

Building Trust in Personal Data Driven Media Experiences

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ABSTRACT

The turn towards personal data to drive modern media experiences is increasing at a remarkable rate. Along with all the technological innovations this shift promises, it also entails certain caveats like loss of user trust, which demand immediate attention and response in order to ensure sustainable growth in this domain. A user study of personalised Electronic Programme Guides powered by user personal data uncovered loss of user trust as one of the overarching challenges faced by such novel experiences. Further studies involving service providers unpack loss of user trust as a major risk of using personal data, where the need for design practices and solutions that help alleviate this concern is highlighted. This research, having uncovered such a need, intends to further explore this space through the design, development and evaluation of a data driven media experience that prioritises user trust throughout its various stages of realisation.

Author Keywords

Media; Personal Data; Trust;

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous;

INTRODUCTION

Currently, everyday life is deeply embedded in a data rich eco-system. One which provides data driven, personalised and context sensitive services, provided in return for the personal data that users are required to share. This ecosystem is asymmetric in terms of power over data[10], as presently users exercise minimum or even no control and understanding of their data. Disregarding this underlying flaw in the system, the use of personal data and its extrapolation into inferences are expanding across disciplines as diverse as health to sports to energy services. Both the service providers and data subjects are not fully aware of the implications this situation could have in the long run and so are currently treating this imbalance of

power with a certain apathy, without realising the legal, regulatory and societal backlash this could create.

Modern media, which is becoming increasingly online, digital and ubiquitous is also turning towards the use of personal data to enhance the experiences served. Here, personal data is a tool that enables not just innovation but a means to understanding the audiences better, identifying consumption gaps and ensuring that the services provided are relevant to a diverse spectrum of audiences. While Netflix was one of the first to popularise this movement through their \$1 million recommendation algorithm competition and their production of House of Cards using statistics derived from user data, around a decade later, presently, this domain has grown to broadcast techniques that tailor movies to suit individual user interests[3] and cooking shows that adapt to the user's cooking expertise and speed[4], all powered by user personal data.

The technological capabilities presented by the use of personal data are unparalleled but it simultaneously introduces risks[9] that demand careful identification, study and management of this shift to ensure sustainable growth and innovation in the field. Thus, while personal data affords "new horizons for personalised, interactive and immersive entertainment as well as marketing...[...].... At the same time, some such proposals may be at variance with human values many of us hold dear, including privacy, trust, and control." [7]

This PhD is an initiative that explores this turn of modern media services towards personal data by studying the loss of trust introduced by the use of personal data in media services and identifying methods that help alleviate this situation.

BACKGROUND

Personal data and new media

The turn towards personal data to power modern media experiences has witnessed a move away from generic forms of broadcasting to the masses towards customised narrowcasting practices where individual user's particular interests are catered to[8]. Today, personal data has emerged as an enabler that helps realise various diverse definitions of interactivity proposed by the likes of Steur[18], Markus[11] and Rada[14], to provide users with multifaceted interactive experiences that remove 'old constraints' and offer users 'new liberties of action'[2], by involving every individual user's requirements.

Examples of such novel experiences are unique and diverse with respect to the data utilised and its translation into the experience itself. These include movies that adapt themselves continuously to user reaction learned through real time physiological data[13], formats where news programmes are personalised on user televisions to provide more relatable and relevant content[1], personalisation of broadcast[3], recommendations made based on user emotions[6] etc.

Current challenges

The use of personal data helps foster innovation in modern media services. However, this shift also introduces many challenges that demand judicious management of this data being collected, stored, used and shared.

One of these challenges is the loss of user trust. The World Economic Forum was among the first to report a crisis in trust in the personal data ecosystem . “The widespread loss of trust is unmistakable: security breaches, identity theft and fraud; concern from individuals and organizations about the accuracy and use of personal data; confusion from companies about what they can and cannot do; and increasing attention and sanctions from regulators.”[9]

While this report does not directly address media organisations or services, the event where Netflix was forced to cancel their \$1 million personal data driven recommendation algorithm improvement contest due to privacy concerns raised by users highlights the sensitivity and importance of personal data associated with media, to the users[17]. This, coupled with recent political allegations pertaining to ‘fake news’[19] has led to further erosion of user trust in media organisations which could be expected to filter down to the various services they provide, particularly the ones that leverage user personal data.

The situation is further exemplified by the lack of transparency and control over data that is currently provided to the users. An ‘asymmetry’ of control was mentioned by Lanier[10], where users, both the producers and consumers of the data commodity, have substantially lesser control over their data when compared to the organisations who leverage it. While research has highlighted the importance of allowing data legibility, negotiability and agency through control[12] to the users, there still remains an explicit call for the realisation of these principles.

STATEMENT OF RESEARCH

Thus, modern media is transforming to be increasingly ubiquitous and online with novel media experiences extensively leveraging personal data to power this shift. What is yet to be studied and understood is how to overcome the lack of trust presented by the collection of personal data through media technologies. This research aims to do the same by understanding the user and service provider ideals and challenges in this scenario and co-designing a technological intervention that provides

mechanisms that work towards overcoming these outlined challenges, thus helping restore user trust in this scenario.

AIMS AND OBJECTIVES

The research could be broadly divided into three, which form the three primary objectives of the research. They are:

- Understanding the challenges involved in leveraging personal data to deliver trusted personalised media experiences

This part contributes to the formative phase of the research where the emphasis is to understand and outline the current landscape in the personal data scenario, especially with regard to media experiences. The focus here is to understand both the user and service provider views, attitudes, challenges and barriers in using personal data to drive media experiences.

- Co-designing a design intervention which would contribute towards building better user trust in media experiences driven by personal data

Once the current practices are understood and the gaps that lead to loss of user trust in the process of personal data exchange in media services are identified, the next step would be to design a technological intervention which would help fill these gaps and foster a healthier data exchange scenario that is embedded in privacy and trust. The solution would aim towards providing the user with a greater understanding and control over his/ her personal data, thereby increasing the users’ active participation in the data economy and contributing to the trust the user has in media experiences powered by their personal data.

- Evaluation of the design intervention to understand its strengths and weaknesses.

The final stages of the research would involve the evaluation of the intervention created. Here the focus would turn towards the user. The major goals of the evaluation process would be the following :

- to understand the user’s response towards the intervention
- understanding their attitudes and behaviors with respect to the same and
- learning about possible improvements that might benefit the user in terms of value derived from engagement with the technology.

FINDINGS

Study I : Identifying the challenges involved in using personal data driven media experiences

A study was conducted in 2016, “Challenges of using Personal Data to drive Personalised Electronic Programme Guides”[16] which explored user attitudes towards personalised media experiences using the example of a personalised EPG. The study was done in close collaboration with the BBC and looked into the user

attitudes and response towards the BBC iPlayer EPG being personalized.

Personalisation of EPGs upgraded them from being a generic list of programmes curated by the broadcaster to a tailored mix of live broadcast and video on demand[5], always featuring content of interest that reflected the user's lifestyle, interests and media consumption habits.

The study used scenario based exploration[15] enabled by the use of probes to convey the functionalities of data-driven, personalised EPGs. Four scenarios, explained through the use of UI mockups were presented to the participants. In each scenario, the mockups were used to explain the functionalities of the EPG and help probe dialogue relating to the same.

The results of the study showed that users preferred personalised EPGs over current popular EPGs but expressed a significant lack of trust in the personal data collection that drives personalisation. Users appreciated the functionalities afforded by personalisation of media but were apprehensive about the implications of the personal data being collected about them, particularly in the context of their homes. This calls for the need to design future personalised media experiences that help enhance trust in these socio-technical settings.

Study II : Exploring the challenges involved in delivering personal data driven media experiences

Having sampled user attitudes associated with sharing personal data in exchange for media experiences, the next goal was to understand industry attitudes, interests and challenges in this area.

A second study was conducted within the BBC, a trusted media provider in the UK. The study was conducted at a time when the organization was undergoing a markable shift where they were prompting all users to create profiles, that could be used for personal data collection. This data would then be used to fuel a number of technologies hosted by the BBC.

The study formed a set of informal interviews with service providers within the BBC, who contributed in varying capacities within diverse teams in the BBC, serving unique and distinct kinds of content to audiences, all inspired by the use of personal data. The teams included iPlayer, BBC Radio, myBBC, Marketing and Audiences, BBC Sports, BBC News, Connected Studio, BBC R&D, Knowledge and Learning etc. The interviews encouraged dialogue around the use of different types of personal data and their purpose for being collected, different ways in which personal data is leveraged within the team, service provider views on benefits and risks associated with personal data use, the different risk mitigation measures taken etc.

The results of the study highlighted a need for better interactions in the user-data-service ecosystem where trust and value are prioritised and balanced. Being legally

compliant and going beyond just the mandatory to further ensure social accountability and ethical responsibility as an organisation were unpacked as methods to achieve this balance in data centric interactions. The work also identified that technology is seen and used as a solution for overcoming challenges and realising priorities to provide value while preserving trust within the personal data ecosystem.

FUTURE WORK

Design and evaluation of a technology probe

With the priorities and challenges of both the users and service providers mapped out, the next step is to design and develop a data driven media experience that upholds these priorities and helps overcome these challenges, thus positively contributing to the user trust within such data driven scenarios.

This initiative began with a two-day workshop that brought together film makers, editors, journalists and technologists, to work on media experiences that were driven by user personal data from IoT devices in the home. Results from this workshop has been used as the starting point for a multidisciplinary research endeavour, the Living Room of the Future.

The Living Room of the Future is a smart space within the home where user interactions with various IoT devices would affect the media content being consumed and vice-versa. This multi-partner initiative involves film makers, technologists and researchers, all of whom have different agendas and aims with respect to its design and evaluation.

My interest and involvement in this research is to observe the design and making practices involved in the development of such data driven media experiences while contributing to the same by simultaneously co-designing the experience. My contribution to the design involves ensuring the technology constantly and consistently provides legibility, negotiability and control as prescribed by the principles of Human Data Interaction[12]. Practically realising these measures are expected to achieve the goals of being more legally compliant, socially accountable and ethically responsible, thus leading to enhanced user trust in the service consumed.

This project is currently in the design and development stage where the experience is going through several iterations of design and building before it will be deployed "in-the-wild", in a public facing space for evaluation studies. This process, while being an evaluation of the effectiveness of the design solutions deployed, is also expected to be an avenue for further dialogue and exploration in this domain, which could contribute to future research endeavours that look at similar solutions.

CONTRIBUTION

This research, being multi-disciplinary, contributes to multiple disciplines in varying capacities. It contributes to

the most modern research in media studies by proposing design and practice recommendations for media researchers who are interested in providing data driven experiences that are trusted by audiences. It contributes to useable privacy research by outlining design and practice recommendations that help build data driven technologies that are privacy preserving. It also contributes to HCI and HDI through the design, deployment and evaluation of a data driven media experience, that priorities user trust throughout its design cycle, through the practical realisation of the three principles of HDI.

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