we've been working on for the last four years. To our surprise, a lot of people have been complimenting and asking us about the paper art-style we adopted. This was a bit of a surprise, as we never thought about it as the main feature of the game. Especially among all the gameplay innovations such as deck building. But it feels great because we put a lot of effort into making everything the way it looks now and the road to getting here was a really bumpy one. My role on the project was two-fold. I was co-art-directing (together with Filip

Starzynski) and I was also doing a lot of 2D post-processing work. This was mostly making sure that all the graphics delivered to us by different designers, artist and contractors fit nicely together and form one coherent style.

## Why have an Art-Style at all?

Developing the paper art-style for R2G took us almost two years, so one might ask, why the need for an art-style at all? Why didn't we just make »normal« realistic graphics and be done with it? And why did it take so long? And was it worth it in the end?

We decided we needed a strong art-style very early in the production. It was a natural consequence of the idea we had. The idea was to build a series of mid-core games inspired by the classic PC hits from the 1990's. The games would be of different genres and





A concept of Book of Demons in a »Disney cartoon«-like style.

themes, so we really needed for them to have a common aesthetic ground. Otherwise, they wouldn't be perceived as a series. We wanted R2G to have an iconic look, and be adaptable to various themes. Think about how well it works in Lego (figure 1). This is something we were aiming for.

### Why Paper?

The other part of our idea was about the crossover nature of the games. This meant that the art-style should be appealing to both hardcore and casual gamer audiences. This constraint helped us rule out some of the most exotic ideas, like making everything out of macaroni, voxels, or mono-color pixel art. Such ideas were quickly scrapped.

For a brief moment, we considered taking a safe route and adopting a 2D cartoon style (think of »Plants vs. Zombies«) or a 3D cartoon style (think of »Clash of Clans«). But this would go against our desire to make something unique, and we also feared that such style which is very popular in the mobile market would not look good enough in a big PC title. We've already announced that Book of Demons will be coming to Xbox One, and we're planning to go for mobile, so the style had to be universal. Still, PC is our

primary platform and PC gamers are our core audience. Identifying this helped us rule out more options, especially ones that might look too childish.

One day someone said, why don't we make each game in the series a book, and place the action inside a world of pop-up paper cutouts. Everyone on the team was instantly sold on the idea, as it solved all of our problems. Paper is a very flexible material, so we could really do whatever we wanted with it, take it into any direction we wanted. We could easily have paper dragons and paper spaceships. Even better, paper is symbolic, and that meant we could easily have paper gore (like blood and guts) and it would still be acceptable to the casual audience (think of cruel and scary fairy-tales).

### What makes an Art-Style?

As it quickly occurred to us, choosing the right medium for the art-style was only the first step, and the really hard part was still ahead. Paper is so flexible that there are literally hundreds of ways to structure it, fold it, texture it, light it, animate it. Asking google images for »paper characters« reveals a myriad of different possibilities and artistic choices that are possible. On one side there can be flat cutouts, on the other, realistic spatial models. The shapes can be open or closed, round or boxy. You can have detailed textures on the paper, or no textures at all, like in origami. And there's everything in between. Hell, you could even mix those things and come up with new ones.

Paper is just a medium and a tool. A canvas so to speak. Without artistic guidelines, it does not make an art-style, yet. So we were still at square one because we still had no clue how the games would actually look. How do we represent characters? How do we represent water, fire and smoke? How do we represent GUI elements such as windows, cursors, and icons? What palette of colors



Figure 1: The iconic look of Lego that can be adapted to various themes was the inspiration for choosing the paper art-style.





Figure 2: The first concepts like the Cathedral or the town screen were 2D, vector style images with little hints of paper.

are we using? How do the objects move? And how does the style differ from game to game? We had to answer all those questions and there was no way around it other than start experimenting.

### Early Results

Early results were very ... mixed. Over the next year, we worked with multiple freelance designers and we did so many tests, that it would be impossible to cover all of them here.

First, we worked on 2D, vector style images with little hints of paper (figure 2). They would later serve as prototypes for the finished screens in the game. We focused on the general mood, what we wanted to show and how much screen space each element should take.

Although we've been simultaneously working on three games at this time, I can only show mockups from one of them (Book of Demons). This is because the next games in the series haven't been announced, yet, and I really don't want to spoil the surprise. But remember that we were working on the art-style for the whole series, so we wanted to test how different ideas translate between themes and moods from the very beginning.

But mocking up screens in vector graphics could only get us so far. When we were happy with the basic layouts, we started looking for a way to make them more realistic in terms of paper styling. The first thing we tried was the simplest thing we could do – we printed the mockups and made cutouts (figure 3).

This was quick and quite effective and would make for a great and simple production pipeline – especially if would be done in 3D. Figure 4 shows one of such tests. It showed that it is quite simple to get a paper feel in 3D, even without simulating all of the details characteristic to paper cutouts (like imperfect cuts, texture washes on the borders, paper waving, etc.).



Figure 3: The simplest way to make the basic layouts look more realistic in terms of paper styling was to print the mockups and make cutouts.

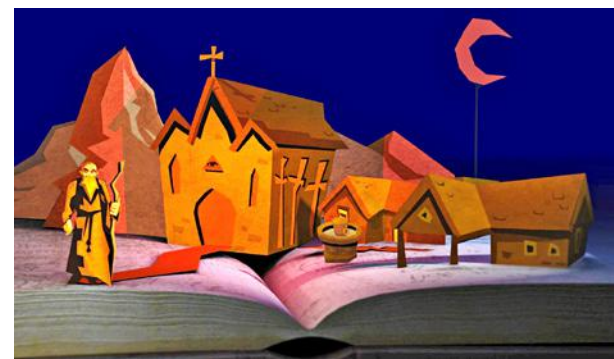


Figure 4: Paper-style graphics in 3D are quite simple to create as tests showed.

Unfortunately, we couldn't have gone this way as we made a decision that the in-dungeon part of the game will be isometric. The game we were building was supposed to be a tribute to »Diablo«, and we just couldn't get the idea to work without having a proper, isometric dungeon. So we started experimenting with paper dungeons.

Figure 5 is the first paper dungeon attempt that seemed to work. It wasn't as good as wanted the end result to be, but it was promising and we knew we were on the

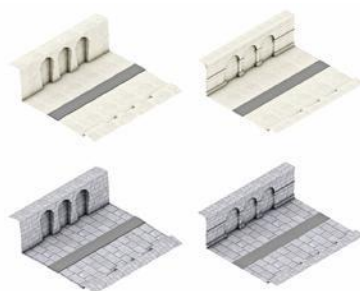
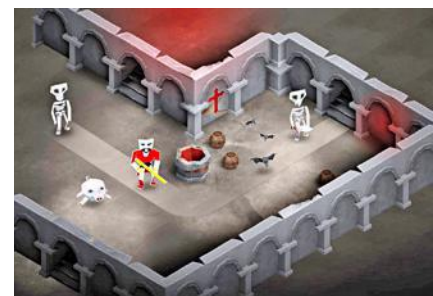


Figure 5: The first experiments of a isometric paper dungeon were promising.





**Figure 6:** Displaying the characters in various levels of details depending on the level of camera zoom would have been a lot of work.



**Figure 7:** One example of a user interface that did not fit the graphic style of the game.

right track. This is what we had in May 2013.

At this stage, we were still very early in the process, as each answered question seemed to spawn two more. For example, the characters above are very simple and could work well when miniaturized in the dungeon, but what if we had a characters face close-up on the whole screen?

One way would be to adapt the level of detail with each frame, preserving the most important details, like the face of a character for instance (figure 6).

This could technically work, but it would have two major drawbacks. First, it would be a lot of work as each character and object in the game would have to be re-built from scratch for every level of camera zoom. Also, it would be hard or impossible to do smooth zooming. Second, it would also make the art-style eclectic. If you think about Lego blocks, the character details and proportions don't change depending on camera zoom and it all works in games and movies.

How about the user interface, how should it look? Well, certainly not like in figure 7.

To give you a sense of how much effort went into finding the right ways, figure 8 shows a few versions of the Book of Demons cathedral that we had made.

### Help from the Big Guns

So we had some bits and pieces that started to work, but nothing final. We had equally as many questions as we had answers. Each of the designers we worked with was able to sort some stuff out, produce some nice details, but no one was able to approach the art-style as a whole (instead of a sum of its parts) and propose a concise, working set of rules encompassing everything from characters to GUI, from shapes to textures.

Seeing that we were starting to go around in circles and not moving forward, we had to make some drastic changes to

our art-style development methodology. We decided we needed outside help and we figured the best way to do it, would be to run a contest. The idea was to hire a few visual agencies, experienced in game graphics and see whose take on the subject would be best.

So the contest idea was quite simple: Let's take three R2G games (we already had three working prototypes back then), create two screen mockups for each and let the participants propose the final look of the games as a visualization. Six screen mockups in total. Simple as it was, creating the job description for the contest turned out to be a herculean task of its own. Would you believe me if I told you that we created 99 pages of documentation with 19,713 words in it? After working on the art style on our own for over a year now, we now had a lot to tell. We didn't want to just list the requirements but we wanted to explain what we already knew that would work, and what would not. We feared that otherwise the agencies would waste time figuring what we already did figure.

Working with big companies can be tough for an Indie studio, especially financially wise, so we had to do a lot of searching and negotiations. In July 2013 we started the contest, with two high-profile companies participating – the Shanghai-based Virtuos, and US-based Supergenius Studio.

What shouldn't be surprising at this point, the whole process turned out to be complex. It involved writing hundreds of emails to each studio, mostly giving detailed feedback on the materials we were receiving. I'll use just one mockup from the contest as an example.

Figure 9 shows one of the template mockups we provided. It was a pixel-perfect mockup for the dungeon screen of Book of Demons.



**Figure 8:** Various versions of the cathedral in Book of Demons.



Figure 9: This template mockup was provided for the contest by the developers.



Figure 10: The final proposal from Virtuos.

Figure 10 is the end proposal that Virtuos did send in, while figure 11 shows the same from Supergenius Studio.

If you've seen screenshots from Book of Demons, you already know that we went with Supergenius. This might be surprising from the two screens above, but note that we weren't judging only the quality of screens but the quality of the entire collaboration. While Virtuos presented us with many high-quality screens for each of the three games, their results weren't really coherent and we couldn't see any common ground between them. However, Supergenius sent

us detailed explanations of the reasoning behind every decision and even sketched examples how the style would differ from game to game. Figure 12 is an example of one of those studies. On the right we have a skeleton from Book of Demons (the theme here is dark fantasy) and on the left is a skeleton from another fantasy game, but this time the mood is lighter, more fairy-tale like.

This was exactly the result we were hoping for. We quickly ended the contest and contracted Supergenius to develop all six screens and all the details of the art-style. It was a tiresome process for both parties, and involved even more emails bouncing back and forth. There were some hiccups, but in the end, everything turned out fine. We were happy with the results.

Over a couple of months, the dungeon screen went from what you could see earlier, to figure 13 and the town screen went from figure 14 to figure 15.

Figure 16 is a sneak-peek from mockups for some of the other R2G games. Those titles weren't announced, yet, so I hope I'm not spoiling too much.

I'd lie if I said that in the end we had everything figured out (we still weren't satisfied with the GUI part), but we knew a lot, and most importantly, we had developed a lot of rules about paper thickness, texturing, shapes for the particular games. Figure 17 shows one of the studies we did – visualizing a tree and a brick wall in three R2G games.

### But does it work?

When we felt we had a good grip on the art-style, we wanted to give it a test drive. Something like in the Lego examples from the beginning of this article. Basically, we wanted to see if our art-style could handle some heavy lifting. To this end, we selected three iconic movie scenes and then had them recreated in our paper style. This was done by the talented artist Piotr Lisek, who at this time had already worked with us as our in-house lead artist. Luckily, he got such a good grip on the art-style, that he

Figure 12: Supergenius not only sent in screens showing the final art-style ingame but also delivered detailed sketches on how the art-style might differ from game to game.

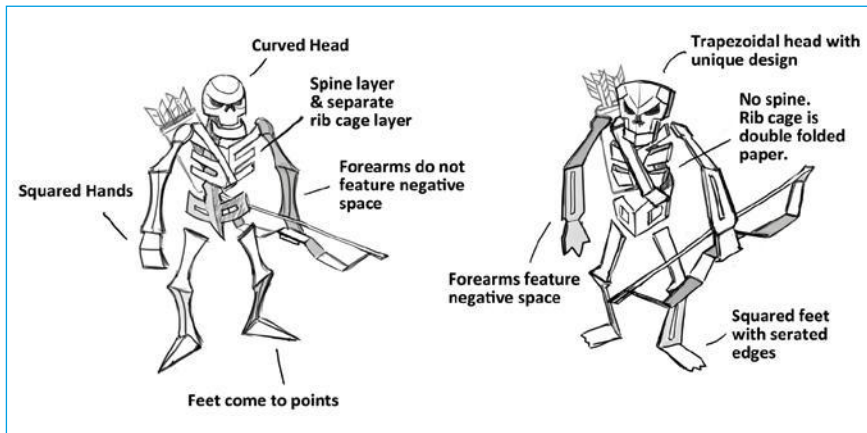


Figure 13: This screenshot shows how the dungeon evolved over a couple of months.



Figure 11: The final proposal from Supergenius Studio.

created most of the subsequent designs and artworks in Book of Demons. I think the results of this test shown in figure 18 speak for themselves.

Ok, now is the time for a disclaimer. The images in figure 18 are not part of our games! They are simply fan-arts that we created for internal tests and to proof our art-style. Having said that, they make great wallpapers!

### The Pipeline

I'm sure that you noticed that most of the graphics shown here are CGI renders and not actual paper models. This was due to practical reasons. We did a lot of paper models to learn how paper works and feels, but in the end, it just wouldn't be practical for us to have everything created and animated in real life. It's fun when you need to do a single model, but when you need 70 different, animated monsters, divided into individual sprites with transparency, or pixel perfect isometric tiles to make the dungeons and whole sceneries it just gets out of your reach very quickly.

Having said that, we did make some models, even some real life ones, and figure 19 is a proof.

### A few Words about GUI

Even with all the art-related tasks that we completed, designing paper GUI for Book

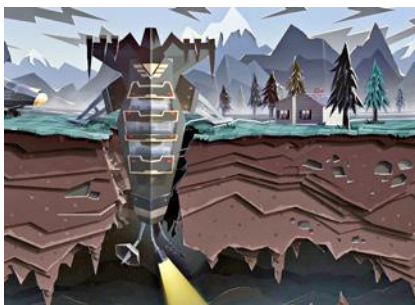


Figure 16: Mockups for some of the other, yet unannounced R2G games, both using the paper art-style.

of Demons turned out to be a complicated task for us. It was something we couldn't get right and required many, many attempts.

The version on the bottom of figure 20 is final – an actual screenshot from the running game. All others are various attempts we tested at various stages of development. With an element such as this – one which the player sees constantly all throughout the game – we wouldn't stop until we were completely satisfied with the result.

In fact, this part was also tackled via a contest. I guess this type of solving most problematic cases worked quite well for us. We had a rough version done by Supergenius (top row), then we had three takes by independent designers we worked with (both in-house and external). The most promising version was selected as a team vote (second from the bottom) and it was developed into the final state over several intense sessions. But as you can see, all the versions did contribute something to the final result, so we weren't complaining that we took the time to explore all those possibilities.

All important elements went through a



Figure 17: A study of a tree and a brick wall in three different R2G games.



Figure 14: A screenshot of the initial town screen.



Figure 15: A screenshot of the final town screen.

similar development pipeline, and all GUI elements evolved more or less simultaneously. Every time something would not feel right, we would introduce someone else into the workflow to do his or her take and introduce new blood.

### Paperverse in Action

Figure 21 is a gallery of some of the final (or near final, we're getting close to internal beta) screenshots from the game, that show the R2G paper art-style in action in Book of Demons.

But before you jump into those examples, I feel that I need to make one more important



comment. You see, even with all the hassle and effort that went into the development, the paper style we use was never intended to be a major selling point of the games. It's nice and all, but it's only a tool that lets us realize our goals of gameplay and design. So if something doesn't work in paper (fog? glass? fire?), then we're not afraid to bend the art-style rules. We're not slaves of the style we developed and it's the style that serves the games, not the other way round.

If you visit our website ([www.return2games.com](http://www.return2games.com)) you can view a trailer of the game and see how it all looks in action. For example, the screens can't show the type of animation we went with. In fact, we went with very subtle animations, as we wanted our games to have a very symbolic feel, similar to a real board game. We hope that this way players will get to use more of their imagination, and that's a nod to all the great games from the 1990's that managed to keep us glued to the screens with the very few pixels they operated on.

One interesting thing about the trailer

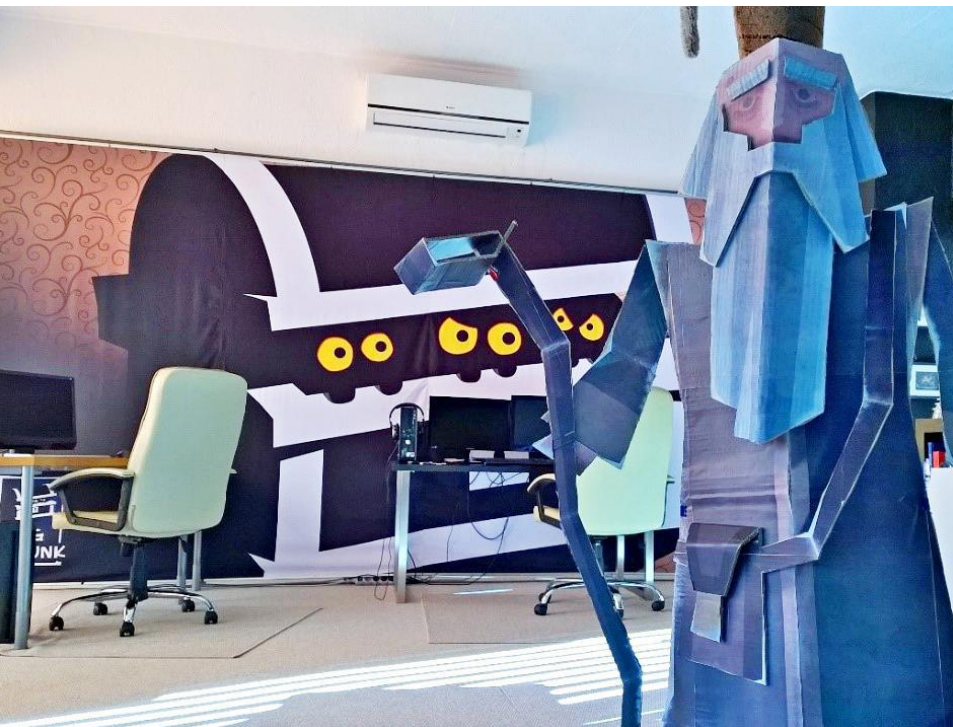


Figure 19: A real life model of a character made out of paper.



Figure 20: Various versions of the GUI from different stages of development, the one on the bottom is the final result.



Figure 18: Three iconic movie scenes were created in the paper art-style to proof it working.

is that if you look closely it mixes realistic graphics (the gate) with paper graphics (everything else). This is deliberate, although it doesn't work as well in the trailer as it does in the game. In the game, the first location the player sees is what we call the »Archive of Awesome«. This is a place where all the books/games in the Return 2 Games are stored. When the player selects a book, it magically lifts, opens and shows all the nice paper popups. The camera flies inside the book and we are suddenly inside the paper worlds (which we call »Paperverse« by the way) surrounded by paper objects and characters.

This was important to us, as it symbolically marks the transition from the real world, represented by realistic graphics, to the games' paper world. It also gives the player a sense of place. The player knows he's literally inside a popup book because we've just shown it. If we made a jarring transition from the desktop straight into the paper world it might have been a bit abstract and disorienting at first. The way we do it is smoother, gentler, and in our opinion helps build the suspense of disbelief.

### Closing Words

When preparing materials for this article, I was shocked at the amount of test, mockups and studies we produced or had

produced. We have so many materials, that this article could go on and on and on. I feel that I just scratched the surface and had to simplify and skip entire parts. For example, a making-of the animated key art with the Archdemon (you can see it on our website at [www.return2games.com](http://www.return2games.com)) could easily be a topic for a separate article.

Hopefully, you will find something interesting in the description of our process, or even get inspired by it. My team has done many games before, but before working on Book of Demons we mostly did casual games, and we never had so much fun and trouble at the same time developing an art-style for a game. Knowing what we know now, would probably let us shave a year off development, but realistically speaking I don't know how we could make all those decisions without trying so many things out in the process.

If everything goes well, Book of Demons will be completed this year and the next games from the R2G series will soon follow. All of the work on the art style we did was part of the pre-production of the entire series. Sure it took a lot of time and effort, but we hope that what we developed and all the guidelines we have now in place will all contribute to making our production easier in the future.

Maciej Biedrzycki



The »Archive of Awesome« is the menu where all the different games will be available as books to fit the paper style.

Figure 21: Two (more or less) final screenshots from the game that show the paper art-style in action.





# PONCHO - A POSTMORTEM

The story about a small indie team that set out to make their dream come true and develop a game. In the end the result was nothing but debt and hassle but a lot of experiences made for their next project.



Danny Hayes is Co-Founder of Delve Interactive.

Danny Hayes is a UK based indie games developer. After starting his own company Delve Interactive with partner Jack Odell, they created an award winning indie game called Poncho with the help of artist Matthew Weekes. Now the Delve team has their sights on creating a homeless survival game called Change, for which a Kickstarter campaign started in January 2017. [@DanHayesGamer](#)

A comparison of how the visuals of the game changed during development.



Hello everyone! It's finally time, to get down to the PONCHO postmortem, where we talk about everything that went right, and everything that went wrong with the development of the game. It has been a long, almost five year journey that has changed us forever. Now, a year after the initial release, it's time to spill the beans on everything we've been through.

Before we do that, first we must say with a heavy heart that we've been forced to give up on the Vita port of the game. Things out of our control are stopping us from sending it to PlayStation, and we have no choice but to cease development of it. Unfortunately, we can't give any hard reasons for the cancellation without incurring legal penalty. We hope we haven't disappointed anyone too much with this news, but it is what it is. We're truly unable to pursue it any further, and believe me, we've tried. With that out of the way, here we go ...

## Winter 2011: It begins with a Sprite

It's 2011. Danny Hayes (me) and Jack Odell both have day jobs, but wanted to make a video game of our own. We decided to go full indie, and make something we knew would take years, and put everything we had into it, with the ambition of making something on the scale of Braid or Cave Story. But we

had no idea what to do. We were young, optimistic, and filled with big dreams of creating the next indie hit.

Then, one day, Jack created an interesting character design (see figure 1). I instantly fell in love with this character. I was excited. We still didn't know what kind of game we'd make, but we knew it was going to be about this guy. A platformer seemed like a good fit, so we spent some time talking about how to make it innovative and interesting compared to other platformers.

Both Jack and I talked about retro inspirations, namely parallax sidescrollers on the Sega consoles, and how you'd see mountains and hills in the backgrounds, but you could never actually go there.

Jack suggested we could separate the game into layers and shift between them at will to achieve that idea. We then named the robot after his red namesake and thus, Poncho was born.

## 2012: A Year of idealistic Struggling

Before Poncho, I had coded mainly for iOS and in C++. I had no idea how to use Unity, but decided it would be the best option since it had easy porting and was more accessible at the time than the Unreal engine.

Throughout 2011 and most of 2012 we went through a bunch of prototypes, re-designs and re-codings as I learned how to use the

Unity engine more effectively. At this point, I did the code and level design, and Jack did the music and art. It went something like this:

- Build the game in actual 3D, using a world of 3D cubes with 2D characters to create a 2.5D effect. Realize that it doesn't look good and start again using a 2D planed environment layered over itself hundreds of times to create the 2.5D effect we wanted.
- Redesign of PONCHO to make him more cute and iconic looking (see figure 2).
- Design level art to look like you see in figure 3.
- Start adding some cool ass characters (see figure 4).

It went on like that. By the end of the first year of development, we had most of a story, basic shifting gameplay and several levels with a bunch of characters and menus. But while mine and Jack's art was passable, we wanted a real pixel pro to join the team and take over the art side of things.

### 2013: Matt joins the Fray!

I posted on a bunch of pixel art sites, saying that we were looking for an artist to join our team. I had saved some money from my day job so we could afford some real talent. We got something like 50 applications, including one guy who strangely only had a portfolio of Hentai to show us, and one who's portfolio included nothing but a single pixel art tree. Luckily there was also Matthew Weekes and he was just the best. After several months, the game looked like in figure 5.

Awesome. We finally had a quality game on our hands, and everything was starting to feel real. Also, in case you were wondering just how many layers and images are on the screen at any given time, have a gander at this early progress level in figure 6.

### The Design Issues

Designing Poncho was tough. As well as designing each level plane and making sure things like jump distances and obstacle placement was perfect like any other 2D platformer, it had to be designed so that it would work in sync with basically two other levels that you can move freely in between. We had to make sure that puzzles and obstacles on one layer couldn't simply be bypassed by shifting to another layer without some thinking.

Additionally, to make things more complicated for us, we wanted to make the game pseudo open world, so the player could choose to go left or right and still complete each area, with multiple paths and choices in which puzzles to tackle. So, levels also had to work in a way where each plane would have to match up to the levels either side of the current one. Each »world« is made of a

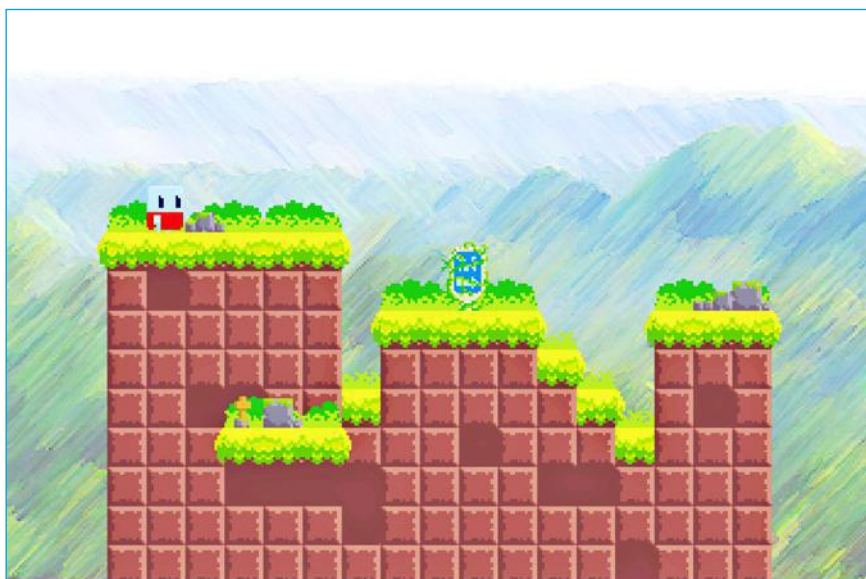


Figure 3: An example of the first level arts.

ring of levels, so by moving in one direction, eventually the player would be moving in circles effectively. This removed a lot of the stress of backtracking, instead of being at the end of a level and having to move all the way back from where they came, the player could take a shortcut by continuing to move in the same direction.

So, instead of working with pen and paper (which we did at first), I designed most of the levels in engine, moving things around and playing until each level felt like a cohesive whole, where each layer was in sync with each other. It took a long time to get each level right.

Originally, we were going to setup levels with varying numbers of planes, possibly going as high as nine planes or so, but we felt that having only three planes would allow for a more concise and simplified design, plus it would mean far less development time.

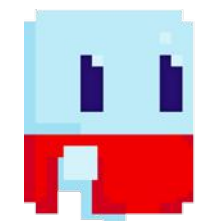
After getting a feel for how to create levels, we started to get creative in different ways we could use the shifting mechanic and added some cool effects:

- Obstacles and blocks that shift on a timer.
- Obstacles and blocks that shift when you do.
- Levels that move between 2D and 3D, merging layers on a timer (that's the infamous Disco level).
- Levels, where the view is set in 2D but the player has to think in 3D space (the great lake).
- Anti-Shift fields that stop players from shifting in certain areas.
- Level planes that slide horizontally and move over each other.
- Machines that would merge large numbers of layers and place the player on the front on back layers (seen in the later levels).
- And more ...

Figure 1: The first design of the game's main character.



Figure 2: This is how Poncho looked like after the redesign to make him more cute and iconic looking.



There were also a bunch of things we wanted to do and were in the original design, but ran out of funding before we could add them into the actual game:

- Fields that were connected to doors, if the player shifted within the field, the door would shut and the player would have to attempt the puzzle again.
- Oil slick areas where the player would slide along quickly and have to time jumps and shifts.
- Super layered levels, where there were several layers in a single level.
- Shift fields that would throw you back if you shifted into them.
- Shift fields that would throw you forward an extra layer if you shifted into them.
- Small underwater areas in other levels, not just the lake.
- There's probably more, but it's difficult to remember ...

If I had to say Poncho was inspired by any game in particular, I'd say Braid, with the emphasis being on puzzles. But, we also felt that the mechanics also worked in a twitch platforming situation, so the levels ended up being a mix of the two. We'd give the player some twitch platforming and timed jump sections, then let them relax with some more puzzle based areas.

The biggest sign of Braid's influence on my designs is probably in the doors. We wanted to create a situation where players would have to »earn« and unlock new pathways and areas for each level by collecting keys, usually by completing puzzles and platforming sections. We went with color coded doors in order to have some say on when they could unlock certain areas, for example in the very first forest area there are four doors in the back layer, and the player must collect all the keys in that level and also buy one from the merchant in order to take the secret back way into the other levels in order to unlock the Smash ability as a reward, which in turn unlocked more areas to explore.

But in other cases, players will have to go exploring and beat certain puzzles in order to get keys and progress. Additionally, keys could be collected and doors opened in order to bypass some harder puzzles, as a reward for completing earlier puzzles. We designed it that way to make the game feel non-linear and give the player choices in each level.

Another aspect of the game, was the abilities. Originally there were going to more of them, and the idea was that they would enhance the experience, but not be a prerequisite for beating the game. They simply exist only to unlock more aspects of the game. We wanted the game to still be kind of pure and rely on the shifting mechanic, so we designed it so that the game could still be comfortably beaten without any abilities, while still making levels interesting for the players that did collect the abilities.

Additionally, instead of using a tile tool or something to create levels, I placed every single sprite by hand. That image above is before any decorative sprites like flowers or bushes are added, and there are hundreds of those in any given level. It took a very long time, but I wanted to do it that way in order to give the game a more »wild« look, as well as have absolute control on the visuals.

Suffice to say, designing a game of this kind was a much bigger undertaking compared to other games than we could have ever realized when we first started. In hindsight, we should have made the game a little more linear and less ambiguous.

### The Story and World Development

From the beginning, we knew that we wanted a beautiful post-apocalyptic world. The themes of Poncho are centered around the meaning of existence and purpose, as well as a side theme of nature vs. man. But we also wanted the game to have a sentimental aspect, and for that reason I based the story slightly on Pinocchio. A robot who was once human, on a search for their maker, their father. The focus of the game was never really on story, more on gameplay, and for that reason we made the story elements fairly open and abstract, from Poncho's dream sequences of the world ending at the start of the game to the super sad ending.

Originally, there were going to be about three times as many story scenes as there are currently. Unfortunately, they had to be cut due to lack of funding. But we still felt we managed to get across all the themes and feelings that we were going for. It's a shame, but still enough for some players to cry at the ending, which is more than enough for us.

For a post-apocalyptic world, Poncho is teeming with life. This was very important to me, I wanted to make the world feel alive and real. That's why the game is filled with

From left to right: Matt, Jack and Danny, at the Rezzed expo.



critters and characters who have no purpose other than to add a passive charm to every area. Would the game have played any different without them? Not really. Is the game better with the time it took to add them? Absolutely. By randomly generating moving characters all over the place, the world felt more alive.

## 2014 & the Year everything got serious

In the summer, me and Jack quit our jobs. There had been a lot of crunching at the studio I worked at in the spring, and development of Poncho had been slow. Anyone who works in the industry knows how hard it is to come home and develop your own projects, when your day job is 60 hours a week minimum. Luckily, I had saved enough money to sustain myself for a while, and we finally went full time on the game. It was great. It was around this time that we knew we were going to need funding in order to bring the game to the level that we wanted it, since we only had a few months of money left. It was time to do a Kickstarter.

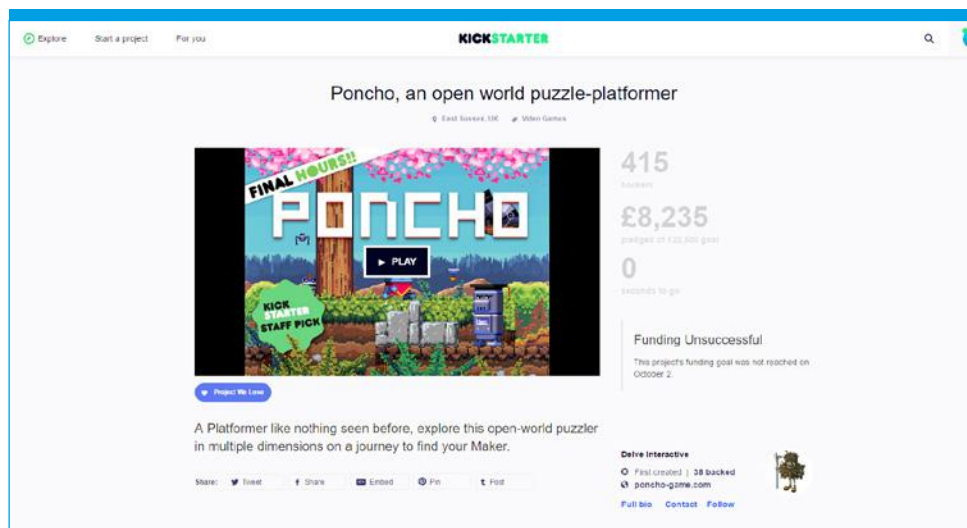
We planned the campaign meticulously. Up to this point, we had done no marketing. We wanted everyone's first look at the game to be within a couple of years of release, rather than announce it right away and then make people wait several years so they can lose interest.

We planned to do an announcement with a trailer, then spend a couple of months marketing before launching the campaign. We also wanted to take the game to EGX, the UK's biggest games expo, around the same time the Kickstarter ended to give the campaign a big boost at the end. But EGX is expensive. So, I took out a very large loan to keep us going for a while and pay for the costs of taking the game to an expo (it was in the thousands).

Then we released a trailer and sent out a press release to about a thousand YouTubers and members of the press. Between the announcement and launching the Kickstarter, we sent out three major press releases, as well as updating our social media and blog posts several times a week. None of the major sites ever replied to us or wrote any articles, though we did get several small indie focused sites writing about the game.

Pressure was starting to build, we were all working very hard and stopped seeing friends. We stopped leaving the house. We stopped living. Nothing mattered except making this game as good as it can be. I was thousands in the hole, and I had spent all my money on it without having a job. (Looking back on it, I was an idiot, but in a way, I'm glad I did it).

22,500 Pounds was the goal we landed on for the Kickstarter. We figured it was the



The team tried a Kickstarter for Poncho, but failed. At least some publishers got notice of the game and contacted the team afterwards.

minimum we needed to finish off the game, I was fine with surviving instead of living for a while to see it through. 22,500 Pounds between three people over six months is less than minimum wage, but we were prepared to do it. Only Poncho mattered.

## Kickstarter Launch!

We launched the Kickstarter on the 2nd of September, 2014. After a few hours of constantly refreshing the page, I finally went to bed, exhausted and feeling like we had accomplished something.

The next day, I looked at our campaign to see that we were already 15 percent towards our goal in one day! A bunch of YouTubers had come on board and some more smaller sites posted about the Kickstarter launching. So, we got drunk and celebrated.

The next day, we were at 17 percent. Shit. To go from 15 percent in one day to only get 2 percent on the next was worrying. And it continued. By the time the end of the Kickstarter was drawing near, we were only at about 25 percent of our goal. But we still had a big four screen booth at EGX, where thousands of people and press would see the game. We had spent weeks polishing and working on the demo we were showing, doing crazy hours. We hoped EGX would be just what we needed.

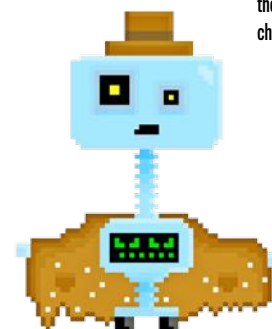
## EGX

I had been a programmer for years. I thought I knew what it was to be tired after working weeks of crunch at studios. But I had never been so tired as I was at EGX.

First off, our hearts sunk into our stomachs when we saw the booth. It was cool and all, I mean, we were at EGX with Poncho! But, it was literally the worst placed booth in the entire complex. It was right on the outside of a main booth area, on the second floor, where footfall was at its lowest. On the other side of the partition



Figure 4: Two of the additional characters.



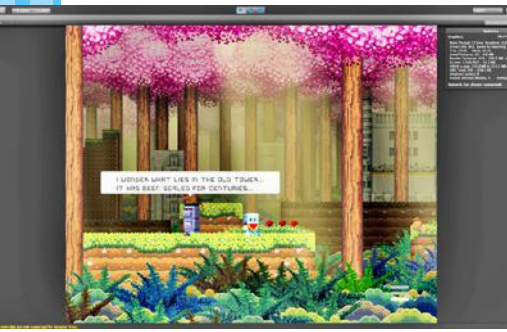


Figure 5: A screenshot of the game after several months of development.

there were hundreds of people. On our side were people who might catch a glimpse of the game as they passed to make their way to the toilet we were next to. Yes, we were next to a goddamn toilet.

I was furious, after spending just as much money as everyone else, we got far less value. To top it off, our booth alone was dark and had no lighting. In order to get press to play the game, we literally had to go out into the expo and grab as much press as we could and lead them to our own booth, because no one knew where it was. Additionally, due to the lighting situation, some press that wanted to conduct interviews couldn't do it in front of our booth because it was too dark. That's how bad it was.

Still, there were usually a couple of seats filled most of the time, if someone stumbled across our darkened area of EGX. We did a bunch of interviews, and energetically tried to »sell« the game to as many people as possible. It was tiring, but still an amazing experience to see people finally playing the game.

Until we realized there was a crash bug in our demo, which required us to get out a keyboard to reboot the game. It was awful, it was just like that scene from »Indie Game: The Movie« where Phil Fish is rebooting FEZ at PAX because the build keeps crashing. It was exactly like that, complete with us apologizing and being like: »You can try again from the beginning if you want ...«. About 75 percent of people never got it though, so it wasn't too bad.

After the first day, our legs felt like blocks of numbed wood, our throats were sore as hell, and it was also the day I took up smoking. There were three days left. Oh god.

Each day went on much like the rest, with us watching in wonder and joy as people played the game, at the same time as being saddened that we were somewhat ignored compared to the other booths. One interesting moment is when a journalist from Destructoid sat down to play the game one day. The guy played through the whole thing with a smile on his face and writing down things in his notepad every now and then.

We started to notice something at this point after seeing so many people play the game: Poncho is marmite. You either like it, or you hate it. While some players put the controller down after five minutes, the guy from Destructoid seemed to like it, and wrote a nice article urging others to kickstart us. It was the first time a major outlet had given us an article and it was amazing.

But my favorite memory is of a young girl, maybe 7 years old, constantly dragging her parents back to the Poncho booth so she could play it more. It was her favorite. I almost felt like crying, that single thing is probably my favorite memory of all the

Poncho years. It made all the stress seem worth it, if only for moment.

### Failure & funding

Well, I'm sure you can guess, but the Kickstarter failed. In the end, we only got to 38 percent of our goal. This was the turning point from optimistic game development, into a terrible, sinking, depressive state for all of us. We had no money. I was literally down to under 100 Pounds after EGX, we were banking everything on the publicity of the expo making the Kickstarter a success. It did give a bit of a boost, but it wasn't enough. It was all over, we were going to have to go back to our day jobs and put Poncho on hold, after all that sacrifice and effort.

But then something wonderful happened: Suddenly, we got an email from a publisher asking to fund us. And then another publisher. And then another. It seemed that taking Poncho to EGX had been a success after all! After negotiating through all our options, we landed on Rising Star Games, mainly because they were in the same country and seemed to know what they were doing with indies. I also thought they seemed like nice people at the time. We got funded for slightly less than what we asked for in our Kickstarter, but we were funded. We did have much higher offers, but turned them down since other publishers asked if they could change the game.

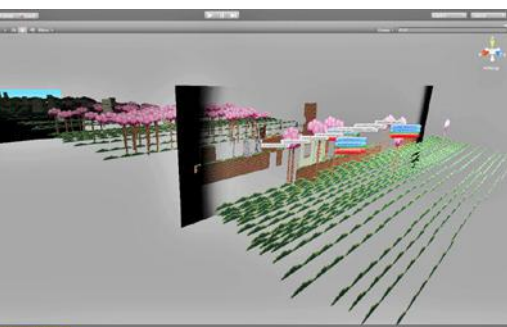
### 2015 & the Year where everything broke down

Now, this is where writing this gets tough. For legal reasons, there's a bunch of events here that we can't talk about. There would be massive repercussions if we do, and we've been told as much. I would, however, suggest this to all you other developers out there: Think very, very, very hard about whether getting a publisher is right for you.

Due to these events, we had no money, I lost my home, we lost our Sony Dev Kits, I was thousands in debt and we had to cut a great deal of the designed content from Poncho, including key characters and story elements in order to release something at least. And no one would help us.

In a sense, what we released was not the full game, especially the PS4 version which was taken away and finished by another company. We were never even able to test the PS4 version before it was released either, later finding out changes had been made that we didn't want and it was full of bugs. We even had to cut the reward for collecting all the junkyard king's minions, which was going to give the player a bonus end credits scene. I took out more loans just to survive and finish the steam version of the game, as we were not able to attempt to try and secure funding elsewhere. But, after

Figure 6: This screenshot from the Unity editor shows how many images and layers are on the screen at any given time.



months of pain, stress and general depression, we hit a release date.

## 2016 & the worst Year of my Life

Poncho was released on PS4 and Steam on November 3rd, 2015. After seeing the sales, we celebrated the release by writing out our CVs to start looking for a day job. It wasn't nearly as much as we were expecting, even by a pessimistic standard. It was truly awful.

Steam made me furious, upon releasing, we were in the new releases tab on the front page for about three hours, and then the game could only be found by searching for it or by it possibly turning up in someone's recommendations. Slightly older games that had released earlier that day remained in that tab for days, and despite having a 90 percent review rating at the time, it seemed we weren't selling enough copies in those few hours for Steam to keep it on the front page. The Steam store isn't much better than the Apple App Store these days it seems.

Also, the reviews were confusing. We have a Metacritic score of about 65, but only based on four reviews. There are, in fact, over 50 reviews on the web, and the average is about 7/10. Not bad for a first game! But they were all over the place. Some reviews gave it a 5/10, citing it was too hard. Others, gave it 5/10 citing that it was too easy. Others gave it an 8 or 9/10 saying it was great. We didn't really know what to think. But we did learn a lot. Maybe the reviews just went that way because of the game's marmite feel. It's worth noting that, despite having a publisher on board, none of the big sites like Kotaku, PC Gamer, IGN, Rock Paper Shotgun, etc., ever covered our game. Destructoid only covered us after we got in contact with them ourselves. So, don't think that having a publisher handling the marketing will make a difference when it comes to press actually replying to emails.

## Delve Interactive has not yet made a single Penny from Poncho

It feels horrible to write that down, but there it is. We still have all the debt as well as painful/wonderful memories and experiences though. A year after the initial release, we released the Wii U version which had similar result as the first one. We've since developed patches for the console versions while working new day jobs, but we have been prevented from handing them over to the platforms.

Forgetting the political and celebrity deaths aspects of 2016, it has been one of the saddest years of our lives. All that time. All that money. All that sacrifice. Nothing in return but huge debts. Money was never important to us, but we hoped to at least have enough to spend on another game full time. We pretty much stopped writing updates and social

media posts, it was too depressing to think about. I had trouble holding jobs after going through a series of mental breakdowns. It's taken a whole year, but I'm finally starting to feel better, leaving the house more at least.

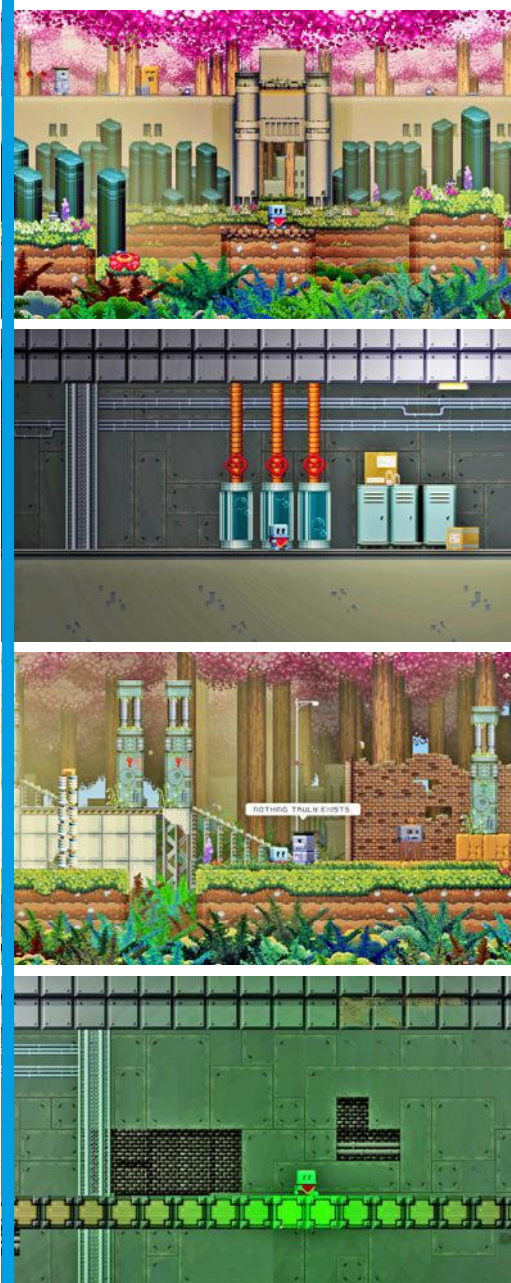
Now the part you've been waiting for, what advice can we give to other developers ... here are the key things we learned while making Poncho.

- DO NOT QUIT YOUR DAY JOB!
- Design something that's simple, you can still make a big game, but make sure the design is concise.
- If you ever get this feeling: »Meh, it's good enough, let's just release and be done with this hell«. Wait. You will regret it, even if you're on the brink of homelessness and need money, suffer through it and wait. It will be worth it.
- You probably won't make much money. Don't risk your finances for years by going into debt and putting all your chips in.
- DO NOT RELEASE IN NOVEMBER!
- Publishers aren't always going to magically get people talking about your game. If that's the reason you have for getting one, don't.
- Porting from PC to console is not the same as porting from PC to Mac or mobile in Unity. It's a lot of work.
- Game expos and watching other people play your game is key to making your game better, as well as making you a better designer.
- DO NOT DO GIVEAWAYS! You'll get emails all the time from people saying they'll market your game by giving it away. Even if you've only sold a few hundred copies, it's not worth it. It won't benefit anyone but the person doing the giveaway.
- If you do a Kickstarter video, make sure it has you, the developers, in the video.
- DO NOT GIVE KEYS TO YOUTUBERS WITH LOADS OF SUBSCRIBERS WHO REQUEST IT! If you get a request from a YouTuber who has a million subscribers, that should raise a red flag. Popular YouTubers do not request keys. If you give them a key, your game will be all over torrent and pirate sites within a week.
- Getting on board with consoles is much easier than you might think. It literally takes a few emails usually to get access to dev kits and software to develop for consoles if you have a good game.

## In closing ...

This is not the end. We've learned so much and we still have so many ideas, so we'll never stop making games. Was Poncho worth it? Yes. We released a game on steam and consoles, something we always dreamed of. And we have to cut ourselves some slack, it's only our first try at this; we have our whole lives ahead of us.

Danny Hayes



Screenshots of the final version of Poncho.

# WHY MAKING MULTIPLAYER GAMES IS HARD LAG COMPENSATING WEAPONS IN MECHWARRIOR ONLINE



A fast paced online action game that suffers from lags will quickly anger players. Neema Teymory from Piranha Games explains how they solved this problem for their game MechWarrior Online.



Neema Teymory  
is Senior Network Engineer  
at Piranha Games.

Neema works at Piranha Games as a Senior Network Engineer. He has a passion for games, and has been working in the industry with multiplayer games since he graduated from the University of British Columbia (UBC) with a Computer Engineering degree in 2008. Neema's shipped titles include Ghostbusters: The Video Game, Army of Two: The 40th Day, Duke Nukem Forever, and MechWarrior Online.

**N**etwork latency, or lag, is a reality that multiplayer games need to deal with. Messages transmitted over the internet take time to reach their destination. Depending on the route and the distance they travel, these messages can spend a relatively long time in transit. This can have a negative impact on gameplay experience, especially for quick paced client-server games like first person shooters. What seems to be a very simple experience, like shooting and hitting a target, is suddenly very difficult to make consistent and satisfying for players. Needless to say, making multiplayer games is hard and there are many problems developers need to solve. In this article, I will discuss what MechWarrior Online's weapons system does to deal with lag.

One strategy for dealing with lag is to reduce the distance and thereby improve the route between players and the game server so that the lag is not as noticeable. This can be achieved by regionalizing servers and ensuring players only play on those servers that are closest to them. Or by ensuring that your game traffic takes routes through specific networks to optimally reach your servers. Unfortunately, this may not always be possible due to cost or can only be leveraged in a limited capacity; even then this will not necessarily work for players in rural areas or with limited internet connection quality. MechWarrior Online (MWO) is no different in this regard and uses regionalized dedicated servers to try and minimize latency for

players. However, this often isn't enough for most players and we still need to do more.

## Client Side Prediction

Client side prediction is a phrase you may hear when people talk about client server multiplayer games. It is an important concept that makes it possible for multiplayer games to feel smooth and fluid, especially fast paced games. Without it, even a small amount of lag can be very noticeable and frustrating. The idea of client side prediction is simple: instead of waiting for the server to tell the client the result of an action, have the client predict the outcome of that action as though it happened immediately. For example, if the player wants to move forward, move the player immediately on the client and then send the move request to the server. As far as the player can tell, it appears as though they moved immediately even



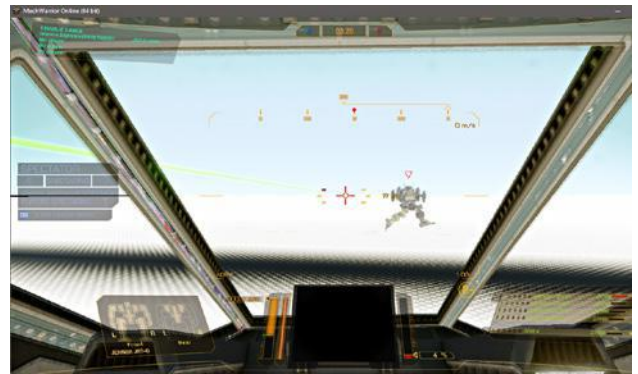


Figure 1: What the player sees when they are lagging.

Figure 2: What the server sees when players are lagging.

though the reality is that on the server they haven't moved, yet. If the game client's predictions are always correct then the perception is that there is no lag. Of course, predictions can't always be correct and something needs to be done to address that problem, but that is beyond the scope of this article. MWO heavily depends on client side prediction. Both for its movement and weapon systems – when the players attempt to move their Mech or fire their weapons, the game will respond immediately.

### Lag Compensation

Now that we have a client that responds immediately and appears to experience no lag, we have another problem. Although a player's actions appear to take effect immediately, the world that they are responding to is out of date. Remember, we have only made it appear as though there is no lag, but information coming from the server is still delayed. That means the target a player sees on their client is not actually there on the server and even worse, once they shoot at that target and the firing request is received on the server, the target has moved even further from its original position. The time it takes to receive information from and then send a request to the server is referred to as round trip time or ping. Unless a player has zero latency, without any lag compensation, players would need to lead their shots ahead of a target in order to hit them; the higher the ping, the further

ahead they would have to lead. As you can imagine this is very annoying for players. This is illustrated by figure 1 and 2.

From the player's perspective, it looks like they should be hitting their target dead on, but from the perspective of the server it looks like the player is completely missing. In order to deal with this problem, we need to compensate for the lag of the player somehow.

At this point you may be wondering why even bother solving this problem. Since the client is predicting everything, can't the client just tell the server they hit the target or not? The simple answer is yes, that is a possible solution; however, there is a very big caveat. The moment the game client is allowed to tell the server anything, the potential for some form of cheating is created. On PC, a game client can trivially be modified and a smart cheater will modify the game client to send hit messages whenever they want, even when they aren't near or can't see targets. As such, this notion of client authority, especially in the case of dealing damage, is an incredibly risky proposition. If a multiplayer game is targeting a platform that provides some form of »protection« for the game client, like a console, then this may be a viable solution. But in the PC world, if you give the client any kind of control over the game's state, it will almost certainly be exploited. There are many ways to combat cheating, but that is beyond the scope of this article. For our purposes, the safest solution is to leave the server in control and this is what MWO does.

MechWarrior Online is an action game that is based on the legendary MechWarrior series. The Free2Play shooter was released in 2013.



In MWO there are two main categories of weapons and each needs to be lag compensated in a different way. These two categories are trace fire weapons – things like lasers and machine guns – and projectile weapons – things like missiles and ballistics. Trace fire weapons are much easier to deal with, so let's look at them first.

### Lag Compensating Trace Fire Weapons

Trace fire weapons fire instantly, impacting their target the moment they are fired. They do this by performing a ray cast or line trace against the current game world state to determine the impact point of the weapon. Therefore, what we need to lag compensate for is this line trace. If the server keeps track of the past positions and orientations of targets, the server could then use the player's ping to determine exactly where the target was when the player shot. This is what the blue Mech in figure 3 represents. It is lined up with the position on the firing player's screen above. MWO refers to the position of this blue Mech as the rewind position of the target. Now that the server knows where

the target should be, it can move the target back to this spot, perform the line trace to determine if a hit occurs, then put the target back in its original spot. In this way, the server makes the prediction of the game client accurate.

In the case of MWO, it is not sufficient to only store past positions and orientations. Each component of the Mech can be damaged separately, and this is a very important gameplay mechanic, so the animation state is also relevant. This must be remembered and rewound on the server as well. You can see this in the image via the difference in the walk cycle between to the rewind Mech and the present Mech. Now that we can deal with trace fire weapons, let's see how we can build on this solution for projectile weapons.

### Lag Compensating Projectile Weapons

Projectile weapons work very differently from trace fire weapons. They fire a piece of geometry, like a slug or missile, into the world, and this geometry sails through the air, and deals damage once it impacts a target. A simple rewind will not work in this case. If we used the same approach as trace fire weapons and assumed the projectiles travelled at an infinite speed, the server might incorrectly detect the projectile struck a target immediately, even though the target could have potentially moved out of the way before it hit them. And even worse, players intentionally lead shots ahead of targets for projectile weapons since they are using their judgment to predict where the projectile will be by the time it reaches their target. In this case, a player with perfect aim, and a server with perfect rewinding will cause the player to always miss. We need a different approach.

What we would like to do is fast forward the projectile on the server to catch up to the position where the client has predicted it will be. If we can make the prediction of the client correct, then we will have compensated for the lag on the game client. In order to do this, let's break down the lifetime of the projectile into two parts.

By the time the server receives the request to fire the projectile, half of the player's round trip time will have passed. But remember, the server is supposed to be ahead of the client by one half of the round trip, so as far as the server is concerned, the projectile must have existed for ping seconds in order to be consistent with everything else in the server's world. During this time, the projectile may have already struck a target on the client, and the server may need to do something about that, but let's not worry about that for now. Let's call this first stage of the projectile's life the rewind period. Everything after the first part of the projectile's lifetime is the point at which the server's simulation of the projectile and the client's prediction



Figure 3: Server view of rewind target position.



Game client leading a shot for a projectile weapon.

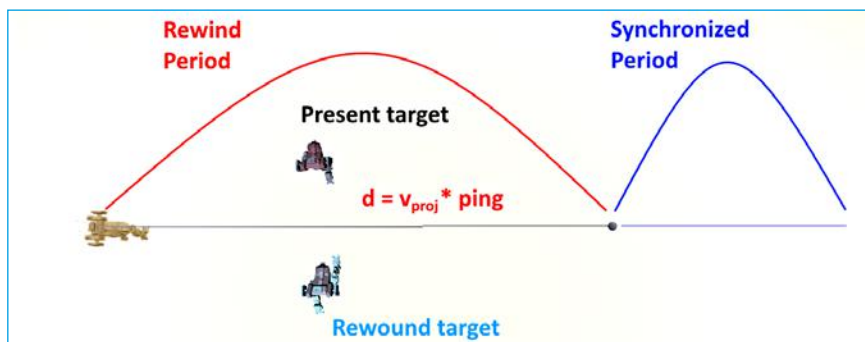
of the projectile should be synchronized. It's important to note that synchronized in this context does not mean that the projectile is exactly in the same spot on the client and the server. The client is expected to be behind the server by one half the round trip time. So, in this case, synchronized means that the projectile is in the same place relative to the rest of the objects in the world between both the client and server. Let's call this stage of the projectile's life the synchronized period. Dealing with the first part is a bit trickier, so let's tackle the second part first.

Let's assume the projectile has simple physics and just moves in a straight line at a constant velocity. In that case, by the time the request to fire the projectile arrives on the server, the projectile will have already travelled a distance on the game client equal to its velocity multiplied by the ping of the client. If the projectile has more complex physics like drag and gravity, it should still be possible to calculate the distance it has travelled using a more complex formula.

If we ignore the rewind period for now, the server can make the client's prediction correct or synchronize with the client by simply spawning the projectile the distance it has travelled ahead from its normal spawning position. In other words, the server will not fire the projectile from the barrel of the weapon, but instead fire it ahead by distance units along its trajectory. If the projectile has more complex physics, the server may also need to calculate the appropriate velocity and acceleration the projectile should have at that point along its trajectory. Assuming the projectile moves deterministically, it should now travel in a synchronized trajectory between the client and server. That's easy enough, so what do we do about the rewind period?

If we were to always spawn the projectile ahead by the rewind period distance, then it would be possible for projectiles to tunnel through targets or even static geometry. It's easy enough to prevent tunneling through static geometry by performing a line trace. But what about moving targets? If there was a target inside the rewind period, then it's possible the projectile has already hit a target according to the client's prediction before the request even reaches the server. This is the real problem with projectiles – the server needs to be able to detect this situation and to make the client's prediction a reality.

One way to do this is with an iterative solution that combines rewinding with some kind of fast forwarded simulation. When a projectile fire request is received on the server, it could rewind the target, spawn the projectile and tick the projectile and target forward over the rewind period. If a collision is detected between the target and projectile while ticking forward, we could deal damage to the target and avoid spawning the projectile at all. If no collision



Overhead view of projectile trajectory on server.

is detected, we can spawn the projectile into its synchronized period.

Unfortunately, this solution suffers from a couple different problems. The first is that fast moving projectiles will tunnel through targets on an individual tick without some type of continuous collision detection during each tick. The second is that this type of solution can be very expensive to run on the server. The number of iterations will be related to the length of the rewind period. So if players happen to have higher pings, each projectile shot is going to be more expensive to process. In MWO, there are many projectiles and they travel very fast, so for these reasons and others that I won't discuss here, this solution doesn't work well for us.

In order to come up with a non-iterative solution, let's first make some assumptions to simplify the problem. We assume the following about our projectiles: the projectile can be approximated as a point so that we can use line traces to approximate its trajectory, the trajectory of the rewind period can be approximated reasonably well with a straight line, and that projectiles have a constant velocity through the rewind period. In MWO, projectiles use ballistic physics, so they don't always travel in straight lines, but they are very small relative to Mechs, they travel very fast and do not decelerate while travelling through the air, so these assumptions work well for us. We also need to make a few more assumptions about the motion of targets. We assume that the motion of the target between its rewind position and current position on the server can be approximated relatively well using a straight line and that the velocity of the target through this period is also constant. These assumptions may be a bit harder to swallow for some fast paced games but luckily for MWO, Mechs turn, accelerate and decelerate slowly and smoothly, so these assumptions turn out to work well enough for us.

Using these assumptions, we can break the problem down into two parts. In the first part, we want to know if a collision with a target is even possible. If a collision with a target is possible, we then can do a calculation to determine where along the rewind period

## Server projectile rewind states



**Black line:** original firing vector over rewind period.

**Blue line:** adjusted firing vector for continuous collision detection test.

**Black Mech:** the current position of target Mech when projectile was fired.

**Blue Mech:** the rewind position of target Mech based on ping of player.

**Yellow Mech:** the candidate position for final rewind check.

that collision would occur. In the second part, we use this information to do a normal trace fire rewind with a modified ping value to determine if the hit actually occurs.

To check for the possibility of a hit, we first determine the rewind position of the target based on the player's current ping and the vector that represents the trajectory of the projectile through the rewind period. This is similar to what we do for a trace fire rewind. What we want to know is if these two objects intersect while travelling along their respective trajectories. The assumptions we made earlier allow us to transform this problem into a single line trace by making the velocity of the projectile relative to a stationary rewind target. This can be seen in figure 4.

Solving this problem is equivalent to solving the tunneling problem I mentioned earlier. You can imagine that the projectile travels from its starting position to the end of its rewind period in a single tick – checking if a collision occurs during the motion of these objects between their start and end points is a continuous collision detection test. It is important to note that this check is not the same as a normal line trace. We intentionally ignore the rest of the world and only

consider the rewind target and the adjusted trajectory – this is a very important detail. If we don't ignore the rest of the world, we can erroneously get a result that tells us a collision is not possible when it actually should be. For example, if the player is standing next to a wall, we could end up with false negatives. This is illustrated in figure 5.

Recall that this test only tells us if a collision is possible; it does not guarantee a collision actually occurs. There can be other moving objects or geometry in the way. So, we still want to do some kind of rewind test along the original projectile trajectory, similar to what we do for trace fire weapons. If the first part of the test passes, it gives us exactly the information we need to do this. It tells us that if a collision does occur, it occurs at some percentage along the path from the rewind position to the current position of the target. Since both the projectile and target are moving over the same time period, this percentage is exactly the percentage along the adjusted trajectory the intersection occurs – sometimes called the hit time. We can use the hit time to calculate an adjusted ping value that rewinds the target into this middle position.

This middle position is the rewind position we actually want to perform a trace fire rewind test against. We can perform a normal trace fire rewind check with the adjusted ping value to determine if a hit actually occurs. If a hit occurs, we deal the appropriate damage to the target and avoid spawning the projectile. If no hit occurs, we spawn the projectile into its synchronized period as described previously. In the case of the image above, we can see that in this particular situation a hit does occur.

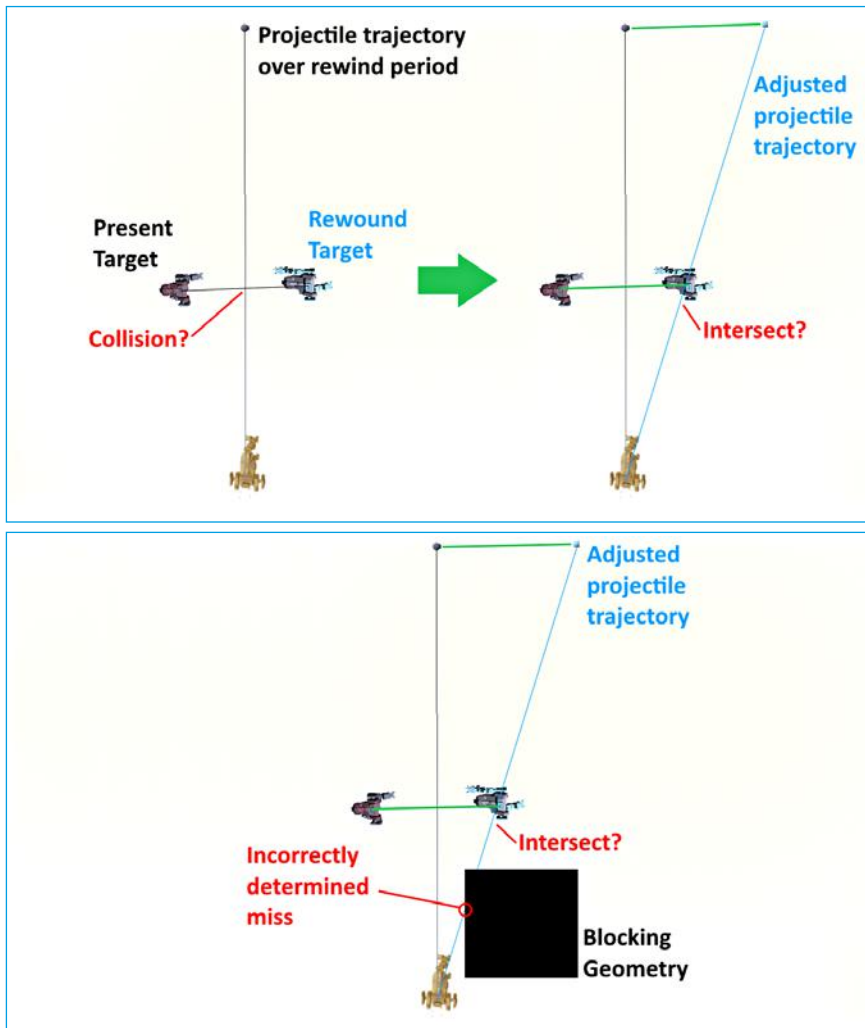
**Conclusion**

Lag compensating weapons is just one example of some of the difficult challenges MWO and multiplayer games in general have to deal with and this article only begins to scratch the surface. We haven't even talked about what to do for explosion effects, tracer effects, the inconsistencies rewinding can cause between lagging and non-lagging players, and how the server can do all this work efficiently for many targets. Aside from lag compensating weapons, there are still many other problems multiplayer games need to deal with, including error in client predictions, cheating, bandwidth management, and managing server performance, to name a few. It is easy to take for granted the difficulty and effort that goes into creating what appears to be a simple experience for a multiplayer game. I hope this article sheds some light on how complicated developing a multiplayer game can be and that the next time you are playing your favorite online game, you will appreciate it even more than you already do.

Neema Teymory

Figure 4: Using our assumptions, the server can transform the problem on the left to the problem on the right, which is much easier to solve.

Figure 5: Possible situation, where world geometry would produce an erroneous result for the adjusted trajectory test.



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# THE INDUSTRY AT A GLANCE

# COMPANY INDEX

Forget about the directory assistance! Here you will find all known publishers, developers, service providers, educational institutions and unions of the German speaking games industry.

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Blue Byte Mainz	Römerpassage 1	55116	Mainz	06131 / 554470	studio-mainz@bluebyte.de
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Destrax Entertainment	Merkurstraße 10	33739	Bielefeld		info@destrax.de
Digitalmindsoft	Wichernstraße 10	89073	Ulm		info@digitalmindsoft.eu
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dreiNET	Bergedorfer Straße 96	12623	Berlin		philip@dreinet.org
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eelusion	Feldstiege 78	48161	Münster		contact@eelusion.com
Egosoft	Heidestraße 4	52146	Würselen	02405 / 4239970	egoinfo@egosoft.com
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Designschule Schwerin	Bergstraße 38	19055	Schwerin	0385 / 5559775	info@designschule.de
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Europa Campus Mannheim	Janderstraße 1	68199	Mannheim	0621 / 8425660	info@ec-europa-campus.com
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Hochschule Trier	Schneidershof	54293	Trier	0651 / 8103345	sek@informatik.hochschule-trier.de
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mAHS, media Akademie - Hochschule Stuttgart	Tübinger Straße 12-16	70178	Stuttgart	0711 / 925430	info@media-hs.de
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Mediadesign Hochschule Düsseldorf	Werdener Straße 4	40227	Düsseldorf	0211 / 1793930	info-dus@mediadesign.de
Mediadesign Hochschule München	Claudius-Keller-Straße 7	81669	München	089 / 4506050	info-muc@mediadesign.de

# Company Index

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SAE Institute Berlin	Cuvryspeicher, Cuvrystraße 4	10997	Berlin	030 / 22066210	berlin@sae.edu
SAE Institute Bochum	Springerplatz 1	44793	Bochum	0234 / 93451310	bochum@sae.edu
SAE Institute Frankfurt	Homburger Landstraße 182	60435	Frankfurt am Main	069 / 543262	frankfurt@sae.edu
SAE Institute Hamburg	Feldstraße 66	20359	Hamburg	040 / 23688080	hamburg@sae.edu
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SAE Institute Stuttgart	Stuttgarter Straße 23	70469	Stuttgart	0711 / 81473690	stuttgart@sae.edu
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4-REAL INTERMEDIA (Lokalisation)	Ludwigstraße 32	63067	Offenbach	069 / 8090880	info@4-real.com
adjust	Saarbrücker Strasse 38a	10405	Berlin	030 / 91460083	
Anakan (Lokalisation)	Pfuelstraße 5	10997	Berlin	030 / 531420450	contact@anakan.de
Aruba Events	Marsiliustr. 36	50937	Köln	0221 / 96026057	info@aruba-events.de
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Beiten Burkhardt Rechtsanwältsogellschaft mbH	Westhafen Tower, Westhafenplatz 1	60327	Frankfurt	069 / 7560950	bblaw-frankfurt@bblaw.com
Brehm & v. Moers	Anna-Louisa-Karsch-Straße 2	10178	Berlin	030 / 2693950	bbrin@bvm-law.de
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Buschbaum Media & PR	Emanuel-Leutze Straße 21	40547	Düsseldorf	0211 / 5988140	presse@buschbaum-media.com
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Computec Media GmbH	Dr.-Mack-Str. 83	90762	Fürth	0911 / 2872100	info@computec.de
Conflutainment (Consulting)	Rodenberg Straße 9	10439	Berlin	0171 / 6486720	arg@conflutainment.com
CULTURETRANSLATE	Niederurseler Allee 8-10	65760	Eschborn	06196 / 9549355	info@culturetranslate.com
DELASOCIAL Berlin	Chauseestr. 49	10115	Berlin	030 / 35510180	contact@delasocial.com
DELASOCIAL Hamburg	Christoph-Probst-Weg 31	20251	Hamburg	040 / 87979890	contact@delasocial.com
Digital River	Scheidtweilerstrasse 4	50933	Köln	0221 / 310 88614	sales@digitalriver.com
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Freaks 4U Gaming	An der Spreeschanze 10	13599	Berlin	030 / 41719113	info@freaks4u.de
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GDC - Game Developers Conference	303 Second Street, Suite 900, South Tower	CA-94107	San Francisco	+1 / 415 / 9476000	info@gdc-europe.com
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IHDE & Partner (Rechtsberatung)	Schoenhauser Allee 10-11	10119	Berlin	030 / 403680000	info@ihde.de
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PiXABLE STUDIOS	Buchenstraße 16b	01097	Dresden	0351 / 56341360	info@mastersolution.ag
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Project-C (HYDRA)	Dorfstraße 50	29336	Nienhagen	05144 / 6988871	kontakt@project-c.eu
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Razer (Hardware)	Winterhuder Weg 82	22085	Hamburg	040 / 419299300	
Spinor (3D-Engine)	Agnes-Pockels-Bogen 1	80992	München	089 / 54043980	spinor@spinor.com
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ToBringAlive (Animation, Design)	Heeremansweg 57	48167	Münster	0251 / 3944778	angerbauer@tobringalive.com
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Toygardens Media (Grafik, Video)	Voßstraße 12	30161	Hannover	0511 / 33659800	info@toygardens.com
Virgin Lands (Grafik, Cinematics)	Gneisenaustraße 10/11	97074	Würzburg	0931 / 8049000	info@virgin-lands.com
Z-Ground Illustration (Grafik)	Hegelstraße 27	55122	Mainz	06131 / 5708701	jz@z-ground.com
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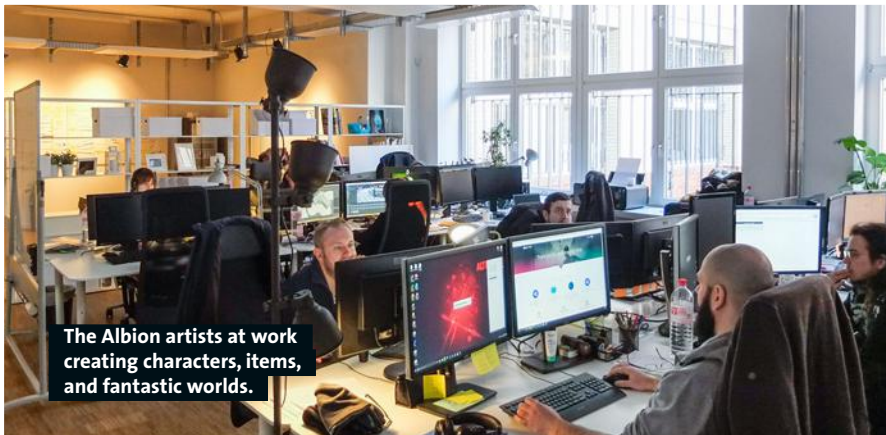
If not otherwise indicated all phone numbers and addresses are German ones, therefore please be aware that the national code for phone numbers is +49.

# A day at ... SANDBOX INTERACTIVE

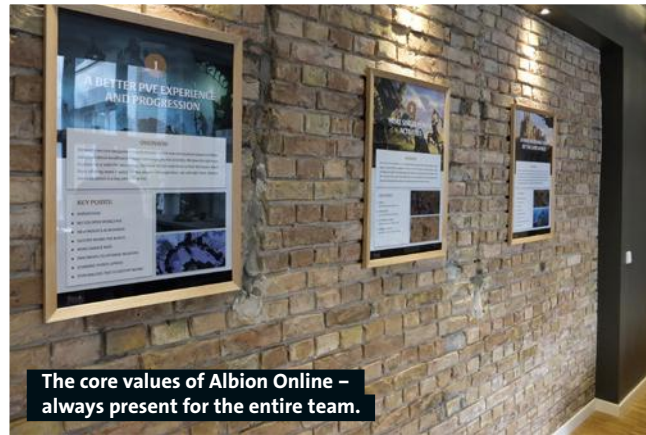
Half of the team taking a group picture – the rest were glued to their desks.



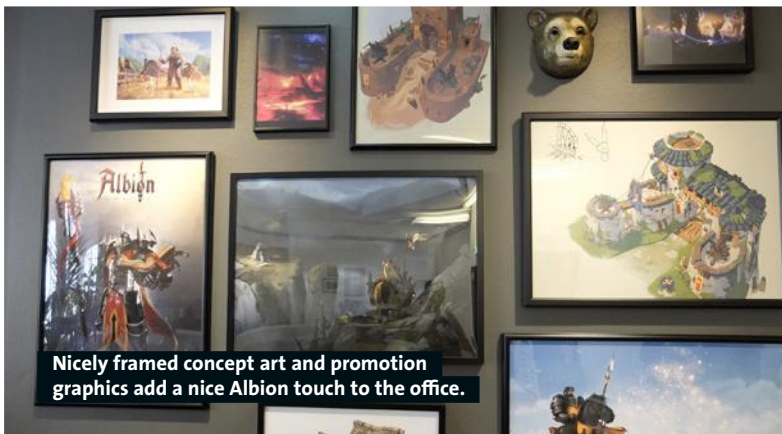
The Albion artists at work creating characters, items, and fantastic worlds.



The core values of Albion Online – always present for the entire team.



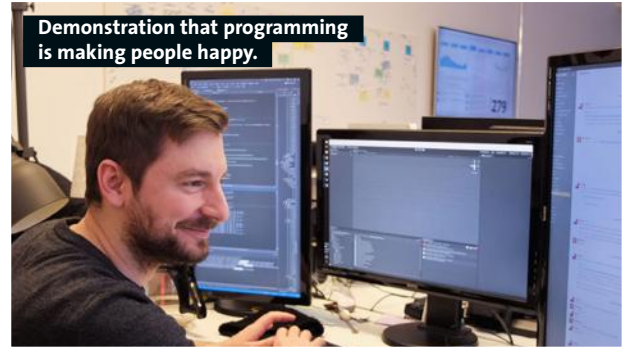
Nicely framed concept art and promotion graphics add a nice Albion touch to the office.



Who is doing what and when? Planning is everything.



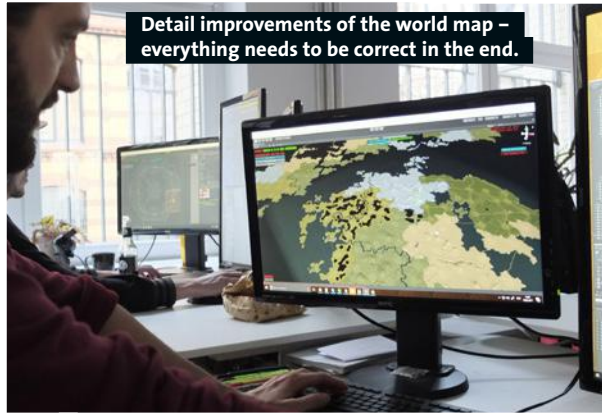
In fall of last year, Berlin-based Sandbox Interactive moved into their new studio also located in Berlin. And really cool, too! We know that because we paid them a visit.



Demonstration that programming is making people happy.



Art Director Marcus Koch creating new armor pieces for the Gatherer set.



Detail improvements of the world map – everything needs to be correct in the end.



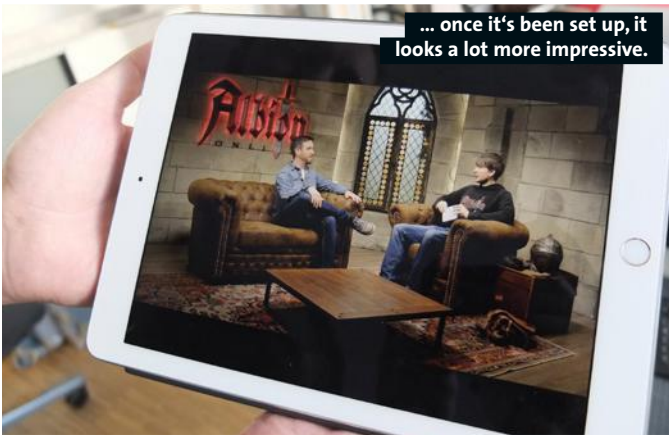
CTO David Salz is fueled by coffee – and hot chocolate.



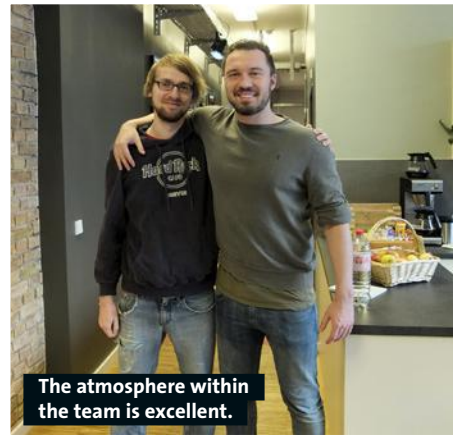
This is what a still wrapped studio set looks like...



The morning meeting – to keep everybody on the team in the loop.



... once it's been set up, it looks a lot more impressive.



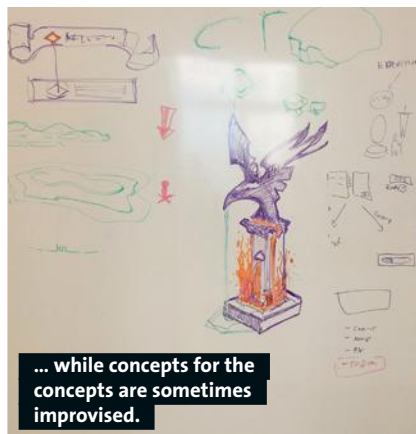
The atmosphere within the team is excellent.



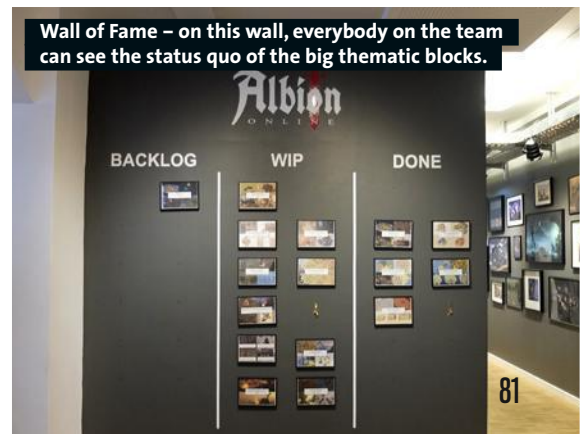
The studio kitchen holds body and soul together.



Concepts which determine the visual style are being thoroughly devised...



... while concepts for the concepts are sometimes improvised.



Wall of Fame – on this wall, everybody on the team can see the status quo of the big thematic blocks.

# MAKING GAMES PREVIEW

## 07-08|17

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## The Making of Shift Happens

Klonk Games certainly didn't take the easy way out with the development of their couch coop puzzler »Shift Happens«. A number of highs and lows put the perseverance of the Munich-based studio regularly to the test until the game was finally released on PC, Xbox and PlayStation 4 on February 22. In our Making Of, the indie developers talk about their creative process, the game design and the many lessons they learned from the development.



## Weitere Themen

### Case Study Gamification

Marc Sodermann talks about the development of gamification, its place in our lives and the opportunities for the industry.

### Best Practice Art Creation

InnoGames' Art Team Lead Omar Siu explains the importance of creating the right look for your game.

### Feedback in kompetitiven Spielen

Systematic feedback is of great importance to improve as a player. Fabian Fischer explains why.

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