The Art of Networks was organized by Isabel Meirelles, information designer and Associate Professor at Northeastern University, in collaboration with Carla Funk, Director of University Museums, and Jackie Borsanyi, Curator of Exhibitions, at the Foosaner Art Museum, Florida Institute of Technology. The exhibition was envisioned together with Ronaldo Menezes, Associate Professor at Florida Institute of Technology, for occasion of the 3rd Workshop on Complex Networks, CompleNet 2012, hosted by the department of Computer Sciences, Florida Institute of Technology, Melbourne, Florida (http://2012.complenet.org/).

The Art of Networks wouldn't be possible without the generosity of all the authors who are participating in this special exhibition at the Foosaner Art Museum, Florida Institute of Technology.

When: March 8 - April 8, 2012
Where: Foosaner Art Museum, Florida Institute of Technology

The Art of Networks brings together ten visualizations representing networks in topics as diverse as migration flows, speech cognition, citations, the spreading of social messages, and housing issues in the U.S. The authors are representative of top visualization groups around the world who are producing some of the most innovative work in this area. The selected visualizations can literally open new ways of seeing and understanding relationships in the surrounding world.

The projects are represented both in static and dynamic media. The large prints on the gallery walls provide a glimpse to the content and format chosen by the authors to visually examine recent topics, while short videos in the computer stations present how the applications function dynamically. You can learn more about the authors and access online interactive applications by pointing your mobile phone to the QR codes on each work.
Pulse of the Nation examines U.S. mood throughout the day inferred from over 300 million tweets. We observe interesting trends such as daily variations, with early mornings and late evenings having the highest level of happy tweets, and geographic variations, with the west coast showing happier tweets in a pattern that is consistently three hours behind the east coast.


Cascade allows for precise analysis of the structures underlying the sharing activity on the web. The tool links browsing behavior on a site to sharing activity to construct a detailed picture of how information propagates through the social media space. It is presented here in its initial application to The New York Times stories and information showing how its messages are shared.


About 3% of the world’s population does not live in their native countries, including those that can be classified as refugees or asylum seekers. PeopleMovin is an effective interactive flow graph that highlights all these migration patterns in the world as of the year 2010 in one single view. The data used in the projects come from the World Bank (for the migration flows) and the U.S. Census Bureau (for the population) open datasets.

Carlo Zapponi (Italy, 2011)

HouseFly is a data browsing tool being developed to help researchers navigate large collections of multi-camera video recordings. It combines video into a dynamic 3D model of a recorded environment; in this case, a family home. HouseFly incorporates speech transcripts, person tracks, and other forms of data in an effort to uncover some of the unseen patterns of everyday life.

Philip DeCamp & Deb Roy, Cognitive Machines group, MIT Media Lab (U.S., 2011)

Ghost Counties shows U.S. Census 2010 housing data for all counties by state. Each bubble represents a county, where the size of the outer bubble represents the total number of homes and the inner bubble represents the vacant number of homes. The visualization reveals some interesting insights, such as counties that have more homes than people, or counties that have more than 50% vacant homes.

Jan Willem Tulip (The Netherlands, 2011)

Traffic in Lisbon is a series of animations of traffic’s evolution in Lisbon during a fictitious 24-hour period (from 0:00 to 23:59). The project maps 1,534 vehicles, during October 2009 in Lisbon, leaving route trails and condensed in one single day. The three animations presented here explore the visual metaphor of an organism with circulatory problems.

Pedro Cruz, Penousal Machado, João Bicker, University of Coimbra / FBA, CityMotion Project (Portugal, 2010)

The Stanford Dissertation Browser is an experimental interface for document collections. Stanford’s PhD dissertation abstracts from 1993-2008 are presented through the lens of a text model that distills high-level similarity and word usage patterns in the data. Each department is a circle colored by school and sized by the number of PhD students graduating from that department.

Jason Chuang, Daniel Ramage, Christopher Manning, Jeff Heer, Stanford University (U.S., 2009)

The graphic plots U.S. federal agency spending in 2009 against media coverage of those agencies in the same year. Each agency is represented by a stripe proportional to its budget presence. The graphic reveals that there is a dramatic mismatch between what our taxes fund and which issues occupy national discourse. It is clear for example, that defense spending accounts for the majority of our federal budget, almost 70%.

Wesley Grubbs, Pitch Interactive (U.S., 2010)

2015 Milan Universal Exposition is a visualization of the exhibition’s main theme and sub-themes. Every theme category is represented by a specific color, which is reflected in the hub and satellite nodes.

DensityDesign Research Lab, Politecnico di Milano: Paco Ciuccarelli (Scientific Coordinator), Michele Mauri (Project Leader), Giorgio Caviglia, Lorenzo Fernandez, Luca Mazud, Mario Zorerga, Donato Ricci (Team); Gloria Zavatta (Theme development). (Italy, 2011)

Citeology looks at the relationships between research publications through their use of citations. In total, 11,699 citations were made from one article to another within the collection of 3,502 papers published at the CHI and UIST Human Computer Interaction (HCI) conferences between 1982–2010.

Justin Matejka, Tovi Grossman, and George Fitzmaurice, Autodesk Research (Canada, 2011)
Short Biographies

Citeology
Justin Matejka is a Research Scientist with Autodesk Research and has been with the group since receiving his Bachelor of Software Engineering from the University of Waterloo in 2006. He has several publications at CHI, UIST, and ISD focusing on input techniques. Justin is currently working on Advanced Learning Technologies and Expert & Community Workflow Visualizations investigating ways to make software products easier to learn and use.

Tovi Grossman is a Principal Research Scientist at Autodesk Research. His research is in HCI, focused on understanding and improving software learnability in complex end-user applications. Tovi’s other research passion is interaction techniques, and in particular, for new technologies, such as multitouch, miniature projectors, and 3D displays. Tovi received his Ph.D. in Human-Computer Interaction from the Department of Computer Science at the University of Toronto.

George Fitzmaurice, Ph.D., is the Head of User Interface Research for Autodesk. He has been with Autodesk for over 15 years conducting research in 2D and 3D UIs including: input devices, large displays, two-handed interaction, multi-touch, pen-based UIs, Tracking Menus, spatially-aware displays, 3D navigation and tangible UIs. Currently, he is leading research projects on Advanced Learning Technologies and Expert & Community Workflow Visualizations for feature-rich software applications. Fitzmaurice received a B.Sc. in mathematics with computer science at MIT, an M.Sc. in computer science at Brown University and a Ph.D. in computer science at the University of Toronto.

Pulse of the Nation
Sune Lehmann is an Assistant Professor at DTU Informatics, Technical University of Denmark. In the past, Sune worked as a Postdoctoral Fellow at Institute for Quantitative Social Science at Harvard University and Laszlo Barabási’s Center for Complex Network Research at Northeastern University and the Center for Cancer Systems Biology at the Dana Farber Cancer Institute. He began his academic career as a physicist, but currently studies complex social systems. That career choice has transformed Sune into something of a Jack-of-All-Trades, working in the intersection between physics, computer science, and sociology.

Yong-Yeol Ahn is an Assistant Professor at the School of Informatics and Computing at Indiana University, Bloomington. He earned his Ph.D. in statistical physics from KAIST in 2008. He was a postdoctoral researcher at the Center for Complex Network Research of Northeastern University and a visiting researcher at the Center for Cancer Systems Biology at Dana-Farber Cancer Institute from 2008-2011. He is interested in various complex systems such as biological and social networks.

Alan Mislove is an Assistant Professor at the College of Computer and Information Science at Northeastern University. He received his Ph.D. from Rice University in 2009, and was a postdoctoral researcher at the Max Planck Institute for Software Systems (MPI-SWS) in the summer of 2009. Prof. Mislove’s research concerns distributed systems and networks, with a focus on using social networks to solve systems problems. In particular, his research is focused on studying computer systems that enable communication among people, such as online social networks, and designing, building, deploying, and evaluating innovative systems of this kind. He is a recipient of the prestigious NSF Career Award (2011), and his work has been covered by New Scientist, the New York Times, and the CBS Evening News.

Niels Rosenquist MD/PhD is an Instructor at Harvard Medical School and the Massachusetts General Hospital. A practicing psychiatrist, he received his MD from the University of Pennsylvania’s School of Medicine and his PhD in applied economics at the Wharton School. Dr. Rosenquist’s work focuses on translational research between the natural sciences, behavioral sciences, and the business world, most notably individual-level mobile mood monitoring through smartphones and population-level mood monitoring through social media.

Jukka-Pekka Onnela is an Assistant Professor at the Department of Biostatistics at Harvard University. He received his Ph.D. from Helsinki University of Technology in 2006. He was a research fellow at Oxford University from 2006 to 2008. He was a Fulbright Visiting Scholar at the Harvard Kennedy School from 2008 to 2009, and a postdoctoral researcher at Harvard Medical School from 2009 to 2011. His current research focuses on statistical analysis and mathematical modeling of social networks and their connection to human health.
Traffic in Lisbon
Pedro Cruz started his academic activity when he enrolled in Physics Engineering at Instituto Superior Técnico in Lisbon. He later changed his course to Informatics Engineering at University of Coimbra. In Coimbra he started collaborating with the communication design atelier FBA., doing motion and interactive installations. He spent a year in Belo Horizonte – Brazil, studying and taking an internship at the creative studio 3bits, working in web and interaction design. He later concluded his master thesis in information visualization and aesthetics in Coimbra. In 2010 he won the ACM Student Research Competition at SIGGRAPH in Los Angeles. In 2010-2011 he was an Assistant Professor in the Design and Multimedia courses at University of Coimbra, while starting his PhD. Recently his work has been featured at Wired Magazine UK and MoMA’s exhibition “Talk to Me”. Currently he is a Visiting PhD student at MIT’s Senseable City Lab.

Cascade
Jer Thorp is an artist and educator from Vancouver, Canada, currently living in New York. Coming from a background in genetics, his digital art practice explores the many-folded boundaries between science and art. Recently, his work has been featured by The New York Times, The Guardian, Scientific American, The New Yorker, and the CBC. Thorp’s award-winning software-based work has been exhibited in Europe, Asia, North America, South America, and Australia and all over the web, Jer has over a decade of teaching experience, in Langara College’s Electronic Media Design Program, at the Vancouver Film school, and as artist-in-residence at the Emily Carr University of Art & Design. Most recently, he has presented at Carnegie Mellon’s School of Art, at Eyebeam in New York City, and at IBM’s Center for Social Software in Cambridge. He is currently Data Artist in Residence at the New York Times, and is an adjunct Professor in New York University’s ITP program.

Mark Hansen is Professor of Statistics at UCLA, with courtesy appointments in the Departments of Design/Minor Art and Electrical Engineering. He is also Co-PI, Center for Embedded Networked Sensing. Previously Hansen was a member of the Technical Staff in the Statistics and Data Mining Research Department of Bell Laboratories. Given that background, his work tends to be grounded in applications. He often finds himself analyzing large, complex data streams. The context varies from environmental monitoring to the mechanics of information technologies. His current fascination is with so-called participatory sensing, projects that engage the general public in non-professional practices of data collection and analysis.

Stanford Dissertation Browser
Jason Chuang is a PhD Candidate in Computer Science at Stanford University.
Daniel Ramage received his PhD in Computer Science from Stanford and is now a research scientist at Google.
Christopher Manning is an Associate Professor of Computer Science and Linguistics at Stanford University.
Jeffrey Heer is an Assistant Professor of Computer Science at Stanford University.

Peoplemovin
Carlo Zapponi is a multifaceted designer and technologist from Mantova, Italy, currently living in Milano. Zapponi has a background in Computer Science and Interaction Design. He is currently Senior Design Technologist at Frog Design, a global innovation firm. His research is in the field of Data Visualization and User Experience. Some of the projects Zapponi has done have been featured on international websites, magazines, and exhibitions. Recently Worldshapin, one of the projects, won the HDR Challenge by the United Nations and Visualizing.org.

U.S. federal agency spending in 2009
Wesley Grubbs focuses on connecting data to the lives and events from which it is derived to help inform and inspire engaging minds. He is the founder of Pitch Interactive, a studio that builds data visualizations for an array of small-to large-scale interactive and print projects that are as fluid and artistic as they are statistically sound. His work has been showcased in Wired, Fortune, Scientific American and the MoMA in New York.

HouseFly
Philip DeCamp is a graduate student at the MIT Media Lab. His research explores data-driven methodologies for analyzing human behavior, addressing issues of data collection, processing, visualization, and retrieval. DeCamp received his bachelor of computer engineering from MIT in 2004.

Deb Roy is a tenured member of the MIT faculty and directs the Cognitive Machines group at the MIT Media Lab. Roy studies how children learn language, and designs machines that learn to communicate in human-like ways. Roy received his PhD in cognitive science from MIT in 1999.

2015 Milan Universal Exposition
Scientific Coordinator: Paolo Ciuccarelli
Project Leader: Michele Mauri
Team: Giorgio Caviglia, Lorenzo Fernandez, Luca Masud, Mario Porpora and Donato Ricci
Theme development: Gloria Zavatta

DensityDesign is a Research Lab in the design department (INDACO) of the Politecnico di Milano. It focuses on the visual representation of complex social, organizational and urban phenomena. Although producing, collecting and sharing information has become much easier, robust methods and effective visual tools are still needed to observe and explore the nature of complex issues. The research aims to explore the potential of information visualization and information design, and provide innovative and engaging visual artifacts to enable researchers and scholars to build solid arguments.

Ghost Counties
Ian Willem is a Dutch information visualizer. With his freelancing company TULP interactive he builds visualizations for an array of small- to large-scale projects, ranging from static images used as illustration in print, over custom interactive visualizations used as visual analytics tool to engaging visualizations in public spaces. He has worked for clients such as Popular Science, Scientific American, Schiphol Amsterdam Airport and World Economic Forum.