

# ADAM PERER, Ph.D.

## BIOGRAPHY

Adam Perer is a research scientist in the Healthcare Analytics group at IBM Research in New York. He was previously a research scientist in IBM's Visual Communication Lab in Cambridge and IBM's Social Technologies Group in Haifa.

His research focuses on making sense of big data through visualization and interactive analytics.

He received his Ph.D. in Computer Science at the University of Maryland, College Park. His advisor was Dr. Ben Shneiderman and he was a member of the Human-Computer Interaction Lab. His dissertation work focused on improving exploratory data analysis by integrating statistical algorithms and information visualizations. His SocialAction project has been instrumental for scientific discoveries, including medical research at the National Library of Medicine, counter-terrorism research at the Department of Homeland Security's START center, and political analysis at US News & World Report. He has also been a visiting researcher at the Institute for Defense Analyses, Xerox PARC, and Microsoft Research.

## EDUCATION

- August 2008    **Ph.D. in Computer Science.** *University of Maryland, College Park, MD*  
Thesis: Integrating Statistics and Visualization to Improve Exploratory Social Network Analysis  
Advisor: Ben Shneiderman  
Committee: Ben Bederson, Lise Getoor, Jen Golbeck, Alan Neustadt
- May 2005    **Master of Science in Computer Science,** *University of Maryland, College Park, MD*
- May 2002    **Bachelor of Science in Computer Science cum laude,** Minor in Artificial Intelligence  
*Case Western Reserve University, Cleveland, OH*

## RESEARCH EXPERIENCE

- 9/2010 -    **Research Scientist at IBM Research,** *Cambridge, MA*  
Present    Researcher in the Visual Communication Lab in IBM Research's Center for Social Software. Co-chair of the Graphics & Visualization community for all of IBM Research's labs.
- 9/2008 -    **Research Scientist at IBM Research,** *Haifa, Israel*  
8/2010    Advancing visualization, social media, and crowdsourcing research as a part of the Social Technologies Group at IBM Research Haifa. Co-chair of the Graphics & Visualization community for all IBM Research labs.
- 8/2002 -    **Research Assistant at the University of Maryland,** *College Park, MD*  
8/2008    Designed and implemented *SocialAction*, a novel system for exploratory social network analysis that integrates statistics and visualization. Conducted long-term case studies with real users and real problems to validate the tools success.
- 6-8/2006 &    **Research Assistant at Microsoft Research,** *Redmond, Washington*

- 6-9/2005 Designed and implemented information visualizations to allow users to navigate and interpret hidden dimensions of their email archives. Evaluations of the system showed evidence of improved experience for users with email overload over traditional text-based interfaces.
- 6-8/2004 **Research Assistant at Xerox PARC, Palo Alto, California**  
Designed and implemented an interface to aid analysts working with large corpora of documents. Led ethnographic studies to learn the tasks of in-depth readers and how technologies could assist them.
- 6-8/2003 **Research Assistant at Institute for Defense Analyses, Alexandria, Virginia**  
Designed virtual environments to measure the sense of presence in virtual reality systems. Conducted user studies measuring human factors and biometric responses.
- 6-8/2002 **Research Assistant at Zaxel Systems, Inc, Pittsburgh, Pennsylvania**  
Assisted in improving several computer vision technologies developed at Zaxel. Designed new interfaces for end users of their multimedia systems.
- 6-8/2001 **Research Assistant at TerraSim Inc., Pittsburgh, Pennsylvania**  
Assisted in enhancing a software product that takes satellite images and maps them in three-dimensional virtual worlds, commonly used in simulations.
- 6-8/2000 &  
6-8/1999 **Research Assistant at Carnegie Mellon University, Pittsburgh, Pennsylvania**  
Conducted computer vision research at the Robotics Institute, working closely with Dr. Takeo Kanade on the Virtualized Reality project.
- 6/1997-  
2/1998 **Research Assistant at Carnegie Mellon University, Pittsburgh, Pennsylvania**  
Developed a computer simulation of DNA processes with the Theoretical Physics department. Experiments assisted the Human Genome Project.

## PUBLICATIONS

### BOOK CHAPTERS

- B.1 **Adam Perer.** Finding Beautiful Insights in the Chaos of Social Network Visualizations. In *Beautiful Visualization*. O'Reilly Press. June 2010.

### JOURNAL PAPERS (REFEREED)

- J.1 **Adam Perer** and Ben Shneiderman. Integrating Statistics and Visualization for Exploratory Power: From Long-Term Case Studies to Design Guidelines. *IEEE Computer Graphics and Applications (CG&A): Special Issue on Visual Analytics Evaluation*. 29(3): 39-51 (2009).
- J.2 **Adam Perer**, Ben Shneiderman, Douglas W. Oard: Using rhythms of relationships to understand e-mail archives. *Journal of the American Society for Information Science and Technology (JASIST)* 57(14): 1936-1948 (2006).

### CONFERENCE PAPERS (REFEREED)

- C.1 Michael Muller, Kate Ehrlich, Ido Guy, Tara Matthews, **Adam Perer**, Inbal Ronen. Diversity among Enterprise Online Communities: Collaborating, Teaming, and Innovating through Social Media. *ACM Conference on Human Factors in Computing Systems (CHI 2012)*. Austin, Texas. (2012). *Conditionally accepted as of 12/11*.

- C.2 **Adam Perer**, Ido Guy, Erel Uziel, Inbal Ronen, Michal Jacovi: Visual Social Network Analytics for Relationship Discovery in the Enterprise. IEEE Conference on Visual Analytics Science and Technology (VAST 2011). Providence, Rhode Island, USA. (2011). *Best Paper Runner-Up*.
- C.3 Jeffrey Heer, **Adam Perer**: Orion: A System for Modeling, Transformation and Visualization of Multi-dimensional Heterogeneous Networks. IEEE Conference on Visual Analytics Science and Technology (VAST 2011). Providence, Rhode Island, USA. (2011).
- C.4 Michal Jacovi, Ido Guy, **Adam Perer**, Inbal Ronen, Erel Uziel and Michael Maslenko. Digital Traces of Interest: Deriving Interest Relationships from Social Media Interactions. European Conference on Computer-Supported Cooperative Work (ECSCW 2011). Aarhus, Denmark. (2011).
- C.5 Ido Guy, **Adam Perer**, Tal Daniel, Ohad Greenspan, Itai Turbahn: Guess Who? Enriching the Social Graph through a Crowdsourcing Game. ACM Conference on Human Factors in Computing Systems (CHI 2011). Vancouver, Canada. (2011).
- C.6 Ido Guy, Sigalit Ur, Inbal Ronen, **Adam Perer**, Michal Jacovi: Do You Want to Know? Recommending Strangers in the Enterprise. ACM Conference of Computer Supported Cooperative Work (CSCW 2011). Hangzhou, China. (2011).
- C.7 Ido Guy, Michal Jacovi, **Adam Perer**, Inbal Ronen and Erel Uziel: Same Places, Same Things, Same People? Mining User Similarity on Social Media. ACM Conference of Computer Supported Cooperative Work (CSCW 2010). Savannah, Georgia, USA. (2010).
- C.8 Frank van Ham and **Adam Perer**: “Search, Show Context, Expand on Demand”: Supporting Large Graph Exploration with Degree-of-Interest. IEEE Conference on Information Visualization (Infovis 2009). Atlantic City, New Jersey, USA. (2009).
- C.9 Marc A. Smith, Ben Shneiderman, Natasha Milic-Frayling, Eduarda Rodrigues, Vladimir Barash, Cody Dunne, Tony Capone, **Adam Perer** and Eric Gleave: Analyzing (Social Media) Networks with NodeXL. International Conference on Communities and Technologies (C&T 2009). University Park, Pennsylvania, USA. (2009).
- C.10 **Adam Perer** and Ben Shneiderman. Integrating Statistics and Visualization: Case Studies of Gaining Clarity During Exploratory Data Analysis. ACM Conference on Human Factors in Computing Systems (CHI 2008). Florence, Italy. (2008).
- C.11 **Adam Perer** and Ben Shneiderman. Systematic Yet Flexible Discovery: Guiding Domain Experts Through Exploratory Data Analysis. International Conference on Intelligent User Interfaces (IUI 2008). Gran Canaria, Canary Islands, Spain. (2008).
- C.12 **Adam Perer** and Ben Shneiderman: Balancing Systematic and Flexible Exploration of Social Networks. IEEE Transactions on Visualization and Computer Graphics (InfoVis 2006). 12(5): 693-700. Baltimore, Maryland, USA. (2006).
- C.13 **Adam Perer** and Marc A. Smith: Contrasting portraits of email practices: visual approaches to reflection and analysis. International Conference on Advanced Visual Interfaces (AVI 2006): 389-395. Venice, Italy. (2006)
- C.14 **Adam Perer** and Ben Shneiderman. Improving Interactive Exploration of Social Networks. International Sunbelt Social Network Conference (SUNBELT). Vancouver, Canada (2006).
- C.15 **Adam Perer**: Making sense of social networks. Extended Abstracts of ACM conference on Human factors in computing systems (CHI 2006): 1779-1782. Montreal, Canada (2006).

- C.16 Eric Bier and **Adam Perer**. Icon Abacus: positional display of document attributes. Proceedings of the 5<sup>th</sup> ACM/IEEE Joint Conference on Digital Libraries (JCDL 2005): 289-290. Denver, Colorado, USA (2005).

#### WORKSHOP PAPERS (REFEREED)

- W.1 **Adam Perer**. The Value of Analyzing Behavior on Multiple Social Mediating Technologies. Social Mediating Technologies: Developing the Research Agenda Workshop at CHI 2009. Boston, Massachusetts, USA. (2009).
- W.2 **Adam Perer**, Ben Shneiderman. Supporting Exploration in Social Data Analysis. Social Data Analysis Workshop at CHI 2008. Florence, Italy. (2008).
- W.3 **Adam Perer**. Analyzing the Networked: Visual Techniques for Understanding the Social Structure of Social Software. Public Practices, Social Software: Examining social practices in networked publics. 3rd Annual Communities and Technologies Conference. East Lansing, Michigan, USA. (2007).
- W.4 **Adam Perer**, Ben Shneiderman. Orderly Analysis of Social Visualizations. Social Visualization Workshop at CHI 2006. Montreal, Canada. (2006).

#### DEMOS, POSTERS, AND CHALLENGES (REFEREED)

- D.1 **Adam Perer**, Ido Guy, Erel Uziel, Inbal Ronen, Michal Jacovi. Unearthing People from the SaND: Relationship Discovery with Social Media in the Enterprise. AAAI Conference on Weblogs and Social Media (ICWSM 2011). Barcelona, Spain. (2011).
- D.2 **Adam Perer**. Using SocialAction to uncover structure in social networks over time. IEEE Symposium on Visual Analytics Science and Technology (VAST 2008): 213-214. Columbus, Ohio, USA. (2008).
- D.3 **Adam Perer**, Ben Shneiderman. The Global Network of Terrorism: Dynamic Trends from 1969-1997. Competition on Visualizing Network Dynamics: International Workshop and Conference on Network Science. New York Hall of Science, New York, USA. (2007).
- D.4 **Adam Perer**, Ben Shneiderman. Beyond Threads: Identifying Discussions in Email Archives. IEEE Symposium on Information Visualization (InfoVis 2005). Minneapolis, Minnesota, USA. (2005).
- D.5 Eric Bier, **Adam Perer**. Icon Abacus and Ghost Icons. Proceedings of the 5<sup>th</sup> ACM/IEEE Joint Conference on Digital Libraries (JCDL). Denver, Colorado, USA. (2005).

#### OTHER PUBLICATIONS

- O.1 **Adam Perer** and Chris Wilson. The Steroids Social Network: An interactive feature on the Mitchell report. Slate Magazine. Dec. 21, 2007. <http://www.slate.com/id/2180392/>
- O.2 Eric Bier and **Adam Perer**. Icon Abacus and Ghost Icons. IEEE Technical Committee on Digital Libraries Bulletin, 2(1). (2005)

## PATENTS

- PAT.1 Frank van Ham and **Adam Perer**. Navigation of online network data with degree of interest functions. Patent pending.
- PAT.2 Eric A. Bier and **Adam Perer**. Systems and Methods for displaying Linked Information in a Sorted Context. Patent 20041652-US-NP-311307.

# INVITED TALKS TO ACADEMIA & INDUSTRY

- I.1 June 24, 2011: Making Sense of Social Networks. Stanford University. Stanford, California.
- I.2 June 23, 2011: Data Visualization and Storytelling. IBM Almaden Research Center. San Jose, California.
- I.3 March 18, 2011: Making Sense of Social Networks. Massachusetts Institute of Technology. Cambridge, Massachusetts.
- I.4 June 7, 2010: Making Sense of (Social) Networks. IBM Research. Cambridge, Massachusetts.
- I.5 March 4, 2010: Making Sense of (Social) Networks. University of Pittsburgh. Pittsburgh, Pennsylvania.
- I.6 May 18, 2009: Improving Exploration of Networks by Integrating Statistics and Visualization. Dagstuhl Seminar on Visualization and Monitoring of Network Traffic. Dagstuhl, Germany.
- I.7 June 27, 2008: Integrating Statistics and Visualizations to Improve Exploratory Data Analysis of Social Networks. Statistical Graphics: Data and Information Visualization in Today's Multimedia Society (DataViz VI). Jacobs University, Bremen, Germany.
- I.8 February 14, 2008: Integrating Statistics and Visualization: Gaining Clarity during Exploratory Data Analysis of Social Networks. Dynamic Network Analysis Seminar Series. University of Maryland, College Park, Maryland.
- I.9 November 12, 2007: Integrating Statistics and Visualization to Gain Clarity During Exploratory Social Network Analysis. Ben-Gurion University of the Negev, Beer Sheva, Israel.
- I.10 November 8, 2007: Integrating Statistics and Visualization to Gain Clarity During Exploratory Social Network Analysis. IBM Research, Haifa, Israel.
- I.11 November 6, 2007: Integrating Statistics and Visualization to Gain Clarity During Exploratory Social Network Analysis. Technion, Haifa, Israel.
- I.12 November 5, 2007: Integrating Statistics and Visualization to Gain Clarity During Exploratory Social Network Analysis. Weizmann Institute of Science, Rehovot, Israel.
- I.13 November 1, 2007: Integrating Statistics and Visualization to Gain Clarity During Exploratory Social Network Analysis. Google, Haifa, Israel.
- I.14 October 10, 2007: Integrating Statistics and Visualization to Gain Clarity During Exploratory Social Network Analysis. Johns Hopkins University Applied Physics Lab, Columbia, Maryland.
- I.15 July 25, 2007: Social Network Analysis for Counter-Terrorism. Tools and Practices of Terrorism Analysis. Booz Allen Hamilton, McLean, Virginia
- I.16 June 1, 2007: Systematic Yet Flexible Visualizations of Social Networks. Helping Users Make Sense of Social Networks Workshop. University of Maryland, College Park, Maryland.
- I.17 May 31, 2007: Systematic Yet Flexible Visualizations of Social Networks. HCIL's 24<sup>th</sup> Annual Symposium. University of Maryland, College Park, Maryland.
- I.18 May 23, 2007: Social Network Analysis for Counter-Terrorism. 2007 Homeland Security Science & Technology Stakeholders Conference. Washington, DC.

- I.19 May 20, 2007: Balancing Systematic and Flexible Exploration of Social Networks. International Workshop and Conference on Network Science. New York Hall of Science, New York City, New York.
- I.20 April 18, 2007: Improving Interactive Exploration of Social Networks. The USMA/ARI Network Science Workshop, United States Military Academy, West Point, New York.
- I.21 March 2, 2007: Exploratory and Systematic Social Network Analysis Using Novel Visualizations and Interactions. APA Annual Symposium on Applied Experimental Research, George Mason University, Virginia.
- I.22 August 2006: Uses and Values of Email Visualizations: A Case Study with SNARFViews. Microsoft Research. Redmond, Washington.
- I.23 June 1, 2006: Balancing Systematic and Flexible Exploration of Social Networks. HCIL's 23<sup>rd</sup> Annual Symposium. University of Maryland, College Park, Maryland.
- I.24 June 2, 2005: Using Rhythms of Relationships to Understand Email Archives. Email Archive Visualization Workshop. University of Maryland, College Park, Maryland.
- I.25 June 3, 2005: Understanding the Rhythms of Relationship in Email Archives. HCIL's 22<sup>nd</sup> Annual Symposium. University of Maryland, College Park, Maryland.
- I.26 August 31, 2004: Approaches for Visualizing Email Archives. USC's Institute for Creative Technologies. Marina del Ray, California.
- I.27 August 2004: Supporting Reading Groups with Instant Bookplex. Palo Alto Research Center (PARC). Palo Alto, California.

## INVITED PARTICIPANT

- IP.1 June 2010: Dagstuhl Seminar on Information Visualization. Schloss Dagstuhl, Germany.
- IP.2 May 2009: Dagstuhl Seminar on Visualization and Monitoring of Network Traffic. Schloss Dagstuhl, Germany.
- IP.3 July 2008: Microsoft Research Faculty Summit. Redmond, Washington.

## TEACHING EXPERIENCE

### COURSES

- Spring 2004 Teaching Assistant for Introduction to Human-Computer Interaction (CMSC 434) with Dr. Ben Shneiderman at the University of Maryland
- Fall 2003 Teaching Assistant for Organization of Programming Languages (CMSC 330) with Larry Herman at the University of Maryland
- Spring 2003 Teaching Assistant for Introduction to Artificial Intelligence (CMSC 421) with Dr. James Hendler at the University of Maryland
- Fall 2002 Teaching Assistant for Computer Science I (CMSC 131)

with Nelson Padua-Perez at the University of Maryland

- Spring 2002 Teaching Assistant for Elementary Computer Programming (ENGR 131) with Dr. Wyatt Newman at Case Western Reserve University
- Fall 2001 Teaching Assistant for Elementary Computer Programming (ENGR 131) with Dr. Marc Buchner at Case Western Reserve University
- Spring 2001 Teaching Assistant for Elementary Computer Programming (ENGR 131) with Dr. Marc Buchner at Case Western Reserve University
- Fall 2000 Teaching Assistant for Elementary Computer Programming (ENGR 131) with Dr. Marc Buchner at Case Western Reserve University

#### MENTORING

- 2011 Mentored Jessica Hullman of the University of Michigan as an intern at IBM Research on examining cultural differences of visual representations of complex data.
- 2008 Mentored Joonghoon Lee at the University of Maryland on creating GTD Data Rivers, a temporal visualization of terrorist activities in the Global Terrorism Database (GTD).
- 2009 Mentored Tal Herscovitz and Oded Schumacher at the Technion (Israel Institute of Technology) on creating visualizations of online social media.

## COMMITTEES & REVIEWING

#### JOURNAL EDITOR

- JE.1 Guest Editor. Information Visualization Journal, Special Issue on Information Visualization Evaluation, July 2011.

#### CONFERENCE COMMITTEE MEMBER

- CC.1 Webmaster. C&C2007, Creativity and Cognition Conference, June 13-15, 2007, Washington, DC.

#### PROGRAM COMMITTEE MEMBER

- PC.1 InfoVis 2011: IEEE Information Visualization Conference, October 2011, Providence, Rhode Island.
- PC.2 EuroVis 2011: EuroGraphics/IEEE Symposium on Visualization, May 2011, Bergen, Norway.
- PC.3 InfoVis 2010: IEEE Information Visualization Conference, October 2010, Salt Lake City, Utah.
- PC.4 InfoVis 2009: IEEE Information Visualization Conference, October 2009, Atlantic City, New Jersey.
- PC.5 ISWC 2009: International Semantic Web Conference, October 2009, Washington, DC.
- PC.6 WWW 2009: International World Wide Web Conference, August 20-24 2009, Madrid, Spain.

#### WORKSHOP COMMITTEE MEMBER

- WC.1 **Organizer.** Telling Stories with Data. VisWeek 2011. October 2011. Providence, Rhode Island, USA. *data-stories.com*
- WC.2 Program Committee. NextMail'11: International Workshop on Next Trends in Email, Lyon, France.

- WC.3 Program Committee. VISSW 2011: International Workshop on Visual interfaces to the Social and Semantic Web, Palo Alto, California.
- WC.4 **Organizer.** BELIV'10: BEyond time and errors: novel evaluation methods for Information Visualization. CHI 2010. April 10-11, 2010. Atlanta, Georgia, USA. [www.beliv.org/beliv2010/](http://www.beliv.org/beliv2010/)
- WC.5 Program Committee. VISSW 2010: International Workshop on Visual interfaces to the Social and Semantic Web, Hong Kong, China.
- WC.6 **Organizer.** BELIV'08: BEyond time and errors: novel evaluation methods for Information Visualization. CHI 2008. April 5, 2008. Florence, Italy. [www.dis.uniroma1.it/~beliv08/](http://www.dis.uniroma1.it/~beliv08/)
- WC.7 **Organizer.** Helping Users Make Sense of Social Networks. University of Maryland. June 2007, College Park, Maryland. [www.cs.umd.edu/hcil/sna-workshop/](http://www.cs.umd.edu/hcil/sna-workshop/)
- WC.8 **Organizer.** Email Archive Visualization Workshop. University of Maryland, June 2005, College Park, Maryland. [www.cs.umd.edu/hcil/emailviz/workshop/](http://www.cs.umd.edu/hcil/emailviz/workshop/)
- WC.9 Webmaster. Workshop on Creativity Support Tools, National Science Foundation. June 13-14, 2005, Washington, DC. [www.cs.umd.edu/hcil/CST/](http://www.cs.umd.edu/hcil/CST/)

#### JOURNAL REVIEWER

- JR.1 2011 IEEE Transactions on Visualization and Computer Graphics (TVCG)
- JR.2 2011-2010 Information Visualization Journal (IVS)
- JR.3 2010 ACM Transactions on Intelligent Systems and Technology (TIST)
- JR.4 2009-2007 International Journal of Human-Computer Studies (IJHCS)
- JR.5 2009 IEEE Computer Graphics and Applications (CG&A)
- JR.6 2008 New Review of Hypermedia and Multimedia (NRHM)
- JR.7 2007 International Journal of Human-Computer Interaction (IJHCI)
- JR.8 2005 Journal of Computer-Mediated Communication (JCMC)

#### CONFERENCE REVIEWER

- CR.1 2012-2008 Conference on Human Factors in Computing Systems (CHI).
- CR.2 2012-2010 International Conference on Intelligent User Interfaces. (IUI)
- CR.3 2012-2010 Eurographics/IEEE Symposium on Visualization (EuroVis).
- CR.4 2012 IEEE Pacific Visualization Symposium (PacificVis).
- CR.5 2012 International Conference on Information Visualization Theory and Applications (IVAPP).
- CR.6 2011-2005 IEEE Information Visualization Conference (InfoVis).
- CR.7 2011-2008 IEEE Symposium on Visual Analytics Science and Technology (VAST).
- CR.8 2011 ACM Conference on Computer Supported Cooperative Work (CSCW)
- CR.9 2009 International Semantic Web Conference (ISWC).
- CR.10 2009 International World Wide Web Conference (WWW).

CR.11 2007 ACM Creativity and Cognition Conference (C&C).

#### STUDENT VOLUNTEER

SV.1 UIST 2006, Symposium on User Interface Software & Technology, October 2006, Montreux, Switzerland.

SV.2 CHI 2005: Conference on Human Factors in Computing Systems, April 2-7, Portland, Oregon.

SV.3 CHI 2004: Conference on Human Factors in Computing Systems, April 24-29, Vienna, Austria.

## MEMBERSHIPS

- Co-chair of IBM Research's Graphics & Visualization Community. (2010-Present).
- Lead Visualization Member of IBM's CS/Math Research Ph.D. Fellowship Selection Committee. (2010-Present)
- ACM (Association for Computing Machinery)
- Computer Science Department Executive Council, University of Maryland (2004-2008)
- IBM Professional Interest Communities (HCI, Graphics & Visualization)

## AWARDS

- VAST Mini-Challenge Award, IEEE Visual Analytics Science and Technology Challenge (2008)
- Jacob K. Goldhaber Grant, University of Maryland (2008)
- Doctoral Consortium Selection, SIGCHI (2006)
- University of Maryland Graduate Fellowship (Fall 2002 – Spring 2008)
- Case Alumni Scholarship (Fall 1999 – Spring 2002)
- Case Western Reserve Provost Scholarship (Fall 1998 – Spring 2002)
- Sara Goldstein Academic Scholarship (Fall 1998 – Spring 2002)

## LANGUAGES

- Native English

## CITIZENSHIP

- USA