Information Everything

The exhibition of **Information+**
interdisciplinary practices in
information design and visualization

Curated by
Gillian Russell &
Katherine Gillieson

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We live in a data-rich and hyperconnected environment. The omnipresent access to massive repositories of data has affected research practices, opening up new frontiers for understanding patterns in the sciences, humanities and the arts. Given our cognitive constraints in understanding patterns from numerical data alone, new methods have been devised to explore and analyze datasets, including expansive and expanding visualization practices. Information visualizations are ubiquitous and critically important to generating new knowledge in several fields today.

To encourage collaboration and knowledge sharing in these rapidly changing fields we organized Information+, an interdisciplinary conference, workshop and exhibition staged at Emily Carr University of Art + Design in Vancouver, Canada, in June 2016. Information+ brought together researchers, educators and practitioners to discuss opportunities and challenges in information design and information visualization.

This catalogue presents *Information Everything*, the exhibition of Information+, on view at the Concourse Gallery at Emily Carr University of Art + Design, between June 6 and July 3, 2016. From a call for participation, 16 information design and visualization projects were selected for presentation by the team of curators. With representation of five countries, the projects cover themes as diverse as science, culture, society and technology, in media ranging from small screen-based graphics to large-scale installations.

The Information+ conference, workshop, and exhibition would not have been possible without the generous financial support from our home institutions—Emily Carr University of Art + Design and OCAD University—and from the Social Sciences and Humanities Research Council of Canada. We owe thanks for the endorsements received from the International Institute of Information Design, the Information Design Association in the UK, the Brazilian Society for Information Design, and the International Council of Design Ico-D. We gratefully acknowledge the effort of many people, including a dedicated team of research assistants and volunteers.

Katherine Gillieson & Isabel Meirelles
Information+ Organizers
informationplusconference.com

June 2016

What are we to do with the abundance of data that exists in the world? How are we to translate data into information and better yet knowledge?

Information Everything takes as its starting point the following contradiction: on the one hand we are witnessing a wealth of data collection driven by massive computational powers that are shaping the world we live in. On the other hand, there is a lack of understanding of how to turn that same data into knowledge we can think with and use.

Traditionally, the nature of data—raw facts that can be input, output and retrieved—has been assumed to be value-free, void of any emotional interpretation or subjective analysis. In ordinary terms this is data as a neutral single reality, whereby omnipotent data streams, harvested and transmitted through various micro and macro methodologies, encourage us to believe that data holds a universal truth. But on the ground, and in the minds of a vernacular imagination, it can be said that we are living through a crisis in data. That is, we are data rich, but information poor.

The exhibition *Information Everything* explores this paradox looking into the works of practitioners in information design and visualization who explore and investigate the qualitative dimensions of displays of information, questioning our preconceived understanding of data as an 'objective' representation of the real. As the projects in this exhibition reveal, our new capacity for ceaseless data generation has opened up an opportunity for designers to stretch and reshape data as material, focusing on its beauty and value from multiple perspectives. While giving form to the unknowable and the unspeakable, the representations on display are neither autonomous nor hermetic, but instead act to empower those who view, analyze and connect with them.

These works mark a passage from the 'As is!' of data visualization and information design, in which data as fact encourage the viewer to experience clear and rational representation, to the 'What if?' strategies of interpretation that propose alternative readings and understanding from within. This thinking with data offers up new possibilities for how we experience, perceive and assess information, shifting the role of the viewer from passive browser to active participant. At the same time the potentials that have emerged with this sheer profusion of data capture, and the possibilities of re-interpretation of existing information into new formats and media, have opened infinite potential for what can be observed, measured, represented and interpreted. A key example of this is *SonaR* (2015) by Orange Labs. Designed in collaboration with Laps Design, the project materializes Orange's cell phone network through the 'sonification' of the antenna activity of mobile phones in the city of Paris. The soundscapes are composed using live communication transmissions from texting, calling and surfing on the Orange network. Serving partly as a sensitive perception of human activity, revealing the movements, patterns, and functions of the hidden infrastructure running through the airspace above us, *SonaR*

also acts as a symphony of daily life driven by our constant need for connectivity.

Information Everything includes a series of works that reflect on this materialization of the hidden intricate ecosystems of our world. Paul Heinicker's *Passim* (2015) works to materialize conflict through an exploration of the relationship between absolute, relative, relational, and topological space. Projecting geopolitical data from the Heidelberg Institute for International Conflict Research onto a physical map of the world, the project considers how notions of space have influenced the ways that global political constellations are debated and communicated today.

This relationship between data and spatial form is a defining trope in David Bihanic's and Thibault Jaillon's compelling visualization *Data Shapes* (2013). The project takes the global flow of live public data as its starting point extending subjectivity to a technological structure. In this multi-screen installation, Bihanic and Jaillon examine the pictorial language of real-time data flows. The result is a series of five seemingly living, breathing organic beings whose very movements and gestures speak to the live-ness and density of data in our world.

Almost paradoxically Heather Corcoran's *How Fiction Works* (2011) explores the representation of traditional data types in a static diagrammatic form. The piece formalizes James Woods' book of the same name which examines the mechanics of storytelling while celebrating the inventiveness of language in the creation of meaning. By giving shape to Wood's wandering path through literature, Corcoran illuminates a set of arguments about how fiction works while also advocating form, itself, as a key driver of meaning.

The endpoint of the exhibition is an immersive installation of the wind prediction data used in *Project Ukko* (2016), a pioneering visualization of advanced climate forecasts developed for EUPORIAS by Moritz Stefaner in partnership with Future Everything and the Barcelona Supercomputing Centre. The ambient visualization cycles through all 51 sets of data articulating the potential impact of probabilistic long term wind speed predictions. *Project Ukko*, in Stefaner's words, symbolizes the fallacy of a universal truth about the future. "We can't just say that's the way it's going to be. All of the predictions, it's a lot of data to digest. So, as a human you need to have the opportunity to immerse yourself in that data material and draw your own conclusions."[1]

Ultimately *Information Everything* is not comprehensive, and the connections between the disparate themes that run through the show have been left undone. However, the intention is that as the visitor travels through the space of the exhibition, the act of communicating and unveiling the subtle relationships that exist within and between different forms of data and other information is revealed. For it is in these spaces where knowledge can be found.

Gillian Russell
Curator, Information Everything

1 Alex King's, Moritz Stefaner: The data visualisation artist playing with the future. Spreadsheets won't save us. (2016). At http://www.huckmagazine.com/art-and-culture/art-2/moritz-stefaner-data-visualisation-art-ist-playing-future/ (accessed 20 May 2016).

Guided by the question, 'how do we turn data into knowledge we can think with and use?' the exhibition is divided into four devices each with the ability to express, orient, represent or secure the gestures of the works exhibited.

Out of conflict

Refugee Project
Passim
Global Rank
Financial Tectonics

After conflict comes peace. Or is it apathy? How do we react today in a world constantly in the grips of struggle over progress, freedom, autonomy and emancipation; do we feel the grandeur of our ability to overcome, or do we instead feel powerless to change? Only when we dig through the complexities of conflict, revealing the intricate relationships that exist between variables, can we truly awaken ourselves to the reality of the situation.

In complexity

Connecting the Dots
Glass Cast
Data Shapes
New Cloud Atlas

Everything today is complex, from technology to social networks, financial systems to climate change. We live in a world framed by interrelation and unpredictability, yet we continue to favour simple rules and certainties in our search for stability and security. If we wish to reset our relationship with this layered and complex world we need to welcome ambiguity. Let's acknowledge all the grey that exists between the black and white.

Above not below

Project Ukko
The Cosmic Web
Space Debris
SonaR
Empreinte de mouvement

Strangely the space of the sky, while seemingly open and empty, is teeming with data and largely overcrowded. It is an ecological, economic, political, and technological landscape occupied by a global infrastructure composed of everything from international boundaries and natural forces to data and debris. It is only when we bring what is invisible into the picture, literally, that we become aware of the overlooked ecosystem of our skies.

Hidden lines

What Does Democratic
Design Look Like?
How Fiction Works
A Mnemonic Card Game
For Your Amino Acids

Practice is an act of production which gives alternative forms to the abstraction of knowledge. Its mode of existence brings to life what we know, or what we think we know. Yet despite all the value that exists in practice, it is difficult to formalize. Because of this we are left with very little feel for how it develops and works—blind to the intricate ecosystems on which it depends.

The Refugee Project

Hyperakt
Ekene Ijeoma
therefugeeproject.org

The Refugee Project is a narrative, temporal map of refugee migrations since 1975. The UN data is complemented by original histories of the major refugee crises of the last four decades, situated in their individual contexts.
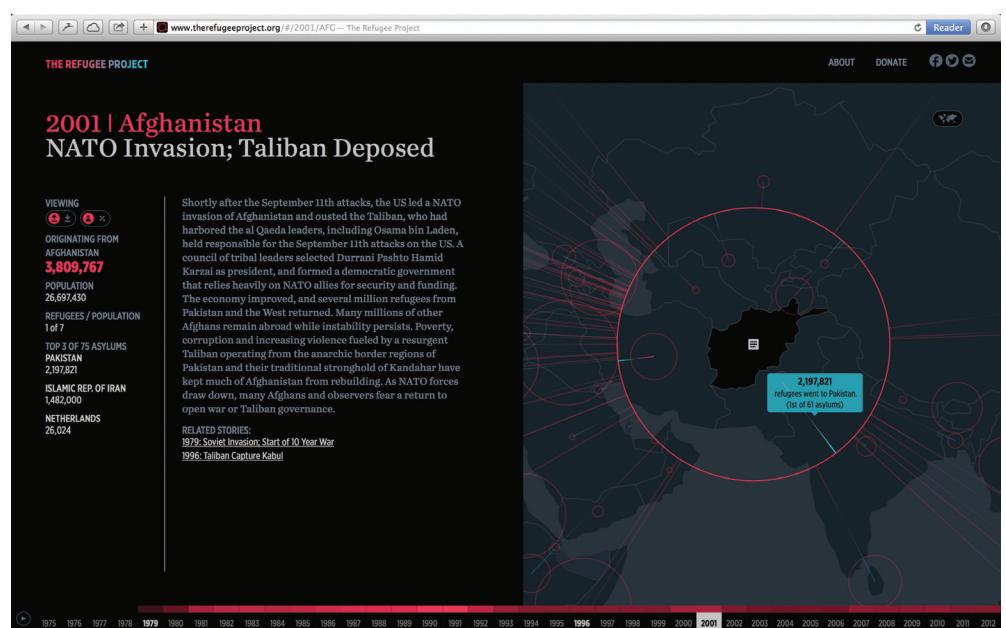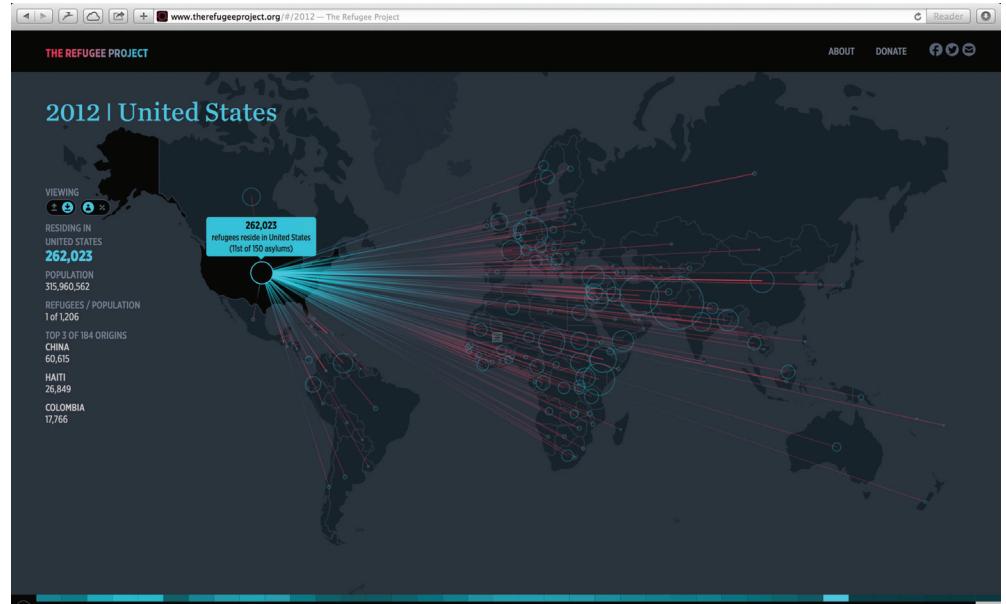
In its current state, the map does not consider the large number of economic migrants and other undocumented populations, nor does it show the millions of internally displaced persons in troubled countries around the world. As a result, the map presently shows almost exclusively of social and political crises, rather than of natural disasters or economic turmoil (although these factors are often interrelated).

As the interactive map courses through the years, it reveals the growing occurrences of crises and their location of origin, total population, and the number of refugees among the total population. Hovering over each location reveals the countries of asylum sought, as well as the top three of those asylums and the numbers that have migrated there successfully. Clicking on a location can also uncover a new dashboard that contextualizes the historical event that has triggered the crisis. The result is a visualization that pairs history with layers upon layers of data, creating a powerful narrative of refugee migration.

Hyperakt is a New York City social impact design agency that helps changemakers tell their stories. Working to channel clients' voices and values, they create compelling narratives and make complex information accessible online and off.

Ekene Ijeoma is a designer and artist. He explores the artistic and humanistic properties of data, transforming them in poetic and pragmatic ways to change how we understand our world. He was featured in Good Magazine 'Good 100' 2016 for "tackling pressing global issues". Ekene has a BS in Information Technology from Rochester Institute of Technology and a MA in Interaction Design from Domus Academy.

# Financial Tectonics: A Monument to the Subprime Mortgage Crisis

Thomas Gaudin
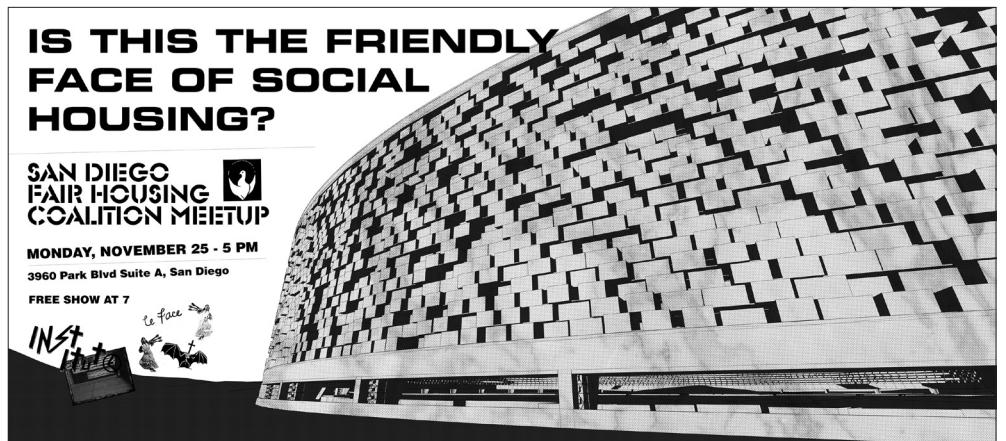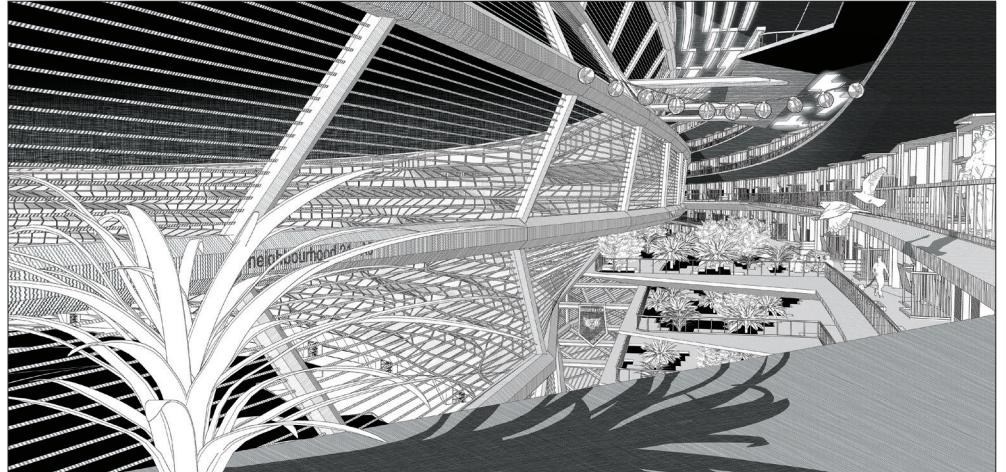
The increasing abstraction of global real estate markets has created an ever more tenuous relationship between those who own buildings and those who inhabit them. *Financial Tectonics: A Monument to the Subprime Mortgage Crisis* is an information visualization project which takes the form of architecture in order to critique the financialization of the American housing market.

The project explores derivative financial practices and the ways that they affect settlement through one emblematic product—the GSAMP Trust 2006-S3 by Goldman Sachs Alternative Mortgage Products—and its negative consequences that reverberated throughout the American housing market between the years of 2008 and 2014. Vast amounts of data contained within the trust were parsed in order to resituate the abstracted figures in an architectural language. 18,000,000 square feet were defaulted, 8,274 mortgages were affected, and 23,000 people lost their homes. Following this reinterpretation, a program was written to transform these numbers into a massive housing structure effectively mapping the highly confusing trust into comprehensible designed form.

A series of panels presenting the architecture builds a meta-narrative around the project. Fictional feedback of the design is represented through the accompanying posters. This additional layer of narrative further critiques the absolutely preposterous figures contained within the GSAMP trust.

IS THIS THE FRIENDLY FACE OF SOCIAL HOUSING?

SAN DIEGO FAIR HOUSING COALITION MEETUP

MONDAY, NOVEMBER 25 - 5 PM
3960 Park Blvd Suite A, San Diego
FREE SHOW AT 7

Thomas Gaudin is a multi-disciplinary designer who enjoys working in the interstitial spaces between architecture, programming, engineering, and visual design. He holds a Master of Architecture from the University of British Columbia (2016) and a Bachelor of Design from the University of Alberta (2009). He is currently developing functionally graded digital fabrication processes at UBC SALA's Hi-Lo Lab and is working professionally for Patkau Architects.
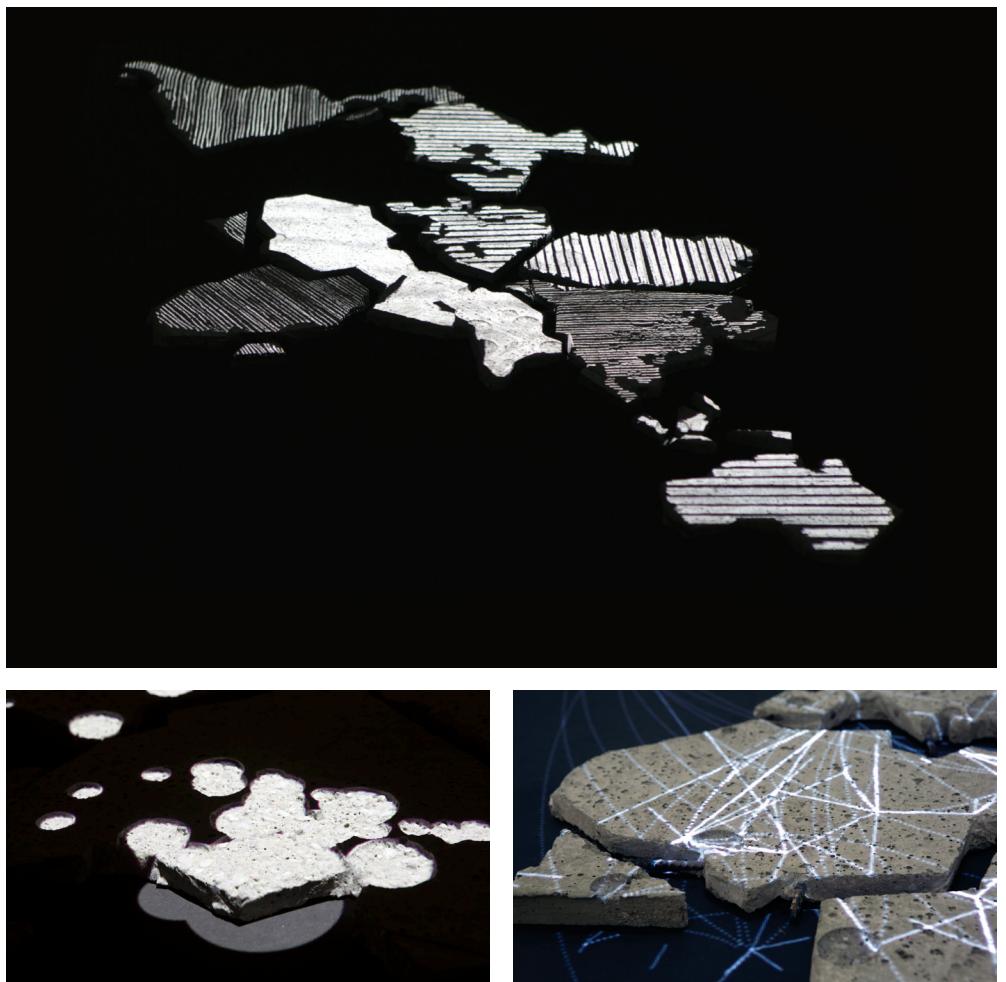
Passim

Paul Heinicker

Passim is a visual reflection of the humanistic discourse regarding space that connects the elements of design sciences and cultural theories. By research and implementation of four major spatial theories (absolute, relative, relational, and topological), the project proposes to understand space through a sociopolitical lens. The installation explores the relationship of these four notions by projecting visualizations of geopolitical data (collected from the Heidelberg Institute for International Conflict Research) onto physical sculptures. The result of these reflections creates different world-views that represent self-aware images, in contrast to the usual biased techno-positivism of visualizations. These reflections demonstrate how notions of space directly influence recent geopolitical events (such as the refugee crisis), and how spatial theory can be used to rethink global political constellations.
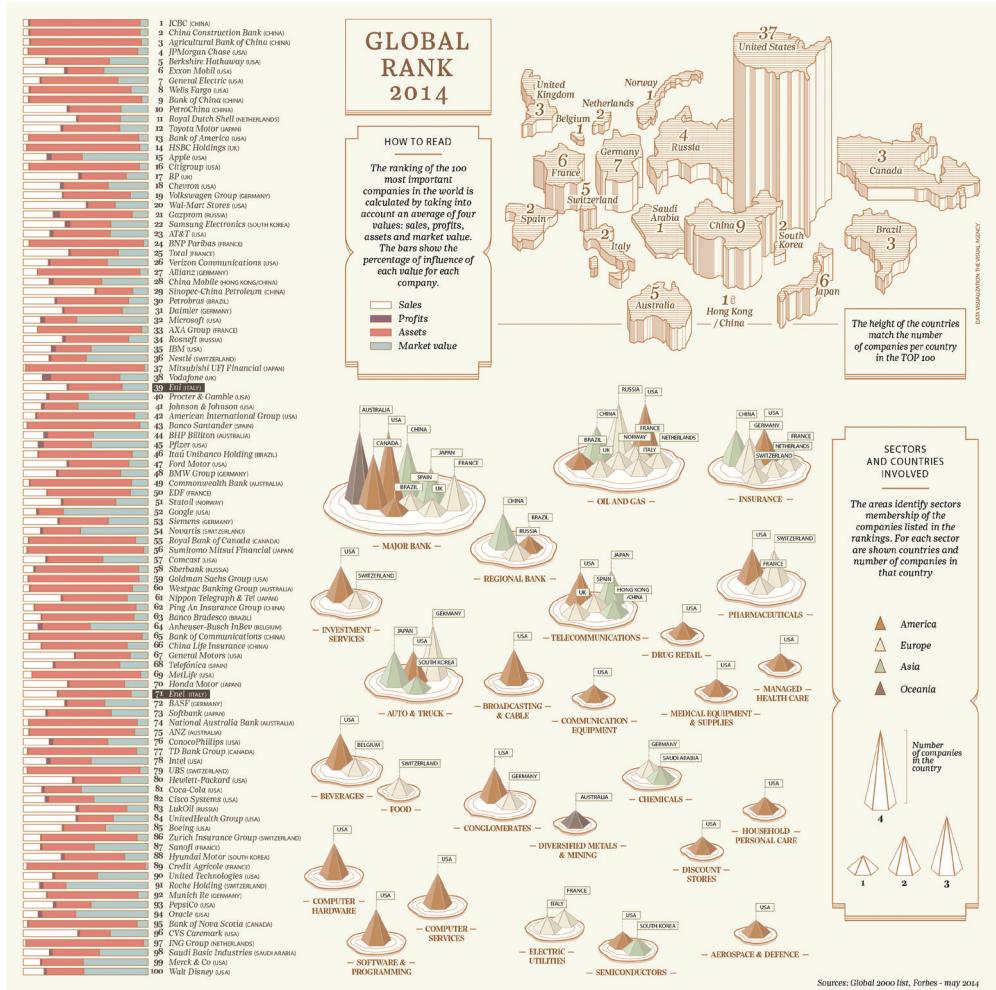
Paul Heinicker (University of Applied Sciences Potsdam) is a German visual researcher based in Berlin. He graduated from the University of Applied Sciences Potsdam with a master's degree in design and now deals with visual culture on the border between media, design and theory.

Global Rank 2014

Marco Azzalin
The Visual Agency

Created for *La Lettura*, the Sunday supplement for Italy's most read newspaper *Corriere della Sera*, the *Global Rank 2014* infographic details the rankings of the 100 most important companies in the world. Its calculations are based on an average of four values: sales, profits, assets, and market value. The graphic country icons represent the percentage of each of these four values in different companies, while the ranging heights reflect the number of companies per country that are listed as part of the TOP 100. Distinct colour palettes indicate continental areas, such as Asia, Europe, America, and Australia, while towering cones represent number of companies per country in various industry sectors, ranging from big bank and pharmaceuticals, to mining and metal-

lurgical businesses. The result is an illustrious and colourful information visualization that captures the dynamics of business and industry value on a global scale.

The Visual Agency, founded in Milan, Italy in 2012, creates infographics & data visualizations to help businesses understand and communicate data, information and content. Projects range from market research to business intelligence. The Agency's methodological approach is based on collaboration with users, tailored to the needs of every individual project and business.

Connecting the Dots: A Model for Digital Publication

Milène Vallin
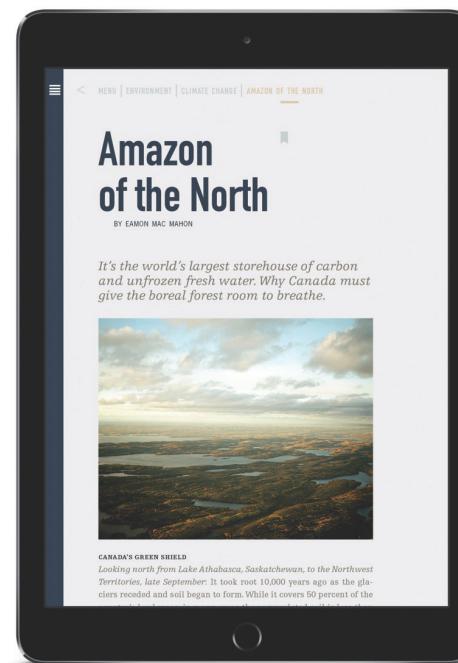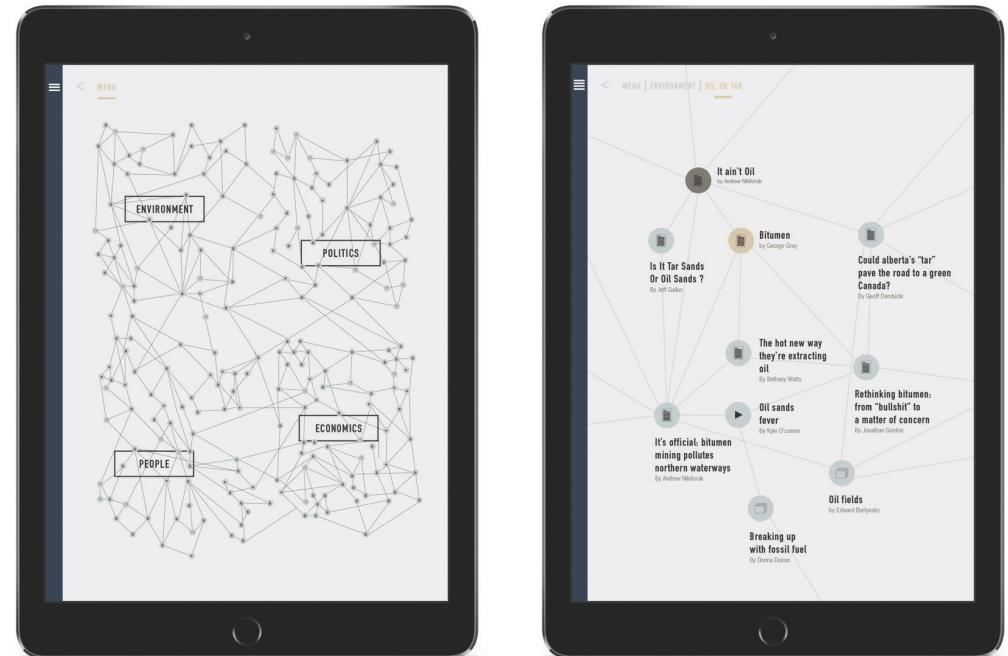
Connecting the Dots is a digital publication model that allows for the articulation of complex debates through means of visual and structural content curation and mapping. Designed in response to the tendency for binary simplification in contemporary social, political and environmental issues in mass media, the project explores alternative methods to inform users of the complex matrix of relationships created by vast amounts of interrelated information.

An example of this publication model, *Crude Black Gold* addresses the controversial topic of Canadian oil extraction and its economic, cultural and environmental impacts. The reader can access the problem space at a meta level, wherein the content is interconnected and displayed as a visual network. By progressing through the layers, readers can also be drawn to the core of the issue, at a micro level.

Additionally, readers are able to access articles and move laterally from one to another, exploring the content through the links presented in the navigation network. The resulting progression is non-linear and exploratory, allowing readers to access related content that further supports their opinion or builds context for their discussion.

Connecting the Dots offers a way for readers to navigate contemporary issues of any kind by presenting the complex data as a visually dynamic form and structure. Combined with multiple layers of increasing detail and access to supporting articles, readers are able to compose an informed opinion, while achieving a deeper level of understanding of the topic.

Milène Vallin is a communication designer interested in design as a tool for sense making and the translation of information into understandable patterns. She completed a degree in Visual Communication in Lyon, France and a Bachelor of Communication Design in Vancouver, Canada. *Connecting the Dots* is the graduate thesis she completed in 2015 at Emily Carr University of Art + Design in Vancouver.

Glass Cast
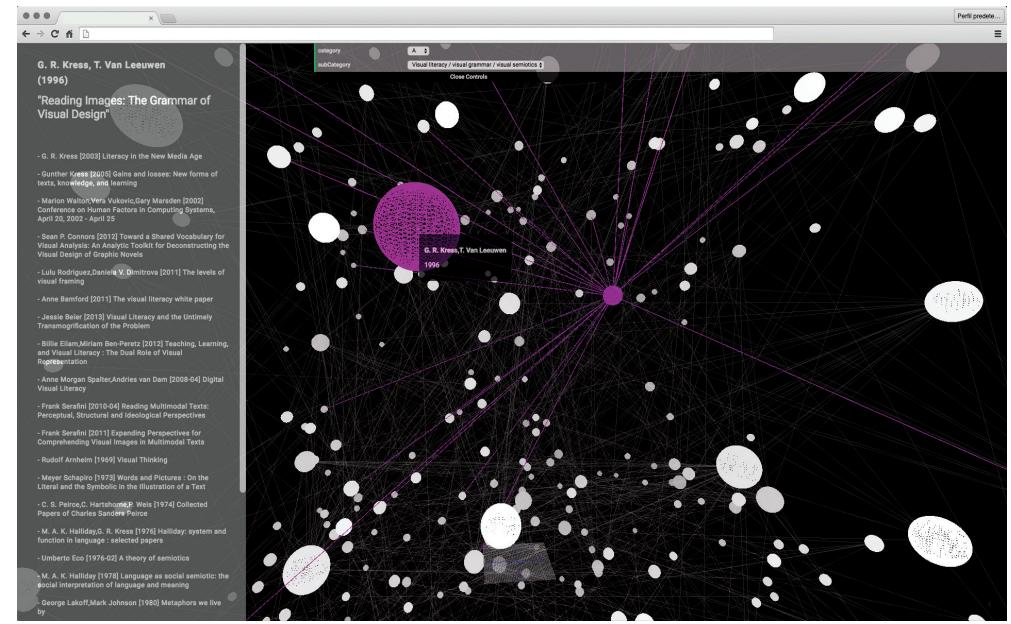
Ernesto Peña
Omar Juárez
Teresa Dobson

Glass Cast is a web application interface intended for the visualization of knowledge networks, including parameters such as authorship, time, subject, discipline, and connections between documents in a corpus. The name "Glass Cast" refers to the working metaphor of the prototype, which is a cast sculpture in which the object of representation appears as negative space in a glass block.

The data is acquired from the collection reports produced by Zotero and displayed in a 3D model within an internet browser. Links between articles are displayed by lines and time is displayed on the y-axis. Future versions of the interface could allow users to interact with the model using immersive technology, while disciplinary affiliation will be shown by colour and users will be able to mouse over dots for article information.

Ernesto Peña and **Teresa Dobson** are respectively student and professor at the department of Language and Literacy Education at the University of British Columbia and research assistant and researcher for the Implementing New Knowledge Environments (INKE) project.

Omar Juárez is a student at the Centre for Digital Media (CDM) in Vancouver, BC.

Data Shapes
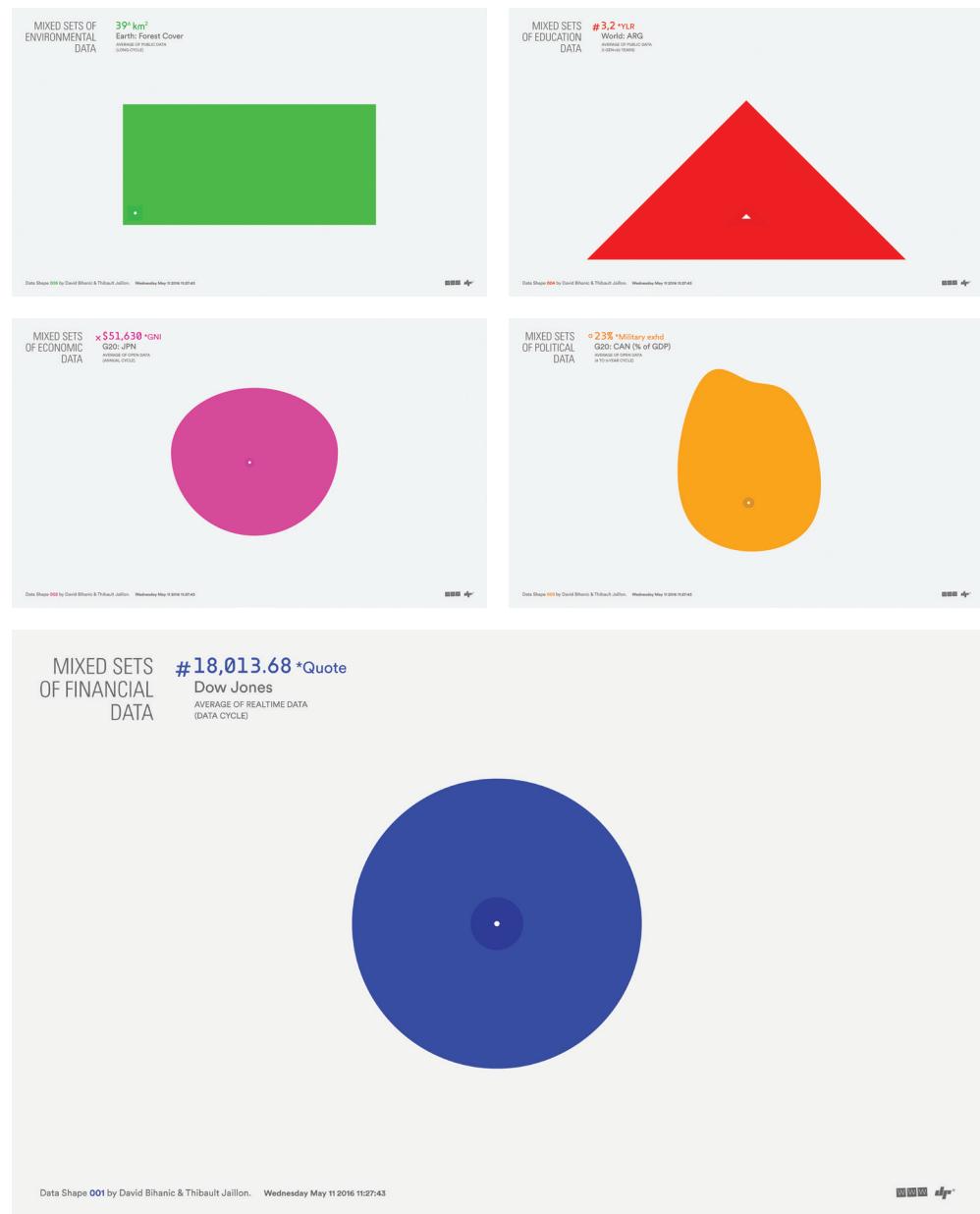
David Bihanic *UI design and programming*
Thibault Jaillon *data analysis and programming*

At the crossroads of data design and data art, *Data Shapes* is an experimental project that introduces visualization of the global flow of public data in real time. Composed of 5 different data visualizations that are viewed together as a whole, *Data Shapes* morphs these massive streams of information into visually aesthetic and understandable vector shapes and forms. Featuring mixed sets of complex data that is often considered to be overwhelming (such as financial, economic, political, education and environmental data), the purpose of the project is not to depict the data itself, but to give shape to the continuous flow of massive amounts of data. In this way, developments and evolutions in each field can be more easily observed as the data shapes transform, change, and evolve. The goal is to ultimately combat

public data deluge and give an aesthetic and accessible form to this immense flow of information that cannot be conventionally analyzed either manually or intellectually.

David Bihanic is designer and founder of the FXDESIGNSTUDIO (FXDS) digital design agency, and Associate Professor at the University of Paris 1 Pantheon Sorbonne in France. His work examines the various paradigms of visualization and the manipulation of large and complex datasets. While building on the cognitive-aesthetic analysis of visual organizations of information, he explores new avenues and opportunities for data design (data visualization aesthetics and creative informatics).

Thibault Jaillon is an interactive Engineer and Computing teacher at the École des Gobelins, Annecy, France. He is co-founder (2003) & CEO of the digital production agency Square Glasses and works as a technology and ergonomics expert for several communication and advertisement agencies worldwide.

Information Everything   *In complexity*

New Cloud Atlas

Amber Frid-Jimenez
Ben Dalton
Joe Dahmen
newcloudatlas.org

New Cloud Atlas is a global effort to map each data place that makes up the cloud in an open and accountable way. The project sets out to find and map each warehouse data centre, each internet exchange, each connecting cable and switch. Based on the belief that anything of any physical significance in the operation of the cloud should be represented for everyone to see and use, *New Cloud Atlas* aims to map the material experience of the cloud, bringing to light the inherent contradiction of its suggested invisibility with the reality of the massive physical infrastructure underlying its functionality.

The project works towards developing new cultural relationships with the cloud; its methods were inspired by the first International Cloud Atlas published in 1896, which enabled cloud weather observatories around the world to share consistent observations of the clouds and observe weather systems whose scale stretched over national boundaries. The publication was initiated in response to the findings of the first International Meteorological Congress, where meteorologists began to realize that even with their network of observatories they did not have enough granularity to record some weather phenomena accurately. What was needed was many more observations across a large area. Vilhelm Bjerknes is said to have persuaded fishermen and other people living along the coast of Norway to help by showing them a newspaper photo in which each dot of the print represented one person's observations, and the image become visible from the dots. Similarly, *New Cloud Atlas* is structured as a crowdsourced project. The work uses OpenStreetMap (OSM) and therefore the Open Data Commons Open Database Licence (ODbL) to ensure the process of mapping the global cloud infrastructure is kept openly accessible. Users are invited to build on the resources of the vibrant OSM community. Changes made are parsed and imported into the *New Cloud Atlas* at 15 minute intervals.
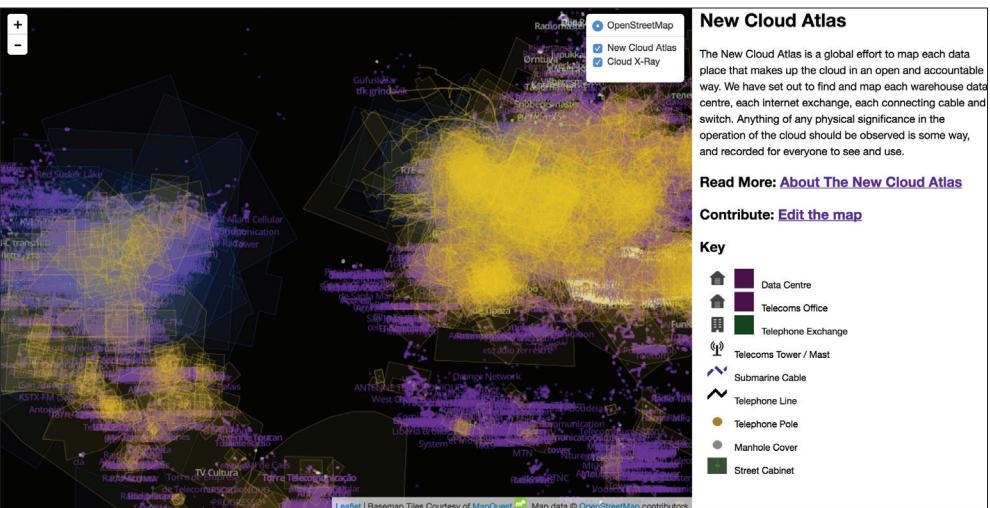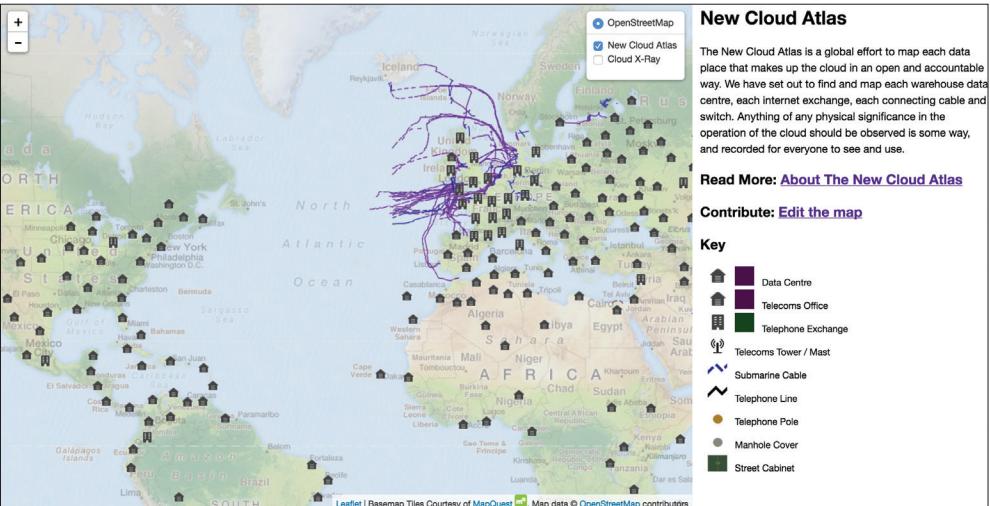
Amber Frid-Jimenez is Canada Research Chair in art and design technology and Associate Professor, Emily Carr University of Art & Design.

Ben Dalton is a Principal Lecturer at Leeds Beckett University and Creative Exchange doctoral researcher at the Royal College of Art.

Joe Dahmen is an Assistant Professor in the School of Architecture and Landscape Architecture, and Peter Wall Scholar, University of British Columbia.

New Cloud Atlas was developed in collaboration with **Tim Waters**, freelance geospatial developer and consultant.

Project Ukko

Moritz Stefaner data visualization
Drew Hemment project direction
Rafael Anton Irisarri Soundscape: *Traces*
Video loop (3:13) https://vimeo.com/moritzstefaner/ukko-ambient
project-ukko.net

Developed by an interdisciplinary team of experts in climatology, design research and data visualization, *Project Ukko* offers an innovative way of identifying critical patterns in seasonal wind prediction data. Built as a web application, the project's novel visuals and interactive interface allows energy traders, wind farm managers and others to recognize patterns and trends in emerging wind conditions, both on a global and regional scale.

Based on 35 years of historical data and composed from a high-dimensional dataset of over 100 000 points, *Project Ukko* presents the data as an information-rich yet highly digestible map display. Through the novel visual device (probability cone), decision makers are effectively informed of the distributions of probabilistic prediction values. The result is a highly immersive and beautifully coherent experience of the abstract and complex phenomenon that is wind prediction data.
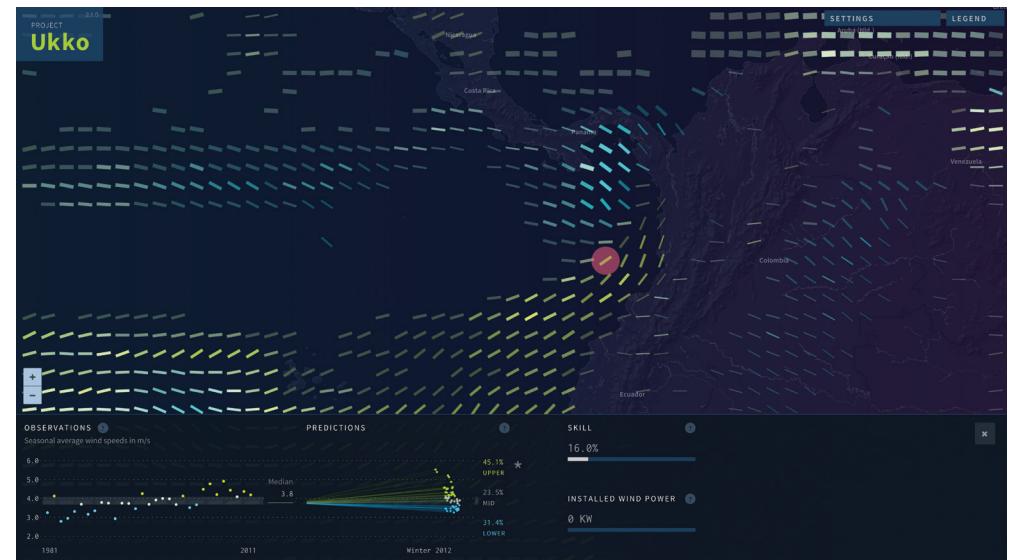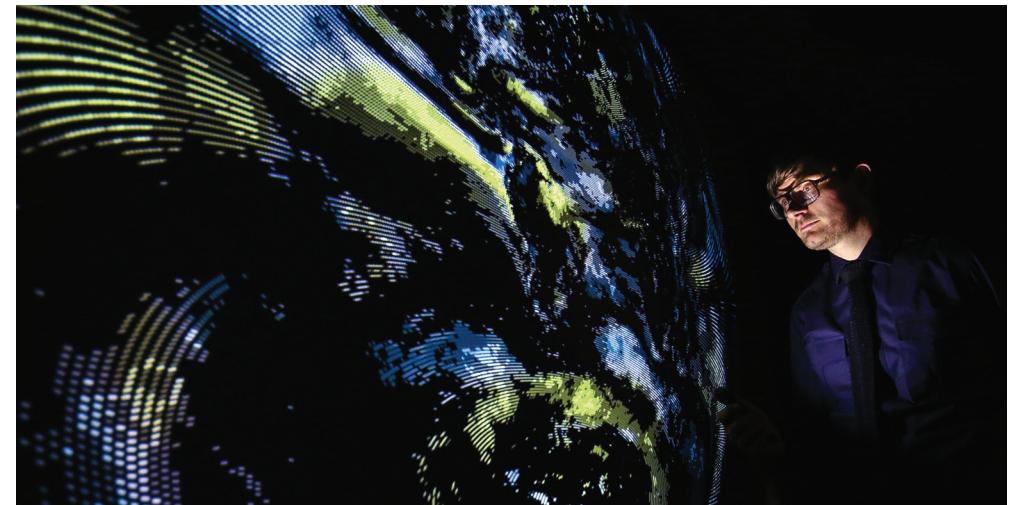
Such data allows end users to anticipate oncoming wind patterns and make necessary adjustments accordingly. In order to support clean energy sources, understanding future wind conditions can be a crucial component to strengthening climate change resilience. *Project Ukko*'s ambient visualization cycles through all 51 sets of data, projecting each value worldwide. The projection also continuously rotates and varies in zoom level. It presents an alternative, immersive approach to experience the wind prediction data.

Project Ukko is a Future Everything and BSC project for EUPORIAS, a project funded by the EU 7th Framework Programme (GA 308291) and led by the Met Office. It is based on ECMWF seasonal predictions by the RESILIENCE prototype.

Moritz Stefaner works as a "truth and beauty operator" on the crossroads of data visualization, information aesthetics and user interface design. With a background in Cognitive Science (B.Sc. with distinction, University of Osnabrueck) and Interface Design (M.A., University of Applied Sciences Potsdam), his work balances analytical and aesthetic aspects in mapping abstract and complex phenomena.

The Cosmic Web
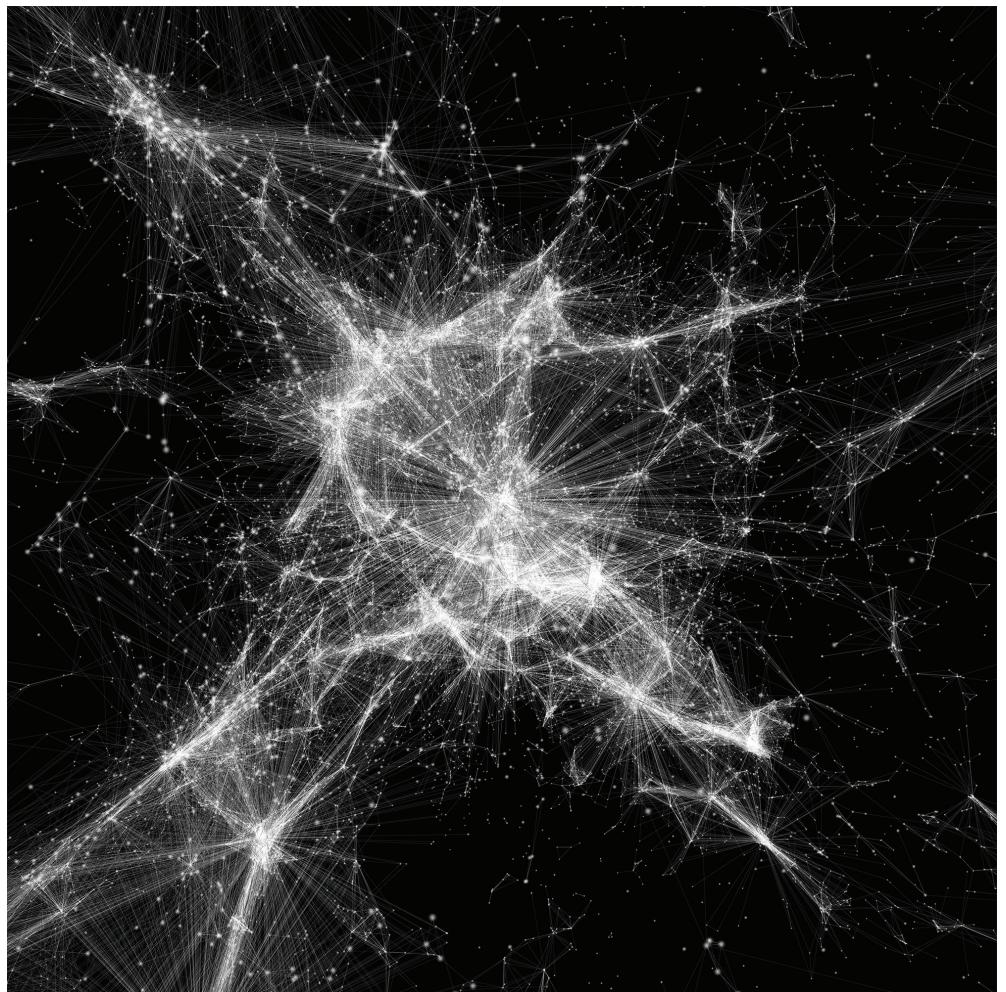
Kim Albrecht *visualization*
Albert-Laszlo Barabasi, Arjun Dey,
Bruno C. Coutinho, Sungryong Hong,
Lars Hernquist, Paul Torrey,
Mark Vogelsberger *science*

The "cosmic web" is the largest known structure of our universe, defined in cosmology as a vast and complex network of discrete galaxies held together by gravity. Yet little is known about the architecture of this network, or its characteristics. Using data from 24,000 galaxies to construct multiple models, *The Cosmic Web*'s three interactive data visualizations (fixed length, varying length, and nearest neighbour) offer complex blueprints for how galaxies may fit together.

As the viewer navigates each Euclidian space with its periodic boundary conditions by panning, zooming or filtering, they are able to imagine the cosmic web in its entirety, recognizing differences between models and identifying intersections between galaxies. Sliding scales reveal and hide connections between galaxies,

depicting various factors that influence the architecture of these complex networks. As a result, *The Cosmic Web* allows viewers to intimately experience the universe at large, while gaining insight into the fundamental structure of the universe.

Kim Albrecht (Northeastern University, Germany) is a visual researcher and information designer. Among other things he is interested in networks, time, power, processes, and creating visual representations for these to produce and represent knowledge. He is currently based in Boston, USA, working at the Center for Complex Network Research as a visualization researcher.

Space Debris

Federica Bardelli designer
Tommaso Guadagni producer
TOMMI
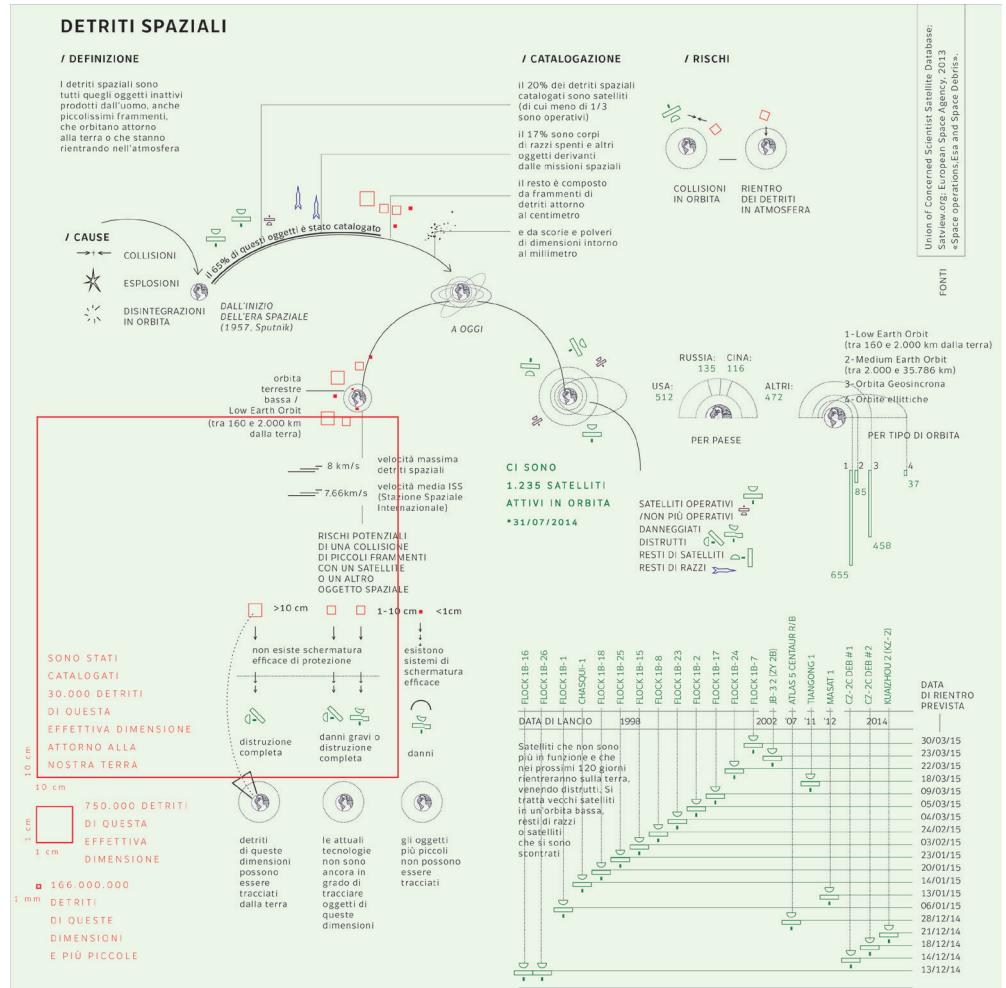
The sky above us is full of debris: 166 million objects, fragments of rockets and satellites, paint chips and other debris are constantly in orbit. Space debris, this layer of waste that has been growing since 1957, is the focus of Bardelli's visualization and infographic. Causes and classification of debris according to size and its related risks are all explained in detail, with red squares representing actual sizes of some of the typical fragments catalogued around the Earth.

This project was made for the Italian weekly *La Lettura*, cultural supplement to the *Corrierre della Sera*; the source of this visualization is from the European Space Agency's publication "Space operation, Esa ad Space Debris".

TOMMI is an independent design cluster formed in 2014 and based in Milan, Italy, whose work focusses on the printed and digital display of information through editorial and graphic design, data visualization, information design, visual journalism, and editorial projects.

DETRITI SPAZIALI

SonaR

Catherine Ramus *engineer, designer*
Cezary Ziemlicki *data scientist*
Pascal Taillard *sound designer*
Marc Brice *data developer*
Orange Labs
Laps Design
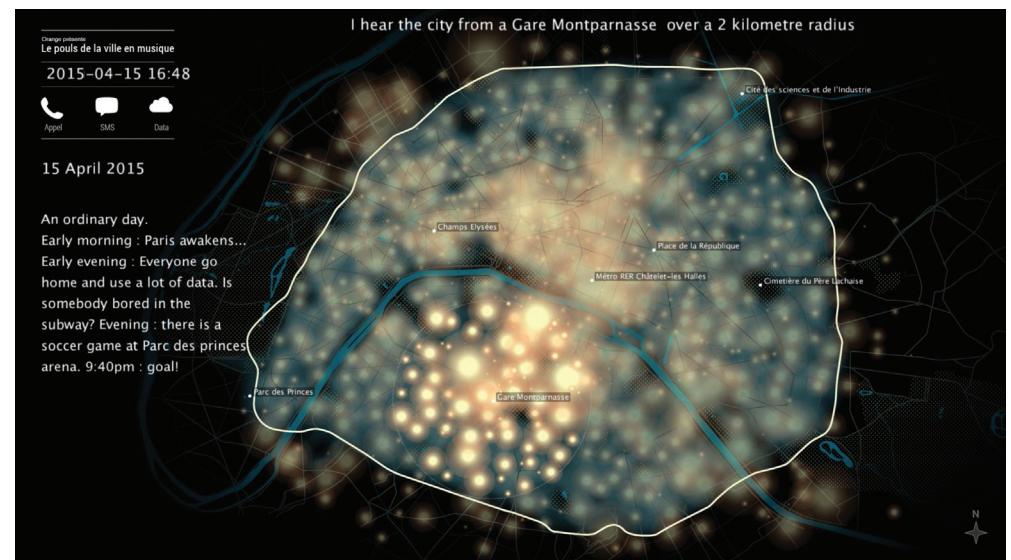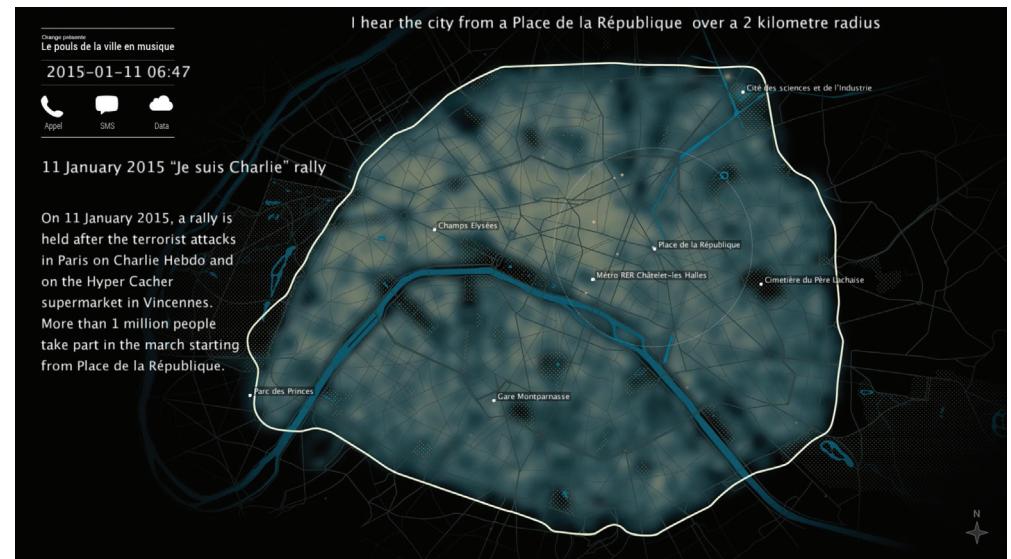
Though invisible, Orange's cellphone network constantly surrounds and connects the inhabitants of the city it serves. *SonaR* materializes these connections by giving them physical qualities of light and sound, making human activities visible and audible. The result is a luminous data visualization that is visually harmonious with the city's orchestra of activity. From a slice of daily life or an uniquely extraordinary day, the symphony of a city and its connections can be heard, seen, and experienced.

Through "sonification", the transmissions between mobile phone antennas and their activities are assigned a specific tone, and the locations in which they take place materialize as a spot of light on the city map. As its inhabitants text, call or surf the internet, the connections they establish come to life, present-ing patterns that are unique to the events of that particular, recorded day in the 2014–2015 year: from an ordinary day, to new year's eve, or the day of the walk for Charlie Hebdo.

Orange Labs' data design team works within Sense, a humanity and social science department of Orange R&D. Designers, engineers, data scientists and developers work together to create art installations, cartographies and data visualizations that allow users to understand and appropriate the data they are producing. The team also works with external artists, designers or research labs to constantly open its mind and advance research about data and visualization.

I hear the city from a Place de la République over a 2 kilometre radius

Orange présente
Le pouls de la ville en musique
2015-01-11 06:47

Appel · SMS · Data

11 January 2015 "Je suis Charlie" rally

On 11 January 2015, a rally is held after the terrorist attacks in Paris on Charlie Hebdo and on the Hyper Cacher supermarket in Vincennes. More than 1 million people take part in the march starting from Place de la République.

I hear the city from a Gare Montparnasse over a 2 kilometre radius

Orange présente
Le pouls de la ville en musique
2015-04-15 16:48

Appel · SMS · Data

15 April 2015

An ordinary day.
Early morning : Paris awakens...
Early evening : Everyone go home and use a lot of data. Is somebody bored in the subway? Evening : there is a soccer game at Parc des princes arena. 9:40pm : goal!

Empreinte de mouvement

Catherine Ramus *engineer, designer*
Loïc Le Guen *designer*
Thomas Couronné, Zbigniew Smoreda,
Cezary Ziemlicky, Guénolé Baudouin,
Philippe Gouagout
Orange Labs

An innovative and aesthetic device, Orange's *Empreinte de mouvement* (Impression of Movement) project explores geolocation with a unique and inventive twist. Through their mobile phone, Orange's cell phone network volunteers are able to track and trace their movements on a daily basis for several weeks, and are ultimately presented with a physical representation of their paths around the city. These paths are represented by deep imprints in a tridimensional cartography; the more time is spent in a particular area, the more pronounced the relief will be. The result is a series of stunning 3D location visualization pieces unique to each and every participant, creating a new imaginary city picture. The project's playful and poetic dimension encourages participants to reconsider their daily paths and to perceive life in their city from a new perspective. By materializing and capturing the movements of participants, *Empreinte de mouvement* provides an awareness of one's relationship between space and time.
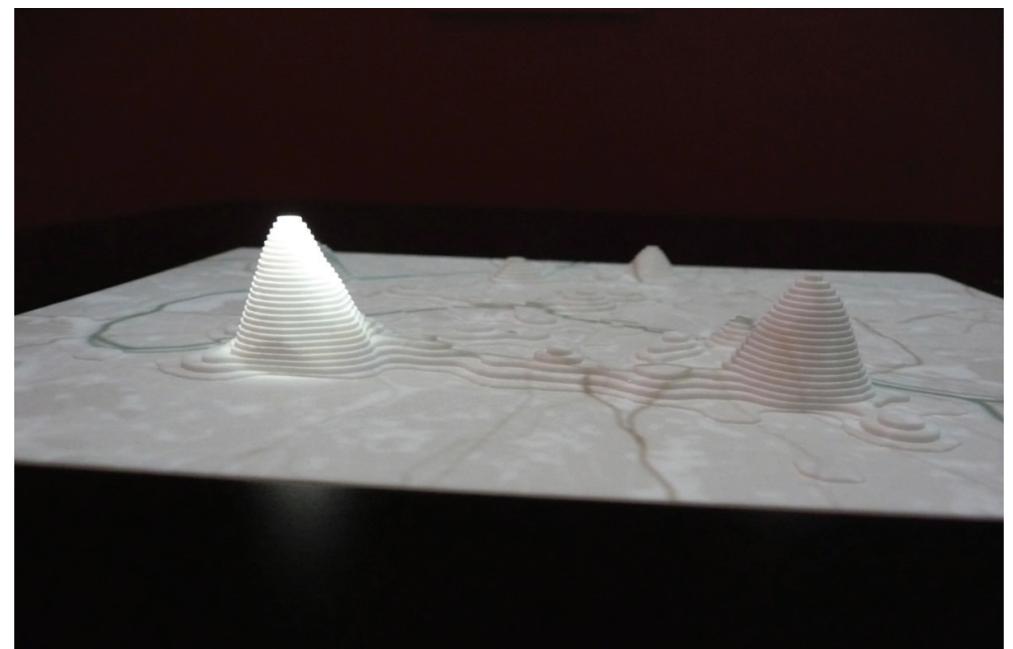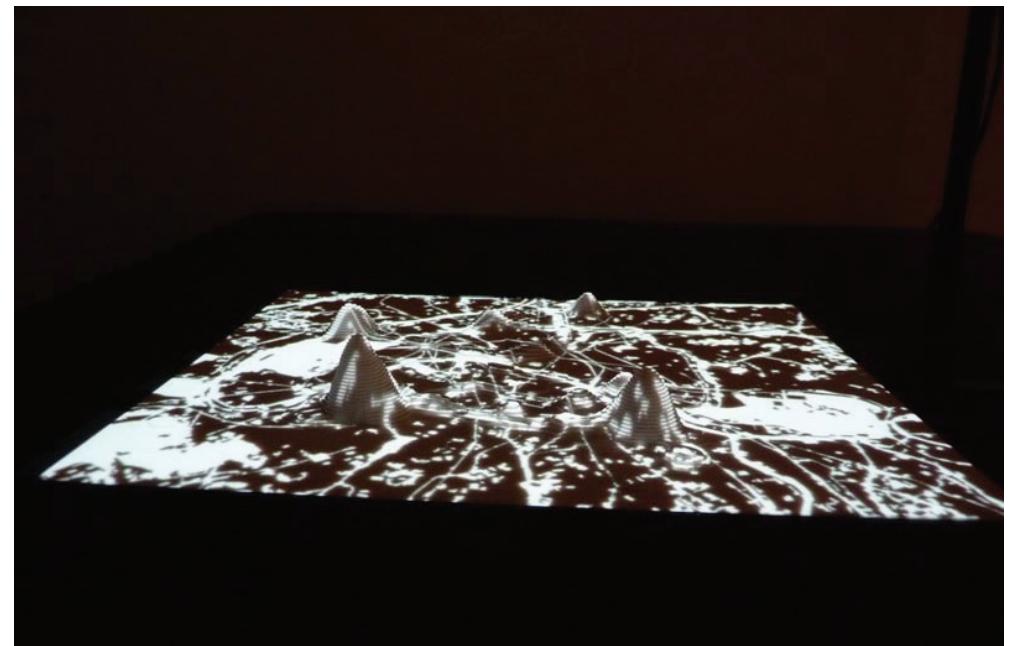
The imprints presented display the paths of Michel and Elena, two participants in Paris, from December 15, 2011 to January 15, 2012.

Orange Labs' data design team works within Sense, a humanity and social science department of Orange R&D. Designers, engineers, data scientists and developers work together to create art installations, cartographies and data visualizations that allow users to understand and appropriate the data they are producing. The team also works with external artists, designers or research labs to constantly open its mind and advance research about data and visualization.

What Does Democratic Design Look Like?
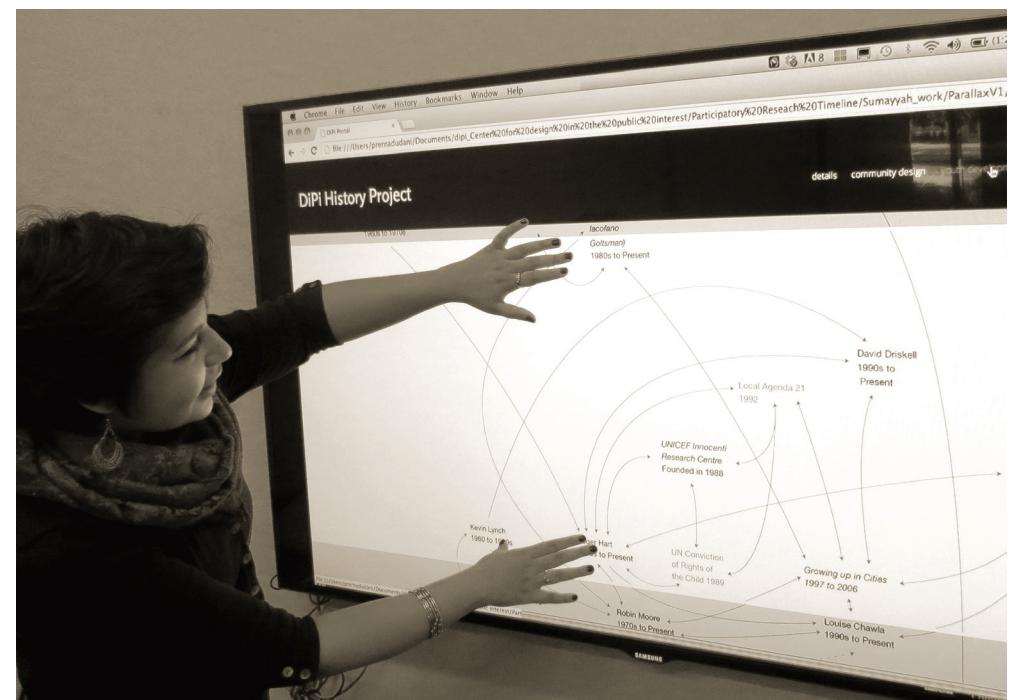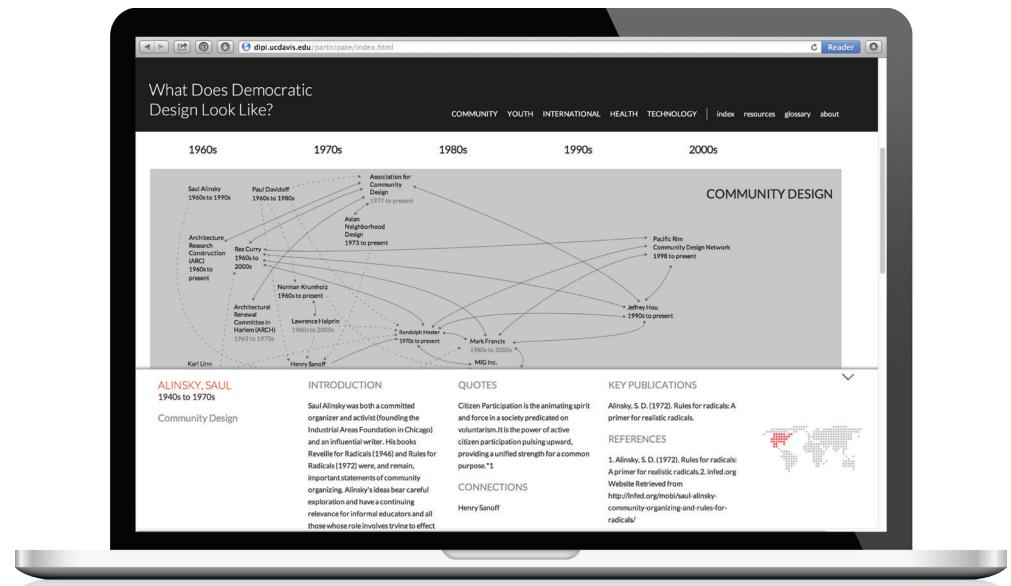
Susan Verba
Yohei Kato
Sumayyah Ahmed
Prerna Dudani
Sarah Tinker Perrault
dipi.ucdavis.edu/participate

The *Participatory Practices* timeline project is a multidisciplinary effort between researchers, design practitioners, and graduate students at the UC Davis Center for Design in the Public Interest. The project explores pivotal developments and connections in the evolution of participatory practices, beginning from the U.S. Civil Rights Act of 1964. In participatory practice, those with a stake in the design intervention are capable of influencing the outcome by collaborating with practitioners and researchers. Its primary focus is on designing "with" all those involved, rather than "for" a specific audience.

The timeline's visualization illustrates connections between key individuals, organizations, projects, writings, and social/cultural events across five decades and disciplines—community design, youth development, international development, public health, and technology development—to reveal key relationships and the changing historical context of the work. Hovering over names reveals contextual information and the impacts they have created. Additional project outcomes include an interactive timeline, downloadable posters and data sets.

Susan Verba, **Yohei Kato**, **Sumayyah Ahmed**, **Prerna Dudani**, and **Sarah Tinker Perrault** (UC Davis Center for Design in the Public Interest) are a multidisciplinary team of researchers, practitioners, and graduate students in Design, Community Development, Computer Science, and Rhetoric & Writing, working to connect human-centered design with social good.

How Fiction Works

Heather Corcoran

How Fiction Works is a visualization of the book of the same name by James Wood. Featuring over 100 vignettes about how written language creates meaning from Wood's narrative, as well as literary references spanning from *Don Quixote* (1605) to *Terrorist* (2006), this 60″ wide visualization rearranges all the data into a timeline of titles, based on dates of publication. A red numbered path tracks each vignette, linking to the texts discussed within, and each book or story in the timeline also includes its first sentence or phrase. An additional path leaps back and forth across the bibliography, indicating Wood's many connections between works from different periods. Although each vignette can be seen and read individually, it is the sporadic visual disarray that defines the spirit of the piece.

Heather Corcoran is a graphic designer and writer. She is director of the College and Graduate School of Art and professor of design at Washington University in St. Louis, Missouri. She works on questions of informational density, clarity, and audience understanding, while also addressing how elements such as image, text, and graphic form create voice, and how data can provoke an emotional response.

A Mnemonic Card Game For Your Amino Acids

Georges Hattab
Benedikt G. Brink
Tim W. Nattkemper

Since the 1980s, progress in the natural sciences and technology have challenged institutions and the media to provide an appropriate level of education to the public, especially in the field of biomolecules. By integrating infographics and graphic design theory with the motivational characteristics of games, the resulting *Mnemonic Card Game* assists students in the process of learning complex and abstract biomolecular structures, such as amino acids.

Since each amino acid is composed of a number of common components, the *Mnemonic Card Game* associates each component with distinct shapes, colours and textures. This intuitive coding allows for easier visual grouping, observations of relationships, and ultimately, memorization of their structural formulas. Through the use of our natural and inherent ability to interpret visual stimuli, these complex molecular structures become deconstructed in a visual manner that is both easier to assess and to understand. The result is a unique teaching tool that is subject-orientated, fun and engaging, while helping students retain relevant information such as properties and formulas by using perceptual memory.
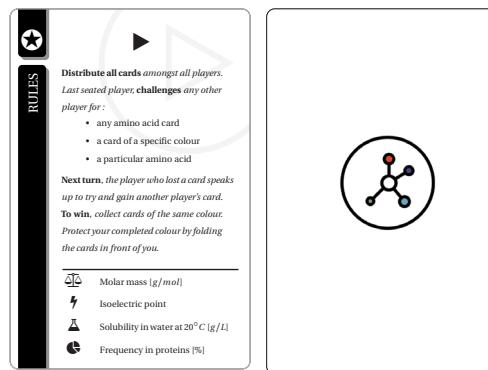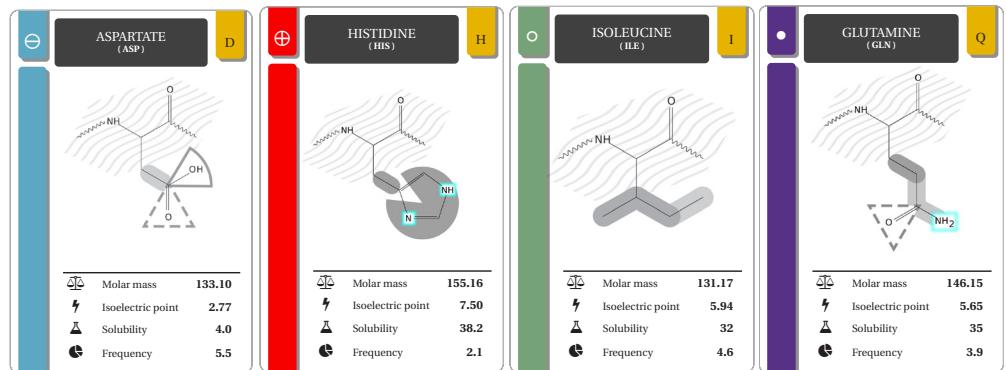
Georges Hattab studied biochemistry and bioinformatics in Paris 7 Denis Diderot (France) and is a PhD candidate in Bioimage Informatics at the Bielefeld University (Germany). He cofounded the Global Mission Of Art in 2011, whose activities centre on international art creation and support as a humanitarian initiative.

Benedikt G. Brink studied bioinformatics and genome-based systems biology in Bielefeld and is a PhD candidate in Biodata Mining and Visualization at the Bielefeld University (Germany). He focuses on visual analytics and develops methods to interactively explore biological data.

Tim W. Nattkemper studied computer science and physical chemistry and has run the Biodata Mining Group at the Bielefeld University (Germany) since 2002. He develops new methodological approaches to harvest large biodata collections for hidden regularities and interesting patterns.

Acknowledgements

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