

There's a problem with traditional methods of data analysis

Humans don't have to look for patterns; we see them instinctively, and then decode their meaning afterwards. Computers, on the other hand, are number crunchers. They have to perform thousands of intensive calculations to identify the same trends, correlations and outliers.

The trouble is, current analytics methodologies don't capitalise on these inherent strengths. Rather, they ask humans to process data and computers to find patterns.

Highly-specialised data scientists must devise a hypothesis, trawl through huge data sets to find and query a small, relevant subsection, and then run computationally expensive analysis to verify or disprove their predictions.

This is slow and expensive, and the results can be inaccessible to anyone without a PhD in Mathematics.

illumr does data analytics differently

illumr's methodology optimises the data analytics workflow by reassigning tasks to humans and machines based on their inherent strengths.

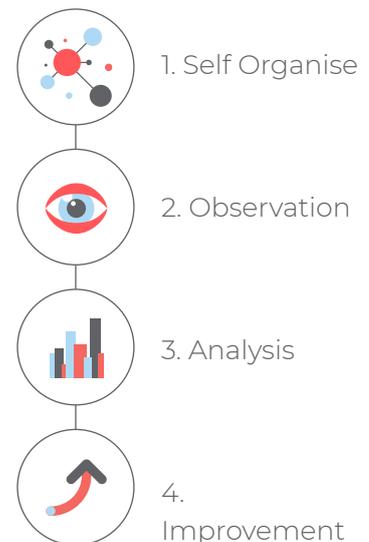
Where traditional methodology asks humans to select and arrange data before exploring it for patterns, illumr uses self-organising data in a 3D space to illuminate patterns visually. Users can see patterns instantly, where conventional methodologies might take multiple iterations of a single query to approximate a similar result (if at all).

Traditional methods also make objective exploration of data difficult as human bias is introduced at a very early stage. Framing questions to solve business problems necessarily disregards alternative possibilities. Instead, illumr uses computational resources to reveal the inherent structure of the data and rules first, and then asks the user to examine the results without prejudice.

Many current analytics methodologies require a hypothesis before observation:



illumr's methodology puts data first:



How does illumr work?

AUGMENTED COGNITION

illumr's Augmented Cognition methodology reveals insights that other tools miss by integrating human pattern recognition with powerful computer processing.

The human visual cortex contains hundreds of millions of complex neurons dedicated to detecting patterns. It is this highly evolved processing power which enables even small children to recognise complex patterns with ease, such as a flock of birds.

illumr presents information in a way which capitalises on this innate ability to detect and decode patterns. Once identified, illumr applies data science algorithms to patterns to explain their meaning. This mutually-enriching relationship seeks to significantly improve the human/computer interaction processes data analytics relies on, which have been famously neglected in the field for some time.

REVEAL THE BLIND SPOTS WITH EXISTING RULES

illumr adopts a rule-led approach to analytics.

Once your data self-organises into 3D space, illumr enables users to interact with existing rules to see how effectively they behave within the data they're trying to predict. You can then change the importance or weighting of any aspect of the data live into the interface to gain new perspectives and a broader understanding of the information.

Revealing the blind spots of existing rules in this way is hugely significant. In the case of financial fraud, improving the effectiveness of a rule by even a fraction of a percent can represent savings of millions, because the anomalies and outliers are where the bulk of fraud takes place.

This rule-led approach is unique to illumr, and it's helping users refine and revalidate rules quickly and cheaply, generating new insights into old data sets that other analytics platforms may have missed.

What is HCI?

Human-Computer Interaction (HCI) is the study of improving the user input and desired computational output. It's a multifaceted concept that touches on user-centric design, responsive and predictive feedback, error reduction and simplifying the execution of complex processing tasks.

What is a rule?

If patterns in analytics represent insight into data, then rules formalise those patterns into knowable quantities. Cumulatively, they describe the connections between human behaviour, activities and outcomes within a usable model.





ENGAGE MORE PEOPLE IN KNOWLEDGE DISCOVERY

Engaging those agents who can create positive business outcomes from data sets – i.e. the managers and executives – is incredibly hard given the complexity of current tools.

You don't need a PhD to use illumr. We've lowered the technical and academic barriers to entry to data analytics in order to engage a broader range of users in knowledge discovery.

Traditional analytics methodologies risk losing actionable output because the act of translation between a specialised data scientist and a business stakeholder tends to obscure some core element of the findings.

By combining an intuitively-designed UI with real-time manipulation of data and rules, illumr minimises the degrees of abstraction involved in presenting your findings to non-technical users. There's a very direct correlation between input and output that opens up a more transparent dialogue between scientists and executives.

The illumr UI

For the first time, rules and data self-organise in 3D space together, for instant insight and easy navigation.



Find hidden insights everywhere

Locating and extracting meaning from data is a universal challenge. There's no 'ideal use case' for illumr - if you work with data sets, large or small, our our new methodology will help you reveal hidden insights.

HEALTHCARE <ul style="list-style-type: none"> • Improve patient pathways • Comparative effectiveness • Fraud, waste & abuse detection 	FINANCIAL SERVICES <ul style="list-style-type: none"> • Fraud detection • Risk management • Model validation 	LIFE SCIENCES <ul style="list-style-type: none"> • Drug discovery • Precision medicine • Clinical trials analysis 	
CYBER <ul style="list-style-type: none"> • Threat detection • Intrusion prevention • Software optimisation 	CONSUMER <ul style="list-style-type: none"> • Customer segmentation • Personalised marketing • Operational Planning 	ENERGY <ul style="list-style-type: none"> • Demand optimisation • Drilling exploration • Trader surveillance 	COMMUNICATIONS <ul style="list-style-type: none"> • Churn analysis • Customer segmentation • Network optimisation

Architecture

“Turbocharge your existing data analytics for greater value”

illumr integrates totally non-disruptively with your existing data analytics platform. It's built on open standards and from open source technology, and delivered as a browser-based SaaS product or an on-premise PaaS offering behind your firewall.

Deliver competitive edge and reduce vulnerabilities

User Interface	Custom apps and API support	Compatible with incumbent analytics platform	
Behavioural Intelligence Platform	Statistical machine learning		
	Pattern and data summaries		
	Scalable compute resources		
Input Layer	CSV	ODBC	Hadoop

Key Features and Benefits

User Interface	
Rule-led approach	Refine rules to improve business outcomes
Soft, visual clustering	Visualise every data point to easily identify specific outliers and see multiple patterns simultaneously
Drive curiosity	High degree of usability lowers the barrier to participation for non-technical users
Broaden participation	Empower non-data scientists, (executives and managers) to get engaged in the analytics process
Behavioural Intelligence Platform	
Reveal hidden patterns	Not constrained to patterns which match a strictly defined mathematical formula
Multiple layers of exploration	Identify patterns at both the micro and the broad, overview level
Identify false positives	Immediate feedback on where traditional data analytics is failing, and the ability to improve it
Real-time analysis	Visually explore your data in real-time to reveal emerging patterns of behaviour
Colour flexibly	Colour by any combination of data
Reveal the interactions between features of the data and patterns.	Drive the discovery of insights across multiple dimensions
Data-driven segmentation	Automatic segmentation at multiple levels of granularity
Formalised group discovery	Create actionable, understandable rules describing patterns
Input Layer	
Leverage numerical and categorical data	Unrestricted exploratory data discovery methods
High-dimensional data analysis	Work with the full richness of your data
Ingest APIs	Access to data from disparate sources