

Sponsore Visualizat

Sponsored by the IEEE Computer Society Visualization and Graphics Technical Committee.

Welcome

Welcome to VisWeek 2011! This year's program includes three conferences: IEEE Visualization (Vis), Information Visualization (InfoVis), and Visual Analytics Science and Technology (VAST); two new symposia: the first IEEE Symposium on Biological Data Visualization (BioVis), and the first IEEE Symposium on Large-Scale Data Analysis and Visualization (LDAV); a new art show; and the traditional panels, posters, tutorials, workshops, birds-of-a-feather (BOF) meetings, exhibitions, and doctoral colloquium. It promises to be an exciting and stimulating week.

For the first time this year, topical papers published during the last year in IEEE *Transactions on Visualization and Computer Graphics (TVCG)* will make up four of the technical paper sessions. As has been the case for the last 5 years, *TVCG* will once again publish all of the Vis and InfoVis papers in a special issue of the journal.

This year's program introduces a new format. The opening session Tuesday will feature keynote speaker Paul Thagard, one day earlier than traditionally; the closing session, featuring capstone speaker Amanda Cox, remains midday Friday. Each of these four days will start with a fast-forward session, where every paper to be presented during the day will offer a 30 second preview. This program change provides us with space to hold the growing body of quality work that our discipline is producing each year while staying within three parallel technical sessions.

As always, a number of other events will enrich the week. Posters from all 5 venues will be on display throughout the week, with their own fast-forward early Wednesday evening, right before the VisWeek banquet. Panels will provoke us. The banquet, breaks, evenings in the lobby, and the walkable Providence downtown area will provide opportunities for social and collaborative interactions. Take a collaborative gondola ride only 2 blocks from the conference hotel! The doctoral colloquium will provide PhD students a chance to make connections with researchers outside their institution and get feedback on their research plans. And finally, exhibitions, challenges, and contests will help us all keep up on the latest applications, methods, and technologies.

Welcome to Providence, and have a great VisWeek!

David Laidlaw, Brown University Ross Whitaker, University of Utah VisWeek 2011 General Chairs

David Laidlaw (Vis), Brown University Jean-Daniel Fekete (InfoVis), INRIA William Pike (VAST), Pacific Northwest National Laboratory Jonathan C. Roberts (VAST), Bangor University Torsten Möller (BioVis), Simon Fraser University Raghu Machiraju (BioVis), The Ohio State University Nils Gehlenborg (BioVis), Harvard University Kwan-Liu Ma (LDAV), University of California, Davis VisWeek 2011 Conference & Symposia Chairs



About Providence	3
Map of venue	3
Committee Members	4-6
Conference Schedule At-A-Glance	8-9
Tutorials and Workshops	
Call for Participation 2012	
Vis in Other Venues	
BioVis Keynote	
LDAV Keynote	
VisWeek Keynote	
VisWeek Capstone	20
Posters and Interactive Demos	
Discovery Exhibition	
Supporters & Exhibitors	

How to Order Proceedings

Additional copies of the Vis 2011 and InfoVis 2011 CD proceedings can be ordered from:

IEEE Computer Society

By mail: 10662 Los Vaqueros Circle, Los Alamitos, CA 90720 By phone: +1-800-CS-BOOKS, +1-714-821-8380 (direct) By fax: +1-714-821-4641 By email: csbooks@computer.org By web: http://www.computer.org/cms/Computer.org/ Publications/OrderForms/tvcg1.pdf Additional copies of the VAST 2011 proceedings can be ordered from: IEEE Service Center By mail: 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331 By phone: +1-800-678-IEEE, +1-732-981-0060 (direct) By fax: +1-732-981-9667

By email: customer-service@ieee.org

By web: http://shop.ieee.org

IEEE Computer Society

To become a member visit http://computer.org/join

IEEE Visualization and Graphics Technical Committee (VGTC)

For information on awards, national initiatives, conferences and symposia, and a comprehensive membership directory, please visit http://vgtc.org/wpmu/techcom.



About Providence, Rhode Island

IEEE VisWeek comes to the beautiful city of Providence, RI, the capital city of the smallest state in the country, but packed with exciting entertainment, shopping and food options. A lively down-town area just steps away from the conference hotel, a multi-cul-

tural mix of many award-winning restaurants in several neighbourhoods all in walking distance, a wonderful and elaborate river-walk area for relaxing, and a vibrant art-scene, are all settled among scores of immaculately preserved homes from the Colonial, Federal, Greek Revival, and Victorian eras.

The Westin Providence THIRD FLOOR - HOTEL



The Rhode Island Convention Center

1 Conference Registration

Located in West Prefunction Saturday, 6pm - 9pm Sunday - Thursday, 7:30am - 4:30pm Friday, 7:30am - 10:30am

2 Birds-of-a-Feather (BOF) Board

Check the board for conference times and locations. All conference attendees are welcome. Located in West Prefunction, next to Registration.

3 Posters

BioVis

Located in Ballroom A Foyer Sunday - Monday, 8:30am - 6pm Hosted Viewing, Sunday, 4:15pm - 6pm

LDAV

Located in West Prefunction Sunday - Monday, 6pm - 6pm Hosted Viewing, Sunday, 6pm - 7:30pm

VisWeek

Located in East & West Prefunction & Ballroom A Foyer Tuesday - Thursday, 10am - 6pm Hosted Viewing, Wednesday, 6pm - 7pm

4 Art Show

Located in Rotundra, Ballroom E, 555A-556B Hallway Tuesday - Thursday, 10am - 6pm

5 Exhibits & Interactive Demos

Located in Ballroom BC Tuesday - Thursday, 10am - 6pm

6 Internet Access

Located in 554A Sunday - Thursday, 7am - 5pm Friday, 7am - 11am

7 Speaker Preparation

Located in 558B Sunday - Thursday, 7:30am - 5pm Friday, 7:30am - 9am



VisWeek Conference Committee

VISVV

Visweek General Chairs David Laidlaw, Brown University Ross Whitaker, University of Utah

Vis Conference Chair David Laidlaw, Brown University

InfoVis Conference Chair Jean-Daniel Fekete. INRIA

VAST Conference Chairs

William Pike, Pacific Northwest National Laboratory

Jonathan C. Roberts, Bangor University

BioVis Symposium Chairs

Torsten Möller, Simon Fraser University Raghu Machiraju, The Ohio State University Nils Gehlenborg, Harvard University

Large Data Visualization Symposium Chairs

Kwan-Liu Ma, University of California, Davis James Ahrens, Los Alamos National Laboratory

Program Chairs

Gautam Chaudhary, University of California, Irvine

Rachael Brady, Duke University

Paper Chairs

Raghu Machiraju, The Ohio State University Klaus Mueller, Stony Brook University Gerik Scheuermann, Universität Leipzig Frank van Ham. IBM Chris Weaver, University of Oklahoma Silvia Miksch, Vienna University of Technology Matthew Ward, Worcester Polytechnic Institute

Poster & Interactive Demo Chairs

Jason Dykes, City University London Jeff Heer, Stanford University Tobias Isenberg, University of Groningen Thomas Schultz, Max Plank Institute for Intelligent Systems Remco Chang, Tufts University Jo Wood, City University London Petra Isenberg, INRIA

Fast Forward Chair

Fanny Chevalier, Ontario College of Art and Design

Panel Chairs

Melanie Tory, University of Victoria Russell M. Taylor II, University of North Carolina, Chapel Hill Margaret Varga, Oxford University

Art Show Chairs

2011 Committee Mem

Daniel F. Keefe, University of Minnesota Bruce D. Campbell, Rhode Island School of Design

Tutorial Chairs

Bongshin Lee, Microsoft Research Markus Hadwiger, King Abdullah University of Science and Technology David Gotz, IBM Research

Contest & Challenge Chairs

Jan Klein, Fraunhofer MEVIS Gabriel Zachmann, Clausthal University Georges Grinstein, University of Massachusetts, Lowell

Workshop Chairs

Carlos Scheidegger, AT&T Labs-Research Danyel Fisher, Microsoft Research Enrico Bertini, Universität Konstanz

Exhibit Chairs

Steven Drucker, Microsoft Research Niklas Elmqvist, Purdue University Greg Jones, University of Utah Kristin Cook, Pacific Northwest National Laboratorv

Discovery Exhibition Chairs

Florian Mansmann, Universität Konstanz Jinwook Seo, Seoul National University

Doctoral Colloquium Chairs

Robert Kosara, University of North Carolina, Charlotte G. Elisabeta Marai, University of Pittsburgh

T.J. Jankun-Kelly, Mississippi State University Eugene Zhang, Oregon State University

Student Volunteer Chairs

Jibonananda Sanyal, Mississippi State University David Koop, University of Utah Wes Kendall, University of Tennessee, Knoxville **Publication Chair**

Torsten Möller, Simon Fraser University

Publications Tech

Robert S. Laramee, Swansea University

Webmaster

Daniel Acevedo, King Abdullah University of Science and Technology

Appmaster

Jens Krüger, Interactive Visualization and Data Analysis (IVDA) Group

Birds of a Feather Chairs

Zoë Wood, California Polytechnic State University Jing Yang, University of North Carolina, Charlotte

Finance Chairs

Maria Velez, CA Technologies Loretta Auvil, University of Illinois

Publicity Chairs

Alireza Entezari, University of Florida Tobias Schreck, Universität Konstanz Christopher Collins, University of Ontario Institute of Technology

Publication & Project Coordinator Meghan Haley, VGTC

Web & Graphic Design

Twig Gallemore, *Elevation design+architecture* Melissa Kingman, Elevation design+architecture

A/V

Todd Szymanski, Munday & Collins AV

Local Arrangements Amy Tarbox, Brown University

VisWeek Executive Committee

Rachael Brady, Duke University Larry Rosenblum, National Science Foundation David Ebert, Purdue University Robert Moorhead, Mississippi State University John Stasko, Georgia Institute of Technology Daniel Keim, Universität Konstanz Amitabh Varshey, University of Maryland

Vis Program Committee

Daniel Aliaga, Purdue University Chandrajit Bajaj, University of Texas, Austin David Banks, University of Tennessee, Knoxville Charl Botha, Delft University of Technology, Leiden University Medical Center David Breen, Drexel University Peer-Timo Bremer, Lawrence Livermore National Laboratory Stefan Bruckner, Vienna University of Technology Baoquan Chen, Shenzhen Institutes of Advanced Technology Min Chen, University of Oxford Wei Chen, Zhejiang University Paolo Cignoni, ISTI-CNR, Italy Carlos Correa, Lawrence Livermore National Laboratory Carsten Dachsbacher, Karlsruhe Institute of Technology Leila de Floriani, University of Genova David Ebert, Purdue University Alireza Entezari, University of Florida Kelly Gaither, Texas Advanced Computing Center

Christoph Garth, University of Kaiserslautern Joachim Giesen, University of Jena Xianfeng Gu, Stony Brook University Charles Hansen, University of Utah Hans-Christian Hege, Zuse Institute Berlin Martin Hering-Bertram, Hochschule Bremen University of Applied Sciences Victoria Interrante, University of Minnesota at Twin Cities Tobias Isenberg, University of Groningen, DIGITEO/CNRS/INRIA Ming Jiang, Lawrence Livermore National Laboratory David Kao, NASA Ames Research Center Gordon Kindlmann, University of Chicago Martin Kraus, Aalborg University Heike Leitte (née Jänicke), University of Heidelberg Patric Ljung, Siemens Research Aditi Majumder, University of California, Irvine Nelson Max, University of California, Davis Torsten Möller, Simon Fraser University Kenneth Moreland, Sandia National Laboratories Carol O'Sullivan, Trinity College Dublin Renato Pajarola, University of Zürich Alex Pang, University of California, Santa Cruz Valerio Pascucci, University of Utah, Pacific Northwest National Laboratory Ronald Peikert, ETH Zürich Voicu Popescu, Purdue University Bernhard Preim, Otto von Guericke University of Magdeburg Hong Oin, Stony Brook University William Ribarsky, University of Noth Carolina, Charlotte Jos Roerdink, University of Groningen Han Wei Shen, The Ohio State University Lisa Sobierajski-Avila, Kitware Inc. Milos Sramek, Austrian Academy of Sciences Shigeo Takahashi, The University of Tokyo Alexandru Telea, University of Groningen Matthias Teschner, University of Freiburg Holger Theisel, Otto von Guericke University of Magdeburg David Thompson, Mississippi State University Xavier Tricoche, Purdue University Chaoli Wang, Michigan Technological University Gunther Weber, Lawrence Berkeley National Laboratory Daniel Weiskopf, University of Stuttgart Rephael Wenger, The Ohio State University Rüdiger Westermann, Technische Universität München Peter Wonka, Arizona State University Sung-Eui Yoon, Korea Advanced Institute of Science and Technology Leonid Zhukov, National Research University Higher School of Economics, Moscow, Russia Matthias Zwicker, University of Bern

Vis Steering Committee

Robert Moorhead, Mississippi State University Hanspeter Pfister, Harvard University Arie Kaufman, Stony Brook University Thomas Ertl, Universität Stuttgart Amitabh Varshney, University of Maryland

InfoVis Program Committee

Gennady Andrienko, Fraunhofer Institute IAIS Daniel Archambault, University College Dublin Ulrik Brandes, University of Konstanz Sheelagh Carpendale, University of Calgary Christopher Collins, University of Ontario Institute of Technology Stephan Diehl, University of Trier John Dill, Simon Fraser University Pierre Dragicevic, INRIA Steven Drucker, Microsoft Research Tim Dwyer, Microsoft Jason Dykes, City University London Niklas Elmqvist, Purdue University Carsten Görg, University of Colorado Denver John Goodall, Oak Ridge National Laboratory Georges Grinstein, University of Massachusetts Iowell Chris Healey, North Carolina State University Jeffrey Heer, Stanford University Harry Hochheiser, University of Pittsburgh Danny Holten, Technische Universiteit Eindhoven Pourang Irani, University of Manitoba Petra Isenberg, INRIA T.J. Jankun-Kelly, Mississippi State Andreas Kerren, Linnaeus University Robert Kincaid, Agilent Technologies Robert Kosara, University of North Carolina, Charlotte Heidi Lam, Google Inc. Kwan-Liu Ma, UC Davis Jock Mackinlay, Tableau Software Florian Mansmann, University of Konstanz Miriah Meyer, University of Utah Chris Muelder, UC Davis Chris North, Virginia Tech Adam Perer, IBM Research Penny Rheingans, University of Maryland Anthony Robinson, Penn State University Heidrun Schumann, University of Rostock Jinwook Seo, Seoul National University Christian Tominski, University of Rostock Melanie Tory, University of Victoria Jarke van Wijk, Eindhoven University of Technology Martin Wattenberg, Google Inc. Hadley Wickham, Rice University Leland Wilkinson, Systat Kent Wittenburg, Mitsubishi Electric Research Laboratories Jo Wood, City University London Jing Yang, University of North Carolina, Charlotte Ji Soo Yi, Purdue University Caroline Ziemkiewicz, Brown University

InfoVis Steering Committee

John Stasko, Georgia Institute of Technology Tamara Munzner, University of British Columbia Jarke van Wijk, Eindhoven University of Technology Daniel Keim, University of Konstanz Pat Hanrahan, Stanford University Ben Shneiderman, University of Maryland Martin Wattenberg, Google Inc.

VAST Program Committee

Wolfgang Aigner, Vienna University of Technology Natalia Andrienko, Fraunhofer IAIS Thomas Baudel, IBM France Enrico Bertini, University of Konstanz Alessio Bertone, Donau Universität, Krems Remco Chang, Tufts University John Dill, Simon Fraser University David Ebert, Purdue University Niklas Elmqvist, Purdue University Brian Fisher, Simon Fraser University Carsten Görg, University of Colorado Denver Diansheng Guo, University of South Carolina Jimmy Johansson, Linkoping University Daniel Keim, Universtiy of Konstanz Jorn Kohlhammer, Fraunhofer IGD Robert Kosara, University of North Carolina, Charlotte Alan MacEachren, Pennsylvania State University Ross Maciejewski, Purdue University Guy Melancon, University of Bordeaux Rosane Minghim, University of Sao Paulo Haesun Park, Georgia Institute of Technology Margit Pohl, Vienna University of Technology Huaming Qu, Hong Kong University of Science and Technology William Ribarsky, University of North Carolina, Charlotte Giuseppe Santucci, University of Roma Heidrun Schumann, University of Rostock Chris Shaw, Simon Fraser University John Stasko, Georgia Institute of Technology Alexandru Telea, University of Groningen Jarke van Wijk, Eindhoven University Chris Weaver, University of Oklahoma Daniel Weiskopf, University of Stuttgart Leland Wilkinson, University of Illinois Pak Chung Wong, Pacific Northwest National Laboratory William Wright, Oculus Info Stefan Wrobel, Fraunhofer IAIS and University of Bonn Jing Yang, University of North Carolina, Charlotte Michelle Zhou, IBM

Committee Members

VAST Steering Committee

Daniel Keim, University of Konstanz David Ebert, Purdue University Richard May, Pacific Northwest National Laboratory

Brian Fisher, Simon Fraser University

William Ribarsky, University of North Carolina, Charlotte

Larry Rosenblum, National Science Foundation William Pike, Pacific Northwest National Laboratory

BioVis Symposium Committee

General Chairs

Nils Gehlenborg, Harvard University, USA Raghu Machiraju, The Ohio State University, USA

Torsten Möller, Simon Fraser University, Canada

Paper Chairs

Jessie Kennedy, Edinburgh Napier University, UK

Jos Roerdink, University of Groningen, The Netherlands

Abstract Chairs

Miriah Meyer, University of Utah, USA Cydney Nielsen, British Columbia Genome Sciences Center, Canada

Invited Sessions Chairs

Matt Hibbs, The Jackson Laboratory, USA Seán O'Donoghue, European Molecular Biology Laboratory (EMBL), Germany Bang Wong, Broad Institute, USA

Tutorial and Contact Chairs

Tutorial and Contest Chairs

Lars Linsen, Jacobs University, Germany William Ray, The Ohio State University, USA

Exhibit Chairs and Industry Liaisons

Michael McGuffin, École de Technologie Supérieure, Canada

Robert Kincaid, Agilent Laboratories, USA

Website and Publicity Chairs

Carsten Görg, University of Colorado Denver, USA

Brian Staats, MITRE, USA

BioVis International Program Committee Jan Aerts, *KU Leuven, Belgium*

Enrico Bertini, University of Konstanz, Germany Chengpeng Bi, Children's Mercy Hospital Kansas City, USA

John Boyle, Institute for Systems Biology, USA Michael Cantor, Lawrence Berkeley Laboratory, USA

Urska Cvek, Louisiana State University Shreveport, USA

Inna Dubchak, Lawrence Berkeley Laboratory, USA David Duke, University of Leeds, UK Tom Freeman, The Roslin Institute, UK Carsten Görg, University of Colorado, USA Georges Grinstein, University of Massachusetts Lowell, USA

Hans-Christian Hege, Zuse-Institute Berlin, Germany

Matt Hibbs, *The Jackson Laboratory, USA* Larry Hunter, *University of Colorado, USA* Daniel Huson, *University of Tübingen,*

Germany

Chris Johnson, University of Utah, USA Steven Jones, British Columbia Genome Sciences Center, Canada

Alark Joshi. Boise State. USA

Igor Jurisica, University of Toronto, Canada Jessie Kennedy, Edinburgh Napier University, UK

Robert Kincaid, Agilent Laboratories, USA Martin Krzywinski, British Columbia Genome

Sciences Center, Canada Michael Lappe, Max Planck Berlin, Germany

Robert van Liere, CWI, Amsterdam, The Netherlands

- David Marshall, James Hutton Institute, UK
- Guy Melançon, University of Bordeaux, France
- Jill Mesirov, Broad Institute, USA
- Miriah Meyer, University of Utah, USA
- Scooter Morris, UCSF, USA
- Heimo Müller, Medical University of Graz, Austria
- Cydney Nielsen, British Columbia Genome Sciences Center, Canada
- Kay Nieselt, University of Tübingen, Germany

Chris North, Virginia Tech, USA

Bernhard Preim, University of Magdeburg, Germany

James Procter, University of Dundee, UK Sonja Prohaska, University of Leipzig, Germany William Ray, The Ohio State University, USA

Jos Roerdink, University of Groningen, The Netherlands

Reinhard Schneider, EMBL Heidelberg, Germany

- Falk Schreiber, IPK Gatersleben, Germany
- Marjan Trutschl, Louisiana State University Shreveport, USA
- Fons Verbeek, University of Leiden, The Netherlands

Ting Wang, Washington University, USA Gunther Weber, Lawrence Berkeley National Lab, USA

Michel Westenberg, Technical University Eindhoven, The Netherlands Ross Whitaker, University of Utah, USA

Bang Wong, Broad Institute, USA

LDAV Symposium Committee

Symposium Chairs

James Ahrens, Los Alamos National Laboratory Kwan-Liu Ma, University of California, Davis

Program Chairs

David Rogers, Sandia National Laboratories Claudio Silva, Polytechnic Institute of New York University

Contest Chair

Sean Ahern, Oak Ridge National Laboratory

Posters Chairs

Han-Wei Shen, Ohio State University Venkatram Vishwanath, Argonne National Laboratory

Publicity Chairs

Hank Childs, Lawrence Berkeley National Laboratory

Berk Geveci, Kitware Inc.

Program Committee

David Bader, Georgia Institute of Technology Wes Bethel, Lawrence Berkeley National Laboratory Jackie Chen, Sandia National Laboratory Hank Childs, Lawrence Berkeley National Laboratory João Comba, UFRGS-Brazil Mark Duchaineau, Lawrence Livermore National Laboratory Thomas Ertl, University of Stuttgart, Germany

Kelly Gaither, TACC

- Berk Geveci, Kitware Inc.
- Chuck Hansen, University of Utah

Hans-Christian Hege, ZIB, Germany

Jian Huang, University of Tennessee, Knoxville

Ken Joy, University of California, Davis Peter Lindstrom, Lawrence Livermore National Laboratory

- James T. Klosowski, AT&T Labs-Research Patrick McCormick, Los Alamos National
- Laboratory
- Kenneth Moreland, Sandia National Laboratories

Vijay Natarajan, Indian Institute of Science Bangalore, India

Ron Oldfield, Sandia National Laboratories Valerio Pascucci, University of Utah Bill Pike, Pacific Northwest National Laboratory Luc Renambot, University of Illinois at Chicago Robert Ross, Argonne National Laboratory Han-Wei Shen, Ohio State University Alex Szalay, John Hopkins University Huy T. Vo, Polytechnic Institute of New York University

Steering Committee

James Ahrens, Los Alamos National Laboratory Chris Johnson, University of Utah Kwan-Liu Ma, University of California, Davis Michael Papka, Argonne National Laboratory Symposia Abstracts Posters

BioVis Abstracts

Poster/Demo Viewings & Reception Sunday 8:30am - Monday 6pm

Ballroom A Foyer

1. NGS Explorer: An Application for Visually Contextualizing and Interrogating Multivariate Omics Data, Georg Tremmel, Atsushi Niida, Yuichi Shiraishi, Masao Nagasaki, Satoru Miyano

2. Cell Illustrator/JS: Social Systems Biology, Georg Tremmel, Ayumu Saito, Chen Li, Shin Suzuki, Emi Ikeda, Atsushi Niida, Satoru Miyano, Masao Nagasaki

3. Navigation and Exploration System for Stem Cell Image Data, Ishwar Kulkarni, Shanaz Mistry, Brian Cummings, M. Gopi

4. Segeves: A multi-scale interactive visualization tool for structural variations, Richard Park, Nils Gehlenborg, Peter Park

5. Analysis-Ready Meshes of Neuronal Forests, John Edwards, Chandrajit Bajaj, Justin Kinney, Terrence Sejnowski, Tom Bartol, Daniel Johnston, Kristen Harris

6. DCE-MRI-oriented Volume Rendering for Monitoring of Crohn's Disease, Alexander Wiebel, Hans-Christian Hege, Manon L. W. Ziech, Matthan W. A. Caan, Jaap Stoker, Frans M. Vos

7. FoldSynth: A physics-based interactive visualisation platform for proteins and other molecular strands, Peter Todd, Stephen Todd, Frederic Fol Leymarie, William Latham, Benjamin Jefferys, Lawrence Kelley

8. Toward Systems-Level Visualizations of Molecular Networks on Large-Scale, High-Resolution Displays, Jillian Aurisano, James A. Radosevich, Jason Leigh

9.3D Reconstruction and Visualization of the Developing Drosophila Wing Imaginal Disc at Cellular Resolution, Linge Bai, Thomas Widmann, Frank Juelicher, Christian Dahmann, David Breen

10. Interactive visualization of multiscale biomedical data: an integrated approach, Debora Testi, Gordon Clapworthy, Stephen Aylward, Alejandro Frangi, Richard Christie

11. Neural Process Reconstruction from Sparse User Scribbles, Mike Roberts, Won-Ki Jeong, Amelio Vazquez-Reina, Markus Unger, Horst Bischof, Jeff Lichtman, Hanspeter Pfister

12. Visualizing Global Correlation in Large-Scale Molecular Biological Data, A.N.M. Choudhury, Kristin Potter, Theresa-Marie Rhyne, Yarden Livnat, Chris Johnson, Orly Alter

13. VESPA: Visual Exploration and Statistics to Promote Annotation for Prokaryotic Genomes, Bobbie-Jo Webb-Robertson, Elena Peterson, Jeffrey Jensen, Mark Kobold, Hyunjoo Walker, William Cannon, Lee Ann McCue

14. Visualizing Genetic Transmission Patterns in Plant Pedigrees, Paul Shaw, Jessie Kennedy, Martin Graham, Iain Milne, David Marshall

15. CluMa-GO: Bring Gene Ontologies and Hierarchical Clusterings Together, Andreas Kerren, Ilir Jusufi, Vladyslav Aleksakhin, Falk Schreiber

16. Animating Cell Biology for Research and Teaching, Janet Iwasa

17. 3D Reconstruction and Analysis of Bat Flight Maneuvers from Sparse Multiple View Video, Attila Bergou, Sharon Swartz, Kenneth Breuer, Gabriel Taubin

18. Visualization of experimental design & workflows in biological experiments, Eamonn Maguire, Philippe Rocca-Serra, Min Chen, Susanna-Assunta Sansone

19. Spatially Continuous Change of Abstraction in Molecular Visualization, Wouter Lueks, Ivan Viola, Matthew van der Zwan, Henk Bekker, Tobias Isenberg

20. Fast Tracing of Microtubule Centerlines in Electron Tomograms, Britta Weber, Marit Möller, Jean-Marc Verbavatz, Daniel Baum, Hans-Christian Hege, Steffen Prohaska

21. Light Microscopy-Based Reconstruction and Interactive Structural Analysis of Cortical Neural Networks, Vincent J. Dercksen, Marcel Oberlaender, Bert Sakmann, Hans-Christian Hege

22. KnomePathways: A Tool to View and Query Gene Interaction Networks in Individual Human Genomes, Adem Albayrak, Harish Mahadevan, James D'Augustine, Nathaniel Pearson

23. G-nome Surfer: a Tabletop Interface for Collaborative Exploration of Genomic Visualization, Orit Shaer, Megan Strait, Consuelo Valdes, Taili Feng, Mikey Lintz, Heidi Wang

24. FvNano: A Virtual Laboratory to Manipulate Molecular Systems, Matthieu Chavent, Marc Piuzzi, Alex Tek, Marc Baaden

25. Lessons Learned from Tool Development for Animal Movement Analysis, Florian Mansmann, David Spretke, Halldor Janetzko

26. InBox: In-situ Multiple-Selection and Multiple-View Exploration of Diffusion tensor MRI Visualization, Haipeng Cai, Jian Chen, Alexander P. Auchus, Stephen Correia, David H. Laidlaw

LDAV Posters

Poster Viewings & Reception Sunday 6pm - Monday 6pm

West Prefunction

A Flow-Guided File Layout for Out-Of-Core Streamline Computation, Chun-Ming Chen, Lijie Xu, Ten-Yok Lee, Han-Wei Shen

Activity Detection for Scientific Visualization, Sedat Ozer, Deborah Silver, Karen Bemis, Pino Martin, Jay Tarkle

Scalable Multivariate Volume Visualization and Analysis, Hangi Guo, He Xiao, Min Lu, Xiaoru Yuan

A System for Scalable Visualization of Geographic Archival Records, Jefferson R. Heard and Richard J. Marciano

CERA-TVR: A Framework for Interactive High-Quality Teravoxel Volume Visualization on Standard PCs, Klaus Engel

Data-Intensive Analysis for Scientific Experiments at the Large Scale Data Facility, A.O. García, S. Bourov, A. Hammad, V. Hartmann, T. Jejkal, J.C. Otte, S. Pfeiffer, T. Schenker, C. Schmidt, P. Neuberger, R. Stotzka, J. van Wezel, B. Neumair, A. Streit

Distributed Terascale Volume Visualization Using Distributed Shared Virtual Memory, Johanna Beyer, Markus Hadwiger, Jens Schneider, Won-Ki Jeong, Hanspeter Pfister

Visualization and Pattern Identification in Large Scale Time Series Data, Steve Holtz, Guillermo Valle, Jessica Howard, Patricia Morreale

Preserving Proximity Relations and Minimizing Edge-crossings in High Dimensional Graph Visualizations, Amina Shabbeer, Cagri Ozcaglar, Bülent Yener, Kristin P. Bennett

Exploring Large Data over Wide Area Networks, Mark Hereld, Joseph A. Insley, Eric C. Olson, Michael E. Papka, Venkatram Vishwanath, Michael L. Norman, Rick Wagner

Towards a Scalable and Reliable Real Time In-Network Data Analysis Infrastructure, Selim Ciraci, Jian Yin

Pixel-based Overlays for Navigating a Galaxy of Observations, Timothy Luciani, Rebecca Hachey, Daniel Q. Oliphant, Brian A. Cherinka, G. Elisabeta Marai

Evolving a Rapid Prototyping Environment for Visually and Analytically Exploring Large-Scale Linked Open Data, Marc Downie, Dylan Enloe, Peter Fox, Eric Ameres, Johannes Goebel, Paul Kaiser, James Hendler

Enabling Access to Timeseries, Geospatial Data for On-demand Visualization, Sangmi Lee Pallickara, Matthew Malensek, Shrideep Pallickara

VisWeek 20II



9:00pm



At-a-Clance

	Wednesday				Thursday					Friday				
EVENT	S VAST	Vis	InfoVis	TVCG	EVEN	ITS	Vis	InfoVis	TVCG		EVENTS	Vis	InfoVis	
	• VisWe @ Ballroo	ek Papers F om A	ast Forwar	• Vi @ B	isW allr	leek Paper oom A	eek Papers Fast Forward O VisWeek Pa oom A Ø Ballroom A					st Forward	8:00am	
	Papers: Visual- Compu- tational Analysis of Multi- variate Data	O Papers: Statis- -tics, Geo- metry, & Signal -Process- ing	Papers: Theory & Founda- tions		0	0	O Papers: Aided Explora- tions	● Papers: Applica- tions	O Papers: Session 2		 Panel: Visual- ization & Policy Develop- ment @ Room 555AB / 556AB 	O Papers: Medical Visual- ization	• Papers: Multi- dimen- sional Visual- ization	8:30am 9:00am 9:30am 10:00am
Art Show @ Rotundra, Ba Posters @ East & West Pi		BR	EAK		Post	Art S		BREAK		BREAK				
	Process + Inter-	OPapers: Para- metric & High Dimen- sional Space Explora-	Papers: Techni- ques	Papers: Session 1	:ers @ Ec	Show @	 Panel: Verifica- tion in Visual- ization <i>@ Room</i> 555AB / 556AB 	● Papers: Time & Trees	O Papers: Session		• VisWeel @ Ballro	k Closing & Dom A	Capstone	10:30am
	action + Insight				7st & West Pr	Rotundra, Ba			3		Capstone: Editing & I Graphics	Amanda Co Design Chai	ox, How nges News	11:00am 11:30am
Ilrooi efun		tion			efund	llroot								12:00pm
m E, 555/ ction & B	O Me (m	LUNCH BREAK Meet the Experts Lunch (meet near Posters)				n E, 555A	VisWeek Feedback @Blrm D	LUNCH BREAK				1:00pm		
-556t allroo	•	0	0		allroo	-556E	0	•	• Panel:					2:00pm
m A Foyer	Papers: Space & Time	Papers: Enriched Render- ing &	Papers: Systems & Frame-		m A Foyer	3 Hallway /	Papers: Flow Visual- ization	Papers: Evalua- tion	Meet the Editors @					2:30pm
Exhibits		Visual- ization	works			Exhibits			Room 555AB / 556AB					3:00pm
& Interactive			& Int					3:30pm						
	BREAK					eractive	BREAK		0					4:00pm
Demos	Papers: Applica- tions	Papers: Maps & Surfaces	Papers: Graphs			Demos	Papers: Enhan- ced	Papers: Maps & Geo-	Papers: Session 4					4:30pm
@ Ba						@ Bal	Render- ing & Vis	visual- ization)	5:00pm
lirm BC	2					llrm BC								5:30pm
	• VisWee	ek Poster Vi	iewing											6:00pm
	@ Ballr	ek Banquet <i>oom A</i>			Post @ Ec	dod dod ast	t the			-(<u></u>			6:30pm
					Prejl	anic								7:00pm
														8:00pm
														9:00pm
														9



O VisWeek Workshop (8:30am - 5:55pm) Ballroom D Telling Stories with Data: The Next Chapter

Organizers: Nicholas Diakopoulos, Joan DiMicco, Jessica Hullman, Karrie Karahalios, Adam Perer

Our goal with this workshop is to bring together data storytellers from diverse disciplines and continue the conversation of how these different fields utilize each other's techniques and articulate principles for telling data narratives. Our target participants are researchers, journalists, bloggers, and others who seek to understand how visualizations support narrative, stories, and other communicative goals. Participants may be designers of such visualizations or designers of tools that support the creation of narrative visualizations. Visualizations that serve as a "community mirror" and thus create opportunities for discussion, reflection and sharing within a social network are also suitable topics. While we are inspired by many visualizations that display personal histories and storylines, our focus is on visualization situated in storytelling contexts, not necessarily visualizations of stories.

O VisWeek Workshop (8:30am - 5:55pm) Visual Analytics in Healthcare: Understanding the Physicians Perspective

Organizers: Jesus J. Caban, David Gotz

This workshop will provide a unique and valuable opportunity in which participants will be able to meet, talk, and showcase their visualization and data mining techniques to leading physicians and receive feedback about how their tools can be adapted for use in clinical practice. In addition, physicians will provide detailed information about areas in healthcare where additional visualization techniques are needed.

Visualization and visual analytics show great potential as methods to analyze, filter, and illustrate many of the diverse data used in clinical practice. Today, (a) physicians and clinical practitioners are faced with the challenging task of analyzing large amount of unstructured, multi-modal, and longitudinal data to effectively diagnose and monitor the progression of a particular disease; (b) patients are confronted with the difficult task of understanding the correlations between many clinical values relevant to their health; and (c) healthcare organizations are faced with the problem of improving the overall operational efficiency and performance of the institution while maintaining the quality of patient care and safety.

Visualization and visual analytics can potentially provide great benefits to each of these three core areas of healthcare. However, to be successful, the resulting visualization must be able to meet the physician's requirements and be useful for both patients and physicians.

O VisWeek Tutorial (8:30am - 5:55pm) Quantitative and Qualitative Methods for Human-Subject Visualization Experiments

Organizers: Joseph L. Gabbard, Jr., J. Edward Swan II, Chris North This tutorial is for researchers and engineers, working in the field of visualization, who wish to conduct user-based visualization experiments with a specific aim of promoting both traditional quantitative human-subject experiments and qualitative methods for assessing usability and insight.

This tutorial presents both quantitative and qualitative approaches to human-subject experiments of visualizations. It covers (1) the basic principles of experimental design and analysis, with an emphasis on human-subject experiments in visualization; (2) formative evaluation methods for iteratively assessing and improving visualization user interfaces; and (3) approaches to designing and conducting qualitative studies that aim to measure the degree to which specific visualization designs afford insight formation.

Level of expertise: All Levels

O VisWeek Tutorial (8:30am - 12:10pm) Applications of Information Theory to Scientific Visualization Organizers: Ivan Viola, Miquel Feixas, Min Chen, Heike Jänicke, Mateu Sbert

We present a half-day tutorial to review different applications of information theory to visualization. Information theory tools, widely used in scientific fields such as engineering, physics, genetics, neuroscience, and more recently in computer graphics, are also emerging as state of the art in visualization.

Applications areas are view selection, flow visualization, ambient occlusion, time-varying volume visualization, transfer function definition, LOD timevarying volume visualization, isosurface similarity maps and quality metrics.

The applications fall broadly into two categories: the mapping of the problem to an information channel, as in viewpoint applications, and the direct use of measures as entropy, Kullback-Leibler distance, Jensen-Shannon divergence, and f-divergences, to evaluate for instance the homogeneity of a set of samples or being used as metrics. We will also discuss the potential applications of information bottleneck method that allows us to progressively extract or merge information in a hierarchical structure.

O VisWeek Tutorial (2pm - 5:55pm) Perception and Cognition for Visualization, Visual Data Analysis and Computer Graphics

Organizers: Bernice E. Rogowitz

Visualization and computer graphics provide visual representations of data in order to communicate, provide insight and enhance problem solving. The human observer actively processes these visual representations using perceptual and cognitive mechanisms that have evolved over millions of years. The goal of this tutorial is to provide an introduction to these processing mechanisms, and to show how this knowledge can guide the decisions we make about how to represent data visually, how we visually represent patterns and relationships in data, and how we can use human pattern recognition to extract features in the data. This course will help the student (1) understand basic principles of spatial, temporal, and color processing by the human visual system; (2) explore basic cognitive processes, including visual attention and semantics; (3) Develop skills in applying knowledge about human perception and cognition to interactive visualization and computer graphics applications.

(10

O VAST Challenge: Demos

Bristol + Kent (Westin) Participants Only Session 8:30 am - 12:30 pm

Open Session 2:00 pm - 5:30 pm

Now in its sixth year, the VAST Challenge highlights visual analytics researchers' ability to tackle realistic analytic problems. This workshop focuses on the outcomes from this year's VAST Challenge and set the stage for the 2012 challenge. The morning session of the workshop is intended for this year's VAST Challenge participants. This session will highlight award winning submissions and discuss lessons learned from this year's challenge. The afternoon session is open to all VisWeek attendees. It will feature a panel discussion on visual analytics challenges in cyber security, a discussion of anticipated VAST Challenge topics for 2012, and a demonstration session by this year's VAST Challenge participants. The detailed agenda can be found at http://hcil. cs.umd.edu/localphp/hcil/vast11/index.php/agenda/index.

8:30am - 10:10am

O BioVis Welcome

Ballroom BC

BioVis Keynote: Translating the Cancer Genomes Speaker: Lynda Chin, MD Anderson Cancer Center / Broad Institute of MIT and Harvard

Cancer is the phenotypic endpoint of myriad genetic and epigenetic aberrations that collectively commandeer key cancer-relevant pathways. Comprehensive characterization of the cancer genome holds enormous potential to (i) provide penetrating insight into the genetic bases of cancer, (ii) identify promising candidate therapeutic targets and diagnostic biomarkers, and (iii) illuminate the path toward personalized cancer medicine. However, translating the complex cancer genomic information into biological insights that can impact in the clinic is an enormous challenge that involves multi-disciplinary collaboration from genomic, computational sciences to cancer genetics and disease biology, and clinical arenas. Importantly, such collaboration begins with and depends on accessing and visualizing the data. Examples will be shared to illustrate the importance and need for visualization.

10:10am - 10:30am

O Coffee Break

10:30am - 12:10pm

O BioVis Primer: Molecular Biology and **Bioinformatics for Data Visualization**

Ballroom BC

Speaker: Lawrence Hunter

The advent of genome-scale molecular instrumentation has led to an explosion of biomedically relevant data, with nonstop exponential improvements in performance likely to continue for decades. We are truly at an inflection point in the history of life and medicine. However, this deluge presents a significant challenge: making sense of genome scale data is increasingly the fundamental task in molecular biology. In this brief tutorial, we will explore the different sorts of explanations that play a role in understanding life, the sources of knowledge about genes and their effects, and the process of integrating knowledge and data about multiple genetic differences into a coherent story about mechanism.

Speaker: Kun Huang

During the past five years, Next Generation Sequencing (NGS) technology is changing biomedical research in a revolutionary way. For the first time, researchers can directly study the genome at single-base resolution in a relatively inexpensive manner. There have been many applications utilizing these technology including ChIP-seq (protein-DNA interaction), RNA-seq (transcriptome), SNP discovery, methylome, genome de novo sequencing and resequencing. The high accuracy and high throughput of the technology also leads to quick accumulation of huge amount of data. In this talk, I will give an overview on a few applications of NGS in cancer research and the challenges associated with the large data including data visualization, analysis, management, and integration.

12:10pm - 2pm

O Lunch Break

2pm - 3:40pm

O BioVis Papers Molecular and Image Data Chair: Chris Johnson

Ballroom BC

Quick2Insight: A User-Friendly Framework for Interactive Rendering of Biological Image Volumes, Yanling Liu, Curtis Lisle, Jack Collins

Modeling and Visualization of Receptor Clustering on the Cellular Membrane, Martin Falk, Markus Daub, Guido Schneider, Thomas Ertl

Parallel Contour-Buildup Algorithm for the Molecular Surface, Michael Krone, Sebastian Grottel, Thomas Ertl

Fiber Stippling: An Illustrative Rendering for Probabilistic Diffusion Tractography, Mathias Goldau, Alexander Wiebel, Nico Stephan Gorbach, Corina Melzer, Mario Hlawitschka, Gerik Scheuermann, Marc Tittgemeyer

Visualization of Anisotropic Contact Potentials within Protein Structures, Corinna Vehlow, Bernhard Preim, Michael Lappe

Abstract - Neural Process Reconstruction from Sparse User Scribbles, Mike Roberts, Won-Ki Jeong, Amelio Vazquez-Reina, Markus Unger, Horst Bischof, Jeff Lichtman, Hanspeter Pfister

3:40pm - 4:15pm

O Coffee Break

4:15pm - 6pm

O BioVis Posters and Demo Session BioVis Fast Forward: 4:15pm, **BioVis Posters Viewing: 4:45pm**

Ballroom BC

Ballroom A Foyer

6pm - 7:30pm

O Symposia Reception and Poster Viewing Posters & Demos on Display

West Prefunction

ls in Other Phues

CHI 2011: Jordan Crouser, Remco Chang CHI 2011 Provenance Workshop: Wenwen Dou, Chris North, Remco Chang, Alex Endert, Richard May, Bill Pike CSCW 2011: Danyel Fisher EuroVis 2011: Tobias Isenberg, Bongshin Lee ITS 2010: Petra Isenberg IVCS 2011: Christian Tominski PacificVis 2011: Melanie Tory **UIST 2011:** Anastasia Bezerianos, Pierre Dragicevic VDA 2011: Robert Kosara

Monday, 24 October

O VisWeek Workshop (8:30am - 5:55pm) Room 555AB **Interactive Visual Text Analytics for Decision Making**

Organizers: Christopher Collins, Eser Kandogan, Shixia Liu, Michelle Zou

Analyzing text documents has become increasingly an important part of decision making in large corporations, small businesses, and households. This workshop will explore advanced research in the field of text visualization and analytics and their applications.

The goal of this workshop is to bring together researchers and industry practitioners interested in text visualization, text analytics, and visual analytics, to define the emerging fields of visual text analytics, and to discuss ideas, techniques, and applications to support decision making in different domains.

O VisWeek Workshop (8:30am - 5:55pm) Room 556AB Working with Uncertainty Workshop: Representation, Quantification, Propagation, Visualization, and Communication of Uncertainty

Organizers: Chris Johnson, Alex Pang

Tools, techniques and methodologies are needed in every facet of dealing with uncertainty from representation, quantification, propagation, and visualization. The domain of expertise and applications that have a stake in addressing uncertainty is not limited to the visualization community. This workshop will bring together researchers and practitioners from different fields who have a strong interest for the proper treatment of uncertainty. It will provide a venue for describing and identifying open problems, current best practices, and discussions on challenges and long term directions.

O VisWeek Tutorial (8:30am - 12:10pm) **Applying Color Theory to Visualization**

Room 557

Ballroom BC

Organizers: Theresa-Marie Rhyne

We highlight the visual impact of specific color combinations and provide practical suggestions on digital color mixing for visualization. The successful application of color theory is a key component in the design of digital media for interactive visual discovery, time series animation, and other visual analytics efforts.

Various artists' and scientists' theories of color and how to apply these theories to creating your own digital media work will be reviewed. Our tutorial includes a hands on session that teaches you how to build and evaluate color schemes with Adobe's Kuler, Color Scheme Designer, and Color Brewer tools. Each of these color tools are available online for your continued use in creating visualizations. Please bring various small JPEG examples of your visualizations for doing color analyses.

We will also share our own personal failures and successes with applying these color theories and tools to actual visualization projects.

8:30am - 10:10am

O BioVis Papers

Omics Data Chair: Matt Hibbs

Track Browser: Transforming the Genome Browser from Visualization Tool to Analysis Tool, Jeremy Goecks, Kanwei Li, Dave Clements, James Taylor

Visual Analysis of Next-Generation Sequencing Data to Detect **Overlapping Genes in Bacterial Genomes,** Svenja Simon, Daniela Oelke, Richard Landstorfer, Klaus Neuhaus, Daniel A. Keim

TIALA - Time Series Alignment Analysis, Günter Jäger, Florian Battke, Kay Nieselt

iHAT: interactive Hierarchical Aggregation Table, Corinna Vehlow, Julian Heinrich, Florian Battke, Daniel Weiskopf, Kay Nieselt

A Visual Analysis System for Metabolomics Data, Philip Livengood, Ross Maciejewski, Wei Chen, David Ebert

Abstract - G-nome Surfer: a Tabletop Interface for Collaborative Exploration of Genomic Visualization, Orit Shaer, Megan Strait, Consuelo Valdes, Taili Feng, Mikey Lintz, Heidi Wang

O LDAV Workshop Overview

Ballroom D

LDAV Keynote: (8:40am - 9:30am)

Speaker: Lucy T. Nowell, Office of Advanced Scientific Computing Research, Office of Science, U.S. Department of Energy

LDAV Papers (9:30am - 10:10am) Session 1

Chair: Peter Lindstrom

Visualizing Multiscale, Multiphysics Simulation Data: Brain Blood Flow, Joseph A. Insley, Leopold Grinberg, Michael E. Papka Toward Simulation-Time Data Analysis and I/O Acceleration on

Leadership-Class Systems, Venkatram Vishwanath, Mark Hereld, Michael E. Papka

10:10am - 10:30am

O Coffee Break

10:30am - 12:10pm

O BioVis Papers

Ballroom BC

Biological Networks, Pathways and Connectivity Chair: Guy Melancon

Metrics for Comparing Explicit Representations of Interconnected Biological Networks, David Mayerich, Chris Bjornsson, Jonothan Taylor, Badrinath Roysam

GenAMap: Visualization Strategies for Structured Association Mapping, Ross Curtis, Peter Kinnaird, Eric Xing

[Honorable Mention] HiTSEE: A Visualization Tool for Hit Selection and Analysis in High-Throughput Screening Experiments, Enrico Bertini, Hendrik Strobelt, Joachim Braun, Oliver Deussen, Ulrich Groth, Thomas U. Mayer, Dorit Merhof

[Best Paper] RuleBender: Integrated Visualization for Biochemical Rule-Based Modeling, Adam M. Smith, Wen Xu, Yao Sun, James R. Faeder, G. Elisabeta Marai

MDMap: A System for Data-driven Layout and Exploration of Molecular Dynamics Simulations, Robert Patro, Cheuk Yiu Ip, Sujal Bista, Samuel Cho, D. Thirumalai, Amitabh Varshney

Abstract - InBox: In-situ Multiple-Selection and Multiple-View Exploration of Diffusion tensor MRI Visualization, Haipeng Cai, Jian Chen, Alexander P. Auchus, Stephen Correia, David H. Laidlaw

O LDAV Papers Session 2

Ballroom D

Chair: Huy Vo

Atypical Behavior Identification in Large-Scale Network Traffic, Daniel M. Best, Ryan P. Hafen, Bryan K. Olsen, William A. Pike

Analysis of Large-Scale Scalar Data Using Hixels, David Thompson, Joshua A. Levine, Janine C. Bennett, Peer-Timo Bremer, Attila Gyulassy, Valerio Pascucci, Philippe P. Pébay

Revisiting Wavelet Compression for Large-Scale Climate Data using JPEG 2000 and Ensuring Data Precision, Jonathan Woodring, Susan Mniszewski, Christopher Brislawn, David DeMarle, James Ahrens

Histogram Spectra for Multivariate Time-Varying Volume LOD Selection, Steven Martin, Han-Wei Shen

12:10pm - 2pm

O BioVis Feedback session (12:10pm - 1pm)

O Lunch Break

2pm - 3:40pm

O BioVis Papers Phylogenetic and Population Data, Morphometry Chair: David Duke

Evaluating the VIPER Pedigree Visualisation: Detecting Inheritance Inconsistencies in Genotyped Pedigrees, Trevor Paterson, Martin Graham, Jessie Kennedy, Andy Law

Visual Exploration of Microbial Populations, Sara Johansson Fernstad, Jimmy Johansson, Suzi Adams, Jane Shaw, David Taylor

Visualizing Virus Population Variability From Next Generation Sequencing Data, Michael Correll, Subhadip Ghosh, David O'Connor, Michael Gleicher

EVEVis: A Multi-Scale Visualization System for Dense Evolutionary Data, Robert Miller, Vadim Mozhayskiy, Ilias Tagkopoulos, Kwan-Liu Ma

[Honorable Mention] Semantically Steered Visual Analysis of Highly Detailed Morphometric Shape Spaces, Max Hermann, Anja C. Schunke, Reinhard Klein

Abstract - Interactive Visualization of Multiscale Biomedical Data: an Integrated Approach, Debora Testi, Gordon Clapworthy, Stephen Aylward, Alejandro Frangi, Richard Christie

O LDAV Papers

Ballroom D

Ballroom BC

Session 3 Chair: Berk Geveci

Parallel Clustering for Visualizing Large Scientific Line Data, Jishang Wei, Hongfeng Yu, Kwan-Liu Ma, Jackie Chen

Evaluating the Benefits of An Extended Memory Hierarchy for Parallel Streamline Algorithms, David Camp, Hank Childs, Amit Chourasia, Christoph Garth, Kenneth I. Joy

Parallel In Situ Indexing for Data-intensive Computing, Jinoh Kim, Hasan Abbasi, Luis Chacón, Ciprian Docan, Scott Klasky, Qing Liuk, Norbert Podhorszki, Arie Shoshani, Kesheng Wu

Incremental, Approximate Database Queries and Uncertainty for Exploratory Visualization, Danyel Fisher

3:40pm - 4:15pm

O Coffee Break

4:15pm - 5:30pm

O BioVis Challenges Session

Ballroom BC

We have selected a range of speakers that, together with the keynote speaker, will cover developments in a broad range of active research topics in modern biological data visualization, from genes to proteins to organisms to populations. The speakers include developers of visualization tools widely used in biology, as well as active users who apply visualization methods to discover new biological knowledge.

Speaker: Cydney Nielsen (4:15pm)

Visualizing next-generation sequence data. As our ability to generate sequencing data continues to increase, data analysis

is replacing data generation as the rate-limiting step in genomics studies. This talk will discuss some of key visualization tools that facilitate analysis tasks by enabling researchers to explore, interpret and manipulate their data, and in some cases perform on-the-fly computations. We will focus particularly on methods designed for the analysis of de novo sequencing assemblies and read alignments, highlighting the strengths and limitations of these approaches and the challenges ahead.

Speaker: Arthur Olson (4:40pm)

Visualization of biomolecular assemblies and environments. Gaining insight into biological processes at a molecular scale requires visualizing biological assemblies using a synthesis of both abstract & 3D visualization. This talk will highlight currently emerging methods used for exploring molecular recognition and self-assembly using hybrid user interfaces that combines 3D solid printing and augmented reality environments, as well as methods for fast, integrated, and large-scale macromolecular visualization.

Speaker: Willy Supatto (5:05pm)

Visualizing embryonic development. Advances in microscopy now allow collection of 4D image data of embryonic development at unprecedented time and spatial resolution. This talk shows how this image data is being used to reveal new insights into developmental patterns, and highlights the need for more specifically-tailored visualization tools to manage these multidimensional data. The talk also discusses the challenges of combining data from multiple experiments, integrating raw imaging data and performing multidimensional analysis.

5:30pm - 5:55pm

O BioVis Contest & Awards BioVis Closing Remarks

4:15pm - 6pm

O LDAV Papers

Ballroom D

Ballroom BC

Session 4 Chair: Hank Childs

Parallel Visualization on Large Clusters using MapReduce, Huy T. Vo, Jonathan Bronson, Brian Summa, João L.D. Comba, Juliana Freire, Bill Howe, Valerio Pascucci, Cláudio T. Silva

The ParaView Coprocessing Library: A Scalable, General Purpose In Situ Visualization Library, Nathan Fabian, Kenneth Moreland, David Thompson, Andrew C. Bauer, Pat Marion, Berk Gevecik, Michel Rasquin, Kenneth E. Jansen

Dax Toolkit: A Proposed Framework for Data Analysis and Visualization at Extreme Scale, Kenneth Moreland, Utkarsh Ayachit, Berk Geveci, Kwan-Liu Ma

Scalable Parallel Building Blocks for Custom Data Analysis, Tom Peterka, Robert Ross, Wesley Kendall, Attila Gyulassy, Valerio Pascucci, Han-Wei Shen, Teng-Yok Lee, Abon Chaudhuri

O LDAV Closing

Ballroom D

Room 557

7pm - 9pm

O BioVis Contest BoF

The foremost purpose of applying Vis to Biology is to improve Biological Experts' access to information, and the BioVis Contest exists to help Vis Experts develop tools that are better suited for that purpose. Come meet the Biological domain experts who created the data for this year's contest, and talk with real users of eQTL data who desperately need better tools. Learn more about the domain, and the end users' real needs. Find out what's brewing for Round 2 of the eQTL data analysis challenge, and help plan the theme for the next BioVis Round 1 challenge.

Tuesday, 25 October

8am - 10:10am

O VisWeek Welcome Ballroom A VisWeek Keynote: Visual Thinking in Discovery and Invention: From Physics to Cognitive Social Science Speaker: Paul Thagard, University of Waterloo

> This talk will discuss the role of visual thinking in scientific discovery and technological invention. Visual thinking uses picturelike representations as internal mental models or as external depictions such as diagrams. The first part of the talk will analyze the role of visual thinking in 100 great discoveries and 100 great inventions. The second part will discuss the contribution of visual thinking to developing new theories in the social sciences based on advances in cognitive science. Cognitiveaffective mapping is a new technique for

visualizing the role of emotion in social cognition. EMPATHICA is a new graphical system for resolving conflicts by increasing empathy using cognitive-affective maps.

10:10am - 10:30am

O Coffee Break

10:30am - 12:10pm

O VisWeek Papers Fast Forward (10:30am - 10:40am) Ballroom A

O VAST Papers (10:40am - 11:40am) Foundations of the Analysis Process Chair: Margit Pohl

Visual Analytic Roadblocks for Novice Investigators, Bum chul Kwon, Brian Fisher, Ji Soo Yi

Perception-based Visual Quality Measures, Georgia Albuquerque, Martin Eisemann, Marcus Magnor

Characterizing the Intelligence Analysis Process: Informing Visual Analytics Design through a Longitudinal Field Study, Youn-ah Kang, John Stasko

O Vis Contest (11:40am - 12:10pm)

Ballroom A

Ballroom A

12:10pm - 2pm

O Lunch Break

2pm - 3:40pm

O VisWeek Panel

Ballroom D

Theories of Visualization - Are There Any?

Panelists: Jarke Van Wijk, Colin Ware, Çağatay Demiralp, David Laidlaw

A fundamental question in visualization is what constitutes a "good" visualization. A related question whether one visualization is better than another. In general, these hard questions are addressed by running user studies. However, evaluating visualizations with user studies a posteriori, in an inductive approach, is neither sufficient nor efficient. Ideally, we would like to have

models that not only define what a good visualization is but also tell us how to construct them. Historically, general theories have been born from elimination and/or unification of competing and complementary theories that have emerged from specific domains. Clearly we need more theories of this kind in visualization. In this panel, we will discuss example theories of visualization and ponder how they relate to one another.

O Vis Papers

Room 557

Saliency, Deep Features, Events, and Devices Chair: Xiangfeng David Gu

[Honorable Mention] Saliency-Assisted Navigation of Very Large Landscape Images, Cheuk Yiu Ip, Amitabh Varshney

Hierarchical Event Selection for Video Storyboards with a Case Study on Snooker Video Visualization, Matthew L. Parry, Philip A. Legg, David H.S. Chung, Iwan W. Griffiths, Min Chen

[Honorable Mention] Artificial Defocus for Displaying Markers in Microscopy Z-Stacks, Alessandro Giusti, Pierluigi Taddei, Cristina Magli, Giorgio Corani, Luca Gambardella, Luca Gianaroli

Visualization of Topological Structures in Area-Preserving Maps, Xavier Tricoche, Christoph Garth, Allen Sanderson

Multi-Touch Table System for Medical Visualization: Application to Orthopedic Surgery Planning, Claes Lundström, Thomas Rydell, Camilla Forsell, Anders Persson, Anders Ynnerman

O VAST Papers

Room 555AB/556AB

Tree, Network, and Social Network Analysis Chair: Rosane Minghim

Interactive Visual Comparison of Multiple Trees, Sebastian Bremm, Tatiana von Landesberger, Martin Heß, Tobias Schreck, Philipp Weil, Kay Hamacherk

[Honorable Mention] Network-based Visual Analysis of Tabular Data, Zhicheng Liu, Shamkant B. Navathe, John T. Stasko

Orion: A System for Modeling, Transformation and Visualization of Multidimensional Heterogeneous Networks, Jeffrey Heer, Adam Perer

G-PARE: A Visual Analytic Tool for Comparative Analysis of Uncertain Graphs, Hossam Sharara, Awalin Sopan, Galileo Namata, Lise Getoor, Lisa Singh

[Honorable Mention] Visual Social Network Analytics for Relationship Discovery in the Enterprise, Adam Perer, Ido Guy, Erel Uziel, Inbal Ronen, Michal Jacovi

3:40pm - 4:15pm

O Coffee Break

4:15pm - 5:30pm

Ballroom D

O VisWeek George Robertson (4:15pm - 5pm) George Robertson (CMU, PARC, Microsoft Research) coined the term "information visualization" in 1993, and is regarded as a forefather of Infovis. He retired from Microsoft in 2011. This invited panel will be a tribute to his deep and long-standing impact. At the panel, Danyel Fisher(Microsoft Research) Jock Mackinlay (Tableau), Mary Czerwinski (Microsoft Research) and Jeff Heer (Stanford) will toast his accomplishments and discuss how his work has influenced them and the field. George will share some concluding thoughts.

O Discovery Exhibition (5pm - 5:30pm)

O Vis Papers

High Performance and Scalable Vis (4:15pm - 5:35pm) Chair: Gordon Kindlmann

Load-Balanced Parallel Streamline Generation on Large Scale Vector Fields, Boonthanome Nouanesengsy, Teng-Yok Lee, Han-Wei Shen

Extinction-Based Shading and Illumination in GPU Volume Ray-Casting, Philipp Schlegel, Maxim Makhinya, Renato Pajarola

GPU-Based Interactive Cut-Surface Extraction From High-Order Finite Element Fields, Blake Nelson, Robert Haimes, Robert M. Kirby

GPU-Based Real-Time Approximation of the Ablation Zone for Radiofrequency Ablation, Christian Rieder, Tim Krüger, Christian Schumann, Horst K. Hahn

4:15pm - 5:45pm

O VAST Papers

Room 555AB/556AB

Room 557

Sensemaking and Collaboration (4:15pm - 5:15pm) Chair: Brian Fisher

[Honorable Mention] How Locus of Control Influences Compatibility with Visualization Style, Caroline Ziemkiewicz, R. Jordan Crouser, Ashley Rye Yauilla, Sara L. Su, William Ribarsky, Remco Chang

Obvious: A Meta-Toolkit to Encapsulate Information Visualization Toolkits — **One Toolkit to Bind Them All,** Jean-Daniel Fekete, Pierre-Luc Hémery, Thomas Baudel, Jo Wood

Supporting Effective Common Ground Construction in Asynchronous Collaborative Visual Analytics, Yang Chen, Jamal Alsakran, Scott Barlowe, Jing Yang, Ye Zhao

O VAST Challenge Awards (5:15pm - 5:45) Room 555AB/556AB

5:45pm - 6:30pm

O VisWeek Posters Fast Forward

Ballroom A





VisWeek 2012

23rd IEEE Visualization Conference 18th IEEE InfoVis Conference 7th IEEE VAST Conference

Oct. 14 - 19, 2012 Seattle, WA, USA Call for Participation

VisWeek 2012 is the premier forum for advances in scientific and information visualization. The event-packed week brings together researchers and practitioners from academia, government, and industry to explore their shared interests in tools, techniques, and technology.

We invite you to participate in IEEE Visualization, IEEE Information Visualization, and IEEE Visual Analytics Science and Technology by sharing your research, insights, experience, and enthusiasm. Early Deadlines: (subject to slight changes)

February 2012 Contest / Challenge sample data released

March 21, 2012 Paper Abstracts (Mandatory)

March 31, 2012 Full Paper submission

April 28, 2012 Tutorial Proposals Workshop Proposals

In 2012, IEEE VisWeek comes to the beautiful city of Seattle, Washington. Downtown Seattle is easily walkable and waiting to be explored. Shopping, dining, arts and visitor attractions are within steps of hotels and inns. The city is surrounded by pristine waterways, two mountain ranges and three national parks. To the west lies the only temperate rain forest in the continental U.S. To the east, a world-class wine region. For more information, please see http://www.visitseattle.org/Home.aspx.

www.visweek.org

Follow @ieeevisweek to keep up with conference activities and announcements.

Questions? Email info@visweek.org

VIsWeek 2012 General Chairs:

Richard May, Pacific Northwest National Laboratory William Pike, Pacific Northwest National Laboratory Pak Chung Wong, Pacific Northwest National Laboratory

15

Wednesday, 26 October

8am - 8:30am

O VisWeek Papers Fast Forward Ballroom A

8:30am - 10:10am

O InfoVis Papers

Theory and Foundations Chair: Jeff Heer

Quality Metrics in High-Dimensional Data Visualization: An Overview and Systematization, Enrico Bertini, Andrada Tatu, Daniel Keim

[Honorable Mention] Benefitting InfoVis with Visual Difficulties, Jessica Hullman, Eytan Adar, Priti Shah

Product Plots, Hadley Wickham, Heike Hofmann

Visualization Rhetoric: Framing Effects in Narrative Visualization, Jessica Hullman, Nicholas Diakopoulos

Adaptive Privacy-Preserving Visualization Using Parallel Coordinates, Aritra Dasgupta, Robert Kosara

O Vis Papers

Room 557

Ballroom D

Statistics, Geometry, and Signal Processing Chair: Gunther Weber

Feature-Based Statistical Analysis of Combustion Simulation Data, Janine C. Bennett, Vaidyanathan Krishnamoorthy, Shusen Liu, Ray W. Grout, Evatt R. Hawkes, Jacqueline H. Chen, Jason Shepherd, Valerio Pascucci, Peer-Timo Bremer

Quasi Interpolation With Voronoi Splines, Mahsa Mirzargar, Alireza Entezari

Topological Spines: A Structure-Preserving Visual Representation of Scalar Fields, Carlos D. Correa, Peter Lindstrom, Peer-Timo Bremer

[Best Paper] Towards Robust Topology of Sparsely Sampled Data, Carlos D. Correa, Peter Lindstrom

Visualization of AMR Data With Multi-Level Dual-Mesh Interpolation, Patrick J. Moran, David Ellsworth

O VAST Papers

Room 555AB / 556AB

Visual-Computational Analysis of Multivariate Data Chair: Ross Maciejewski

Guiding Feature Subset Selection with an Interactive Visualization, Thorsten May, Andreas Bannach, James Davey, Tobias Ruppert, Jörn Kohlhammer

Observation-level Interaction with Statistical Models for Visual Analytics, Alex Endert, Chao Han, Dipayan Maiti, Leanna House, Scotland Leman, Chris North

Pointwise Local Pattern Exploration for Sensitivity Analysis, Zhenyu Guo, Matthew O. Ward, Elke A. Rundensteiner, Carolina Ruiz

Interactive Decision making using Dissimilarity to visually represented Prototypes, M.A. Migut, J.C. van Gemert, M. Worring

BaobabView: Interactive Construction and Analysis of Decision Trees, Stef van den Elzen, Jarke J. van Wijk

10:10am - 10:30am

O Coffee Break

10:30am - 12:10pm

O TVCG Papers

Session 1 Chair: David Kao

Exploring Brain Connectivity with Two-Dimensional Neural Maps, Radu Jianu, Çağatay Demiralp, David H. Laidlaw

Hierarchical Line Integration, Marcel Hlawatsch, Filip Sadlo, Daniel Weiskopf

Streamline Integration Using MPI-Hybrid Parallelism on a Large Multicore Architecture, David Camp, Christoph Garth, Hank Childs, Dave Pugmire, Kenneth I. Joy

Efficient Visibility Encoding for Dynamic Illumination in Direct Volume Rendering, Joel Kronander, Daniel Jönsson, Joakim Löw, Patric Ljung, Anders Ynnerman, Jonas Unger

Morse Set Classification and Hierarchical Refinement using Conley Index, Guoning Chen, Qingqing Deng, Andrzej Szymczak, Robert S. Laramee, Eugene Zhang

InfoVis Papers

Ballroom D

Ballroom A

Techniques Chair: Jason Dykes

[Best Paper] Context-Preserving Visual Links, Markus Steinberger, Manuela Waldner, Marc Streit, Alexander Lex, Dieter Schmalstieg

Design Study of LineSets, a Novel Set Visualization Technique, Basak Alper, Nathalie Henry Riche, Gonzalo Ramos, Mary Czerwinski

Developing and Evaluating Quilts for the Depiction of Large Layered Graphs, Juhee Bae, Ben Watson

Arc Length-Based Aspect Ratio Selection, Justin Talbot, John Gerth, Pat Hanrahan

Asymmetric Relations in Longitudinal Social Networks, Ulrik Brandes, Bobo Nick

O Vis Papers

Room 557

Parametric and High Dimensional Space Exploration Chair: Shigeo Takahashi

Nodes on Ropes: A Comprehensive Data and Control Flow for Steering Ensemble Simulations, Jürgen Waser, Hrvoje Ribičić, Raphael Fuchs, Christian Hirsch, Benjamin Schindler, Günther Blöschl, M. Eduard Gröller

Interactive, Graph-Based Visual Analysis of High-Dimensional, Multi-Parameter Fluorescence Microscopy Data in Toponomics, Steffen Oeltze, Wolfgang Freiler, Reyk Hillert, Helmut Doleisch, Bernhard Preim, Walter Schubert

Tuner: Principled Parameter Finding for Image Segmentation Algorithms Using Visual Response Surface Exploration, Thomas Torsney-Weir, Ahmed Saad, Torsten Möller, Britta Weber, Hans-Christian Hege, Jean-Marc Verbavatz, Steven Bergner

Branching and Circular Features in High Dimensional Data, Bei Wang, Brian Summa, Valerio Pascucci, Mikael Vejdemo-Johansson

Features in Continuous Parallel Coordinates, Dirk J. Lehmann, Holger Theisel

O VisWeek Panel

Room 555AB / 556AB

Process + Interaction + Insight: The Need for Analytic Provenance Panelists: Claudio Silva, Chris Weaver, Shaun Moon, Laura McNamara

Visual analytics is the science of analytical reasoning facilitated by interactive visual interfaces. One key aspect that separates visual analytics from other related fields (InfoVis, SciVis, HCI) is the focus on analytical reasoning. While the final products generated from an analytical process are of great value, research has shown that the processes of the analyses themselves are just as important if not more so. These processes not only contain information on individual insights discovered, but also how the users arrive at these insights. This area of research that focuses on understanding a user's reasoning process through the study of their interactions with a visualization is called analytic provenance, and has demonstrated great potential in becoming a foundation of the science of visual an- alytics.

12:10pm - 2pm

O Lunch Break

O Meet the Experts Lunch (12:30pm - 1:45pm, meet near Posters)

2pm - 3:40pm

O InfoVis Papers

Ballroom D

Systems and Frameworks Chair: Robert Kosara

VisBricks: Multiform Visualization of Large, Inhomogeneous Data, Alexander Lex, Hans-Jörg Schulz, Marc Streit, Christian Partl, Dieter Schmalstieg

D3: Data-Driven Documents, Michael Bostock, Vadim Ogievetsky, Jeffrey Heer

Flexible Linked Axes for Multivariate Data Visualization, Jarry H.T. Claessen, Jarke J. van Wijk

Synthetic Generation of High-Dimensional Datasets, Georgia Albuquerque, Thomas Löwe, Marcus Magnor

O Vis Papers

Room 557

Enriched Rendering and Visualization Chair: Bernhard Preim

About the Influence of Illumination Models on Image Comprehension in Direct Volume Rendering, Florian Lindemann, Timo Ropinski

Automatic Transfer Functions Based on Informational Divergence, Marc Ruiz, Anton Bardera, Imma Boada, Ivan Viola, Miquel Feixas, Mateu Sbert

The Effect of Colour and Transparency on the Perception of Overlaid Grids, Lyn Bartram, Billy Cheung, Maureen C. Stone

Flow Radar Glyphs–Static Visualization of Unsteady Flow with Uncertainty, Marcel Hlawatsch, Philipp Leube, Wolfgang Nowak, Daniel Weiskopf

iView: A Feature Clustering Framework for Suggesting Informative Views in Volume Visualization, Ziyi Zheng, Nafees Ahmed, Klaus Mueller

O VAST Papers

Room 555AB / 556AB

Space and Time Chair: Chris Weaver

[Best Paper] From Movement Tracks through Events to Places: Extracting and Characterizing Significant Places from Mobility Data, Gennady Andrienko, Natalia Andrienko, Christophe Hurter, Salvatore Rinzivillo, Stefan Wrobel

Visual Analysis of Route Diversity, He Liu, Yuan Gao, Lu Lu, Siyuan Liu, Huamin Qu, Lionel M. Ni

SensePlace2: GeoTwitter Analytics Support for Situational Awareness, Alan M. MacEachren, Anuj Jaiswal, Anthony C. Robinson, Scott Pezanowski, Alexander Savelyev, Prasenjit Mitra, Xiao Zhang, Justine Blanford

Visual Analytics Decision Support Environment for Epidemic Modeling and Response Evaluation, Shehzad Afzal, Ross Maciejewski, David S. Ebert SAVE: Sensor Anomaly Visualization Engine, Lei Shi, Qi Liao, Yuan He, Rui Li, Aaron Striegel, Zhong Su

3:40pm - 4:15pm

O Coffee Break

4:15pm - 5:30pm

O InfoVis Papers

Graphs

Chair: Nathalie Henry-Riche

Stereoscopic Highlighting: 2D Graph Visualization on Stereo Displays, Basak Alper, Tobias Höllerer, JoAnn Kuchera-Morin, Angus Forbes

In Situ Exploration of Large Dynamic Networks, Steffen Hadlak, Hans-Jörg Schulz, Heidrun Schumann

Parallel Edge Splatting for Scalable Dynamic Graph Visualization, Michael Burch, Corinna Vehlow, Fabian Beck, Stephan Diehl, Daniel Weiskopf

Divided Edge Bundling for Directional Network Data, David Selassie, Brandon Heller, Jeffrey Heer

Skeleton-Based Edge Bundling for Graph Visualization, Ozan Ersoy, Christophe Hurter, Fernando V. Paulovich, Gabriel Cantareira, Alexandru Telea

O Vis Papers

Maps and Surfaces

Chair: Rephael Wenger

Volume Analysis Using Multimodal Surface Similarity, Martin Haidacher, Stefan Bruckner, M. Eduard Gröller

Asymmetric Tensor Field Visualization for Surfaces, Guoning Chen, Darrel Palke, Zhongzang Lin, Harry Yeh, Paul Vincent, Robert S. Laramee, Eugene Zhang

An Interactive Local Flattening Operator to Support Digital Investigations on Artwork Surfaces, Nico Pietroni, Massimiliano Corsini, Paolo Cignoni, Roberto Scopigno

Context Preserving Maps of Tubular Structures, Joseph Marino, Wei Zeng, Xianfeng Gu, Arie Kaufman

Authalic Parameterization of General Surfaces Using Lie Advection, Guangyu Zou, Jiaxi Hu, Xianfeng Gu, Jing Hua

O VAST Papers

Room 555AB / 556AB

Applications Chair: Jimmy Johansson

A Visual Navigation System for Querying Neural Stem Cell Imaging Data, Ishwar Kulkarni, Shanaz Y. Mistry, Brian Cummings, M. Gopi

A Visual Analytics Process for Maritime Resource Allocation and Risk Assessment, Abish Malik, Ross Maciejewski, Ben Maule, David S. Ebert

ParallelTopics: A Probabilistic Approach to Exploring Document Collections, Wenwen Dou, Xiaoyu Wang, Remco Chang, William Ribarsky

Analysis of Large Digital Collections with Interactive Visualization, Weijia Xu, Maria Esteva, Suyog Dutt Jain, Varun Jain

A Two-stage Framework for Designing Visual Analytics System in Organizational Environments, Xiaoyu Wang, Wenwen Dou, Thomas Butkiewicz, Eric A. Bier, William Ribarsky

6pm - 9pm

Poster Viewing (6pm - 7pm; bar opens at 6pm) Ballroom A
 O VisWeek Banquet (7pm - 9pm)

Ballroom D

Room 557

Thursday, 27 October

8am - 8:30am

O VisWeek Papers Fast Forward

Ballroom A

Ballroom A

8:30am - 10:10am

O TVCG Papers

Session 2 Chair: Steve Drucker

Conceptual Recurrence Plots: Revealing Patterns in Human Discourse, Daniel Angus

Forecasting Hotspots—A Predictive Analytics Approach, Ross Maciejewski, Ryan Hafen, Stephen Rudolph, Stephen G. Larew, Michael A. Mitchell, William S. Cleveland, David S. Ebert

Interactive Visual Analysis of Heterogeneous Scientific Data across an Interface, Johannes Kehrer, Philipp Muigg, Helmut Doleisch, Helwig Hause

The Design Space of Implicit Hierarchy Visualization: A Survey, Hans-Jörg Schulz, Steffen Hadlak, Heidrun Schumann

Model-Driven Design for the Visual Analysis of Heterogeneous Data, Marc Streit, Hans-Jörg Schulz, Alexander Lex, Dieter Schmalstieg, Heidrun Schumann

O InfoVis Papers Applications

Ballroom D

Chair: Petra Isenberg

BirdVis: Visualizing and Understanding Bird Populations, Nivan Ferreira, Lauro Lins, Daniel Fink, Steve Kelling, Chris Wood, Juliana Freire, Cláudio Silva

BallotMaps: Detecting Name Bias in Alphabetically Ordered Ballot Papers, Jo Wood, Donia Badawood, Jason Dykes, Aidan Slingsby

Sequence Surveyor: Leveraging Overview for Scalable Genomic Alignment Visualization, Danielle Albers, Colin Dewey, Michael Gleicher

Visualization of Parameter Space for Image Analysis, A. Johannes Pretorius, Mark-Anthony P. Bray, Anne E. Carpenter, Roy A. Ruddle

TextFlow: Towards Better Understanding of Evolving Topics in Text, Weiwei Cui, Shixia Liu, Li Tan, Conglei Shi, Yangqiu Song, Zekai J. Gao, Xin Tong, Huamin Qu

O Vis Papers

Aided Explorations

Room 557

Chair: Xavier Tricoche

TransGraph: Hierarchical Exploration of Transition Relationships in Time-Varying Volumetric Data, Yi Gu, Chaoli Wang

[Honorable Mention Voronoi-Based Extraction and Visualization of Molecular Paths, Norbert Lindow, Daniel Baum, Hans-Christian Hege

Symmetry in Scalar Field Topology, Dilip Mathew Thomas, Vijay Natarajan

A Scale Space Based Persistence Measure for Critical Points in 2D Scalar Fields, Jan Reininghaus, Natallia Kotava, David Günther, Jens Kasten, Hans Hagen, Ingrid Hotz

Evaluation of Trend Localization with Multi-Variate Visualizations, Mark A. Livingston, Jonathan W. Decker

10:10am - 10:30am

O Coffee Break

10:30am - 12:10pm

O TVCG Papers

Session 3 Chair: Deborah Silver

Streamline Embedding for 3D Vector Field Exploration, Christian Roessl, Holger Theisel

Stable Feature Flow Fields, T. Weinkauf, H. Theisel, A. Van Gelder, A. Pang

Toward High-Quality Gradient Estimation on Regular Lattices, Zahid Hossain, Usman R. Alim, Torsten Möller

Drawing Contour Trees in the Plane, Christian Heine, Dominic Schneider, Hamish Carr, Gerik Scheuermann

Relation-aware Isosurface Extraction in Multi-field Data, N. Suthambhara, Vijay Natarajan

O InfoVis Papers

Time and Trees **Chair: Christopher Collins**

Exploratory Analysis of Time-Series with ChronoLenses, Jian Zhao, Fanny Chevalier, Emmanuel Pietriga, Ravin Balakrishnan

CloudLines: Compact Display of Event Episodes in Multiple Time-Series, Miloš Krstajić, Enrico Bertini, Daniel A. Keim

Evaluation of Traditional, Orthogonal, and Radial Tree Diagrams by an Eye Tracking Study, Michael Burch, Julian Heinrich, Natalia Konevtsova, Markus Höferlin, Daniel Weiskopf

TreeNetViz: Revealing Patterns of Networks over Tree Structures, Liang Gou, Xiaolong (Luke) Zhang

Improved Similarity Trees and their Application to Visual Data Classification, Jose Gustavo S. Paiva, Laura Florian-Cruz, Helio Pedrini, Guilherme P. Telles, Rosane Minghim

O VisWeek Panel

Room 555AB / 556AB

Verification in Visualization: Building a Common Culture Panelists: Robert M. Kirby, Claudio T. Silva, Robert S. Laramee, William Schroeder

Over the past decade, there has been a concerted effort within the computational science and engineering (CS&E) community to articulate both the principles and the implementation of validation and verification (V&V) for numerical simulation. It was not that prior to this effort no V&V was accomplished within computational engineering, but rather that the community identified a need to assert a common language for the understanding and testing for computational algorithms and their implementations. By defining a common language and articulating a paradigm for critical examination, comparison and testing, the CS&E community has attempted to generate a culture for V&V.

As visualization is the lens through which scientists examine their data, it too should undergo the same rigorous V&V analysis as other components of the simulation science pipeline. Like the CS&E community, it is not that this is not done in practice, but rather that there is not necessarily a common language or coherency of perspective that unities the visualization community into a common culture of V&V. The purpose of this panel is to discuss what this common language and paradigm might look like within visualization. Following the lead of earlier work calling for such a culture what might "Verifiable Visualizations" look like and what makes them different than what is already done?

Ballroom A

Ballroom D

12:10pm - 2pm

O Lunch Break

O VisWeek Feedback Session: Open to all

Ballroom D

Ballroom D

2pm - 3:40pm

O InfoVis Papers Evaluation

Chair: Melanie Tory

A Study on Dual-Scale Data Charts, Petra Isenberg, Anastasia Bezerianos, Pierre Dragicevic, Jean-Daniel Fekete

Evaluation of Artery Visualizations for Heart Disease Diagnosis, Michelle A. Borkin, Krzysztof Z. Gajos, Amanda Peters, Dimitrios Mitsouras, Simone Melchionna, Frank J. Rybicki, Charles L. Feldman, Hanspeter Pfister

Exploring Ambient and Artistic Visualization for Residential Energy Use Feedback, Johnny Rodgers, Lyn Bartram

Human-Centered Approaches in Geovisualization Design: Investigating Multiple Methods Through a Long-Term Case Study, David Lloyd, Jason Dykes

Visual Thinking In Action: Visualizations As Used On Whiteboards, Jagoda Walny, Sheelagh Carpendale, Nathalie Henry Riche, Gina Venolia, Philip Fawcett

O Vis Papers

Room 557

Flow Visualization Chair: Christoph Garth

Straightening Tubular Flow for Side-by-Side Visualization, Paolo Angelelli, Helwig Hauser

Vortex Visualization in Ultra Low Reynolds Number Insect Flight, Christopher Koehler, Thomas Wischgoll, Haibo Dong, Zachary Gaston

Two-Dimensional Time-Dependent Vortex Regions Based on the Acceleration Magnitude, Jens Kasten, Jan Reininghaus, Ingrid Hotz, Hans-Christian Hege

Adaptive Extraction and Quantification of Geophysical Vortices, Sean Williams, Mark Petersen, Peer-Timo Bremer, Matthew Hecht, Valerio Pascucci, James Ahrens, Mario Hlawitschka, Bernd Hamann

FoamVis: Visualization of 2D Foam Simulation Data, Dan R. Lipşa, Robert S. Laramee, Simon J. Cox, I. Tudur Davies

O VisWeek Panel

Meet the Editors

Room 555AB / 556AB

Panelists: Ming Lin, Gabriel Taubin, Holly Rushmeier, Chaomei Chen, Chris Johnson

In his "How to Run a Papermill" essay J. Woodwark stated: "In technical journals, [...] there is a special procedure in place by which your paper is vetted by the editor of the journal -- usually a cynical person -- who sends it out to a few cronies to demolish if they can. This is called refereeing, and the tougher it is (folklore has it) the better is the journal and the more -- not fewer -- sub-missions it receives."

The overall goal of this panel is to dispel certain myths associated with journal publications (such as moderate impact factors or unacceptably long timelines to publication), while starting a dialogue between the main visualization journal editorial boards and the visualization community at large. The panelists will present and discuss five major visualization journal venues available to researchers for disseminating their work. The goal is to inform the visualization audience of challenges from both sides and encourage a discussion for how to optimize the publication and editing process. Ultimately we hope to connect people and to promote interaction between them. To that end, this panel is one part of the larger, more ambitious Visweek Compass agenda.

3:40pm - 4:15pm

O Coffee Break

4:15pm - 5:30pm

O TVCG Papers Session 4

Chair: Helwig Hauser



.

Link Conditions for Simplifying Meshes with Embedded Structures, Dilip Mathew Thomas, Vijay Natarajan, Georges-Pierre Bonneau

Topology Verification for Isosurface Extraction, Tiago Etiene, Luis Gustavo Nonato, Carlos Scheidegger, Julien Tienry, Thomas J. Peters, Valerio Pascucci, Robert M. Kirby, Cláudio T. Silva

Visual Reasoning about Social Networks using Centrality Sensitivities, Carlos Correa, Tarik Crnovrsanin, Kwan-Liu Ma

Color Lens: Adaptive Color Scale Optimization for Visual Exploration, Niklas Elmqvist, Pierre Dragicevic, Jean-Daniel Fekete

A 2D Flow Visualization User Study Using Explicit Flow Synthesis and Implicit Task Design, Zhanping Liu, Shangshu Cai, J. Edward Swan II, Robert J. Moorhead II, Joel P. Martin, T.J. Jankun-Kelly

InfoVis Papers

Ballroom D

Ballroom A

Maps and Geovisualization Chair: Danyel Fisher

Composite Density Maps for Multivariate Trajectories, Roeland Scheepens, Niels Willems, Huub van de Wetering, Gennady Andrienko, Natalia Andrienko, Jarke J. van Wijk

Focus+Context Metro Maps, Yu-Shuen Wang, Ming-Te Chi

Flow Map Layout via Spiral Trees, Kevin Verbeek, Kevin Buchin, Bettina Speckmann

Exploring Uncertainty in Geodemographics with Interactive Graphics, Aidan Slingsby, Jason Dykes, Jo Wood

Drawing Road Networks with Focus Regions, Jan-Henrik Haunert, Leon Sering

Room 557

O Vis Papers Enhanced Rendering and Visualization Chair: Charles Hansen

WYSIWYG (What You See is What You Get) Volume Visualization, Hanqi Guo, Ningyu Mao, Xiaoru Yuan

Interactive Volume Visualization of General Polyhedral Grids, Philipp Muigg, Markus Hadwiger, Helmut Doleisch, Eduard Gröller

Image Plane Sweep Volume Illumination, Erik Sundén, Anders Ynnerman, Timo Ropinski

Interactive Multiscale Tensor Reconstruction for Multiresolution Volume Visualization, Susanne K. Suter, José A. Iglesias Guitián, Fabio Marton, Marco Agus, Andreas Elsener, Christoph P.E. Zollikofer, M. Gopi, Enrico Gobbetti, Renato Pajarola

An Efficient Direct Volume Rendering Approach for Dichromats, Weifeng Chen, Wei Chen, Hujun Bao

6:15pm - 7:15pm

O Meet the Postdocs

East Prefunction

Friday, 28 October

8am - 8:30am

O VisWeek Papers Fast Forward

Ballroom A

Ballroom D

8:30am - 10:10am

O InfoVis Papers **Multidimensional Visualization** Chair: Carsten Görg

[Honorable Mention] Local Affine Multidimensional Projection, Paulo Joia, Fernando V. Paulovich, Danilo Coimbra, José Alberto Cuminato, Luis Gustavo Nonato

Angular Histograms: Frequency-Based Visualizations for Large, High Dimensional Data, Zhao Geng, ZhenMin Peng, Robert S. Laramee, Rick Walker, Jonathan C. Roberts

DICON: Interactive Visual Analysis of Multidimensional Clusters, Nan Cao, David Gotz, Jimeng Sun, Huamin Qu

Brushing Dimensions - A Dual Visual Analysis Model for High-Dimensional Data, Cagatay Turkay, Peter Filzmoser, Helwig Hauser

MoleView: An Attribute and Structure-Based Semantic Lens for Large Element-Based Plots, Christophe Hurter, Ozan Ersoy, Alexandru Telea

O Vis Papers

Room 557

Medical Visualization Chair: Kelly Gaither

Interactive Virtual Probing of 4D MRI Blood-Flow, Roy van Pelt, Javier Oliván Bescós, Marcel Breeuwer, Rachel E. Clough, M. Eduard Gröller, Bart ter Haar Romeny, Anna Vilanova

Doctoral Colloquium 2012 **Call for Participation**

VisWeek 2012 will host a Doctoral Colloquium to support the next generation of visualization researchers. Ph.D. students at any stage of their research are invited to apply to participate in the colloquium. Students who will be completing their proposal defense near the time of the colloquium are particularly encouraged to apply. It will incorporate contributions from the visualization, information visualization, and visual analytics student communities.

Colloquium participation will offer students insight and support for the framing of their research and will help them create important relationships. Financial support may be available to participants to assist in traveling to the conference.

The colloquium will be run as a single day invitation-only event at the beginning of IEEE VisWeek.

Questions? Email info@visweek.org

Crepuscular Rays for Tumor Accessibility Planning, Rostislav Khlebnikov, Bernhard Kainz, Judith Muehl, Dieter Schmalstieg

Distance Visualization for Interactive 3D Implant Planning, Christian Dick, Rainer Burgkart, Rüdiger Westermann

The FlowLens: A Focus-and-Context Visualization Approach for Exploration of Blood Flow in Cerebral Aneurysms, Rocco Gasteiger, Mathias Neugebauer, Oliver Beuing, Bernhard Preim

Projection-Based Metal-Artifact Reduction for Industrial 3D X-ray Computed Tomography, Artem Amirkhanov, Christoph Heinzl, Michael Reiter, Johann Kastner, M. Eduard Gröller

OVisWeek Panel

Room 555AB / 556AB Visualization and Policy Development. Implications for **Theory-Building**

Panelists: David Ebert, Brian Fisher, Julia Lane

The literature and practice in the areas of information visualization, graphics and information display, and visual facilitation for thinking and strategy are rapidly expanding. The various fields of visualization are diverse and exciting, generating considerable enthusiasm among practitioners as applications spread to different disciplines and practice domains, including public policy-making and management. Scholars and practitioners in information visualization have a strong user-orientation and, more generally, a conviction that better data, linked data, and better representations will inform and improve decision-making and policy-making. However, with the exception of work in the security and crisis management domains, there has been little consideration of how visual representations compete with other streams of information and types of visualization for the attention of policy-makers, often in highly contested, stressful circumstances with high flows of information. Despite evidence of appreciation of how well-presented visualizations can inform sense-making, there is little, if any, discussion of how any of the products from any of the visualization domains would fit in, enhance or compete with other forms of information used in policy-making. Conversely, the literature on policy and public management has not started to explore the potential of visualization for improving analysis, advising, and engagement.

10:10am - 10:30am

O Coffee Break

10:30am - 12:30pm

Ballroom A **O** VisWeek Closing VisWeek Capstone: How Editing and Design Changes News Graphics

Speaker: Amanda Cox, New York Times

The Times graphics department has won many national and international awards, including the National Design Award for

communication design. Learn how graphics editors report, design and edit data visualizations, integrate interactivity with story telling, and explain the news. How do basic ideas from journalism — including the importance of editing - influence the graphics the Times makes?



VisWeek Posters

VisWeek Posters

Tuesday - Thursday 10am - 6pm

East & West Prefunction, Ballroom A Foyer

InfoVis Posters

An Enhanced Slider for Safety Analysis, Yasmin I. Al-Zokari, Daniel Schneider, Dirk Zeckzer, Hans Hagen

Web-based Visualization of Phenology Data, Tom Auer, Alyssa Rosemartin, Doug Miller, Lee Marsh, Stephen Crawford

Dealtree: Those Email Overload of Daily Deals, or How I Squeezed Them Into a Beautiful Treemap, Dhruba Baishya

A generic algorithm for sequential, rectangular, space filling layouts, Thomas Baudel, Bertjan Broeksema

Edge Bundling without Reducing the Source to Target Traceability, Fabian Beck, Martin Puppe, Patrick Braun, Michael Burch, Stephan Diehl

PortAssist: Visual Analysis for Porting Large Code Bases, Bertjan Broeksema, Alexandru Telea

ChronAtlas: A Visualization for Dynamic Topic Exploration, Nan Cao, Yu-Ru Lin, David Gotz, Jimeng Sun, Huamin Qu

New York City's Foodshed: Complexities of Socioeconomics, Health, and Food Availability, Ilias Koen, Arlene Ducao

Visualization of Exploratory Video Analysis, Adam S. Fouse, James D. Hollan

[Honorable Mention] Modeling Human Performance from Visualization Interaction Histories, Steven R. Gomez, David H. Laidlaw

Visualizing Probability, Donna Gresh, Léa A. Deleris, Luca Gasparini, Dylan Evans

An Analytical Approach for the Creative Design of New Visualizations, Garth Griffin, Shaomeng Li, Connor Gramazio, Remco Chang

A Concept-Based Interactive Visualization Approach to Web Image Search, Enamul Hoque, Orland Hoeber, Minglun Gong

Guiding Visualization Users Towards Improved Analytic Strategies Using Small Interface Changes, Radu Jianu, David H. Laidlaw

RIN: A Framework for Rich Interactive Narratives, Joybroto Banerjee, Nikhil Chandran, Naren Datha, Tanuja Joshi, Joseph Joy, Saurabh Kothari, Ajay Manchepalli, Kanchen Rajanna, Jatin Shah, Eric Stollnitz, Anand Tekaday

LogicViz: Visualizing Trust Propagration at the Device Layer, Bita Mazloom, George Legrady, Mohit Tiwari, Tim Sherwood

Interactive Exploration of Geospatial Network Visualization, Till Nagel, Erik Duval

Interactive Visuaization to Teach Innovation and Technoogy Adoption in Enterpreneurship Education, Erik Noyes, Leonidas Deligiannidis

uVis: A Formula-Based Visualization Tool, Kostas Pantazos, Shangjin Xu, Mohammad A. Kuhail, Soren Lauesen

[Best Poster] Near to the Brain: Functional Near-Infrared Spectroscopy as a Lightweight Brain Imaging Technique for Visualization, Evan M. Peck, Erin Treacy Solovey, Sara Su, Robert J.K. Jacob, Remco Chang

Dimension Sets: Visual Analysis of Structured High-Dimensional Data, Harald Piringer, Wolfgang Berger

Supporting Climate Impact Research by a Smart View Management, Axel Radloff, Thomas Nocke, Heidrun Schumann

Schematized Small Multiples for the Visual Comparison of Geospatial Data, Andreas Reimer, Andrea Unger, Wouter Meulemans, Doris Dransch

Designing New Visualizations from Scratch without Programming, Drew Skau, Robert Kosara

Scalable Global Views for Biological Rule-Based Modeling, Adam M. Smith, Wen Xu, James R. Faeder, G. Elisabeta Marai **DEVELO: A High Level Visualization Tool for Game Development**, Andrew S. Stamps, T.J. Jankun-Kelly

Novel Interaction Techniques for Visual Comparison, Christian Tominski, Falko Löffler

Topic Hypergraph: Hierarchical Visualization of Thematic Structures in Long Documents, Guizhen Wang, Chaokai Wen, Binghui Yan, Jing Xia, Zhen Liu, Wei Chen

AARCs for Interactively Linking Display Elements, Colin Ware, William Wright

Singleton Set Distribution Views for Set-Valued Attribute Visualization, Kent Wittenburg, Georgiy Pekhteryev

MDS-Tree and MDS-Matrix for High Dimensional Data Visualization, Xiaoru Yuan, Zuchao Wang, Cong Guo

VAST Posters

[Best Poster] Using Random Projections to Identify Class-Separating Variables in High-Dimensional Spaces, Anushka Anand, Leland Wilkinson, Tuan Nhon Dang

Evaluation of Large Display Interaction Using Smart Phones, Jens Bauer, Sebastian Thelen, Achim Ebert

Query-Based Coordinated Multiple Views with Feature Similarity Space for Visual Analysis of MRI Repositories, Ian Bowman, Shantanu H. Joshi, John Darrell Van Horn

Reasonable Abstractions: Semantics for Dynamic Data Visualization, Joseph A. Cottam, Andrew Lumsdaine

Exploring Agent-Based Simulations using Temporal Graphs, R. Jordan Crouser, Jeremy G. Freeman, Remco Chang

Visual Analytical Approaches to Evaluating Uncertainty and Bias in Crowdsourced Crisis Information, Iain Dillingham, Jason Dykes, Jo Wood

TreeVersity: Comparing Tree Structures by Topology and Node's Attributes Differences, John Alexis Guerra Gómez, Audra Buck-Coleman, Catherine Plaisant, Ben Shneiderman

Visual Sentiment Analysis on Twitter Data Streams, Ming Hao, Christian Rohrdantz, Halldór Janetzko, Umeshwar Dayal, Daniel A. Keim, Lars-Erik Haug, Mei-Chun Hsu

Analysts Aren't Machines: Inferring Frustration through Visualization Interaction, Lane Harrison, Wenwen Dou, Aidong Lu, William Ribarsky, Xiaoyu Wang

Automated Measures for Interpretable Dimensionality Reduction for Visual Classification: A User Study, Ilknur Icke, Andrew Rosenberg

3D Visualization of Temporal Changes in Bloggers' Activities and Interests, Masahiko ITOH, Naoki YOSHINAGA, Masashi TOYODA, Masaru KITSUREGAWA

A State Transition Approach to Understanding Users' Interactions, Dong Hyun Jeong, Soo-Yeon Ji, William Ribarsky, Remco Chang

Visualizing an Information Assurance Risk Taxonomy, Victoria Lemieux, Barbara Endicott-Popovsky, Karl Eckler, Thomas Dang, Adam Jansen

Find Distance Function, Hide Model Inference, Jingjing Liu, Eli T. Brown, Remco Chang

KD-Photomap: Exploring Photographs in Space and Time, Iulian Peca, Haolin Zhi, Katerina Vrotsou, Natalia Andrienko, Gennady Andrienko

PORGY: Interactive and Visual Reasoning with Graph Rewriting Systems, Bruno Pinaud, Jonathan Dubois, Guy Melançon

[Honorable Mention] Exploring Proportions: Comparative Visualization of Categorical Data, Harald Piringer, Matthias Buchetics

Pexel and Heatmap Visual Analysis of Multidimensional Gun/ Homicide Data, Scott D. Rothenberger, John E. Wenskovitch Jr, G. Elisabeta Marai

Vis Posters

Exploratory analysis of ocean flow models with stereoscopic multitouch, Thomas Butkiewicz, Colin Ware

Measuring Seeding Resolution Dependence of Diffusion Tensor Streamtube Visualization, Haipeng Cai, Jian Chen, Alexander P. Auchus, Juebin Huang, David H. Laidlaw

[Honorable Mention] Joint Contour Nets: Topological Analysis of Multi-Variate Data, Hamish Carr, David Duke

Computing Reeb Graphs as a Union of Contour Trees, Harish Doraiswamy, Vijay Natarajan

The Allen Human Brain Atlas: Visualizing gene expression in the brain, David Feng, Chris Lau, Tim Dolbeare, Elaine Shen, Angela Guillozet-Bongaarts, Michael Hawrylyz, Chinh Dang, Rao Gullipalli, Alan McMillan, Lydia Ng

The Paradox of Visualizations Making Information Comprehensible, Daniel Halpern, Kyong Eun Oh, James Chiang, Marilyn Tremaine, Karen Bemis, Deborah Silver

Enhancing Depth Perception of Volume-Rendered Angiography Data, Marta Kersten-Oertel, Sean J. S. Chen, D. Louis Collins

Improved Visual Exploration and Hybrid Rendering of Stress Tensor Fields via Shape-Space Clustering, Andrea Kratz, Markus Hadwiger, Ingrid Hotz

Streamline Selection and Viewpoint Selection via Information Channel, Jun Ma, Jun Tao, Chaoli Wang, Ching-Kuang Shene

Visual Analysis of Brain/Gait Correlations, Adrian Maries, Sriranjani Mandayam, Caterina Rosano, G. Elisabeta Marai

Designing Transfer Functions for Exploring Hyperspectral Images, David Mayerich, Michael Walsh, Rohit Bhargava

Group Tracking in Scientific Visualization, Sedat Ozer, Deborah Silver, Pino Martin

3D Visualization of Wind Field and Pressures near Hurricane Eye using Google Earth, Reena R. Patel, Robert M. Wallace

Building a Better Barb, David H.F. Pilar, Colin Ware

FloodViz - Enabling Ensemble Visualization of Uncertainty in Simulations of River Flow and Inundation Modeling, Jibonananda Sanyal, Philip Amburn, Song Zhang, Jamie Dyer, John van der Zwaag, Derek Irby, Robert J. Moorhead

[Best Poster] Diderot: A Parallel DSL for Computing on Multi-Dimensional Tensor Fields, Nicholas Seltzer, Lamont Samuels, John Reppy, Gordon L. Kindlmann

Visualizing Coastal Spatial-Temporal Dynamics, Laura Tateosian, Sidharth Thakur, Eric Hardin, Helena Mitasova, Katie Weaver, Margery Overton

A Designer's Approach to Scientific Visualization: Visual Strategies for Illustrating Motion Datasets, Lauren Thorson, Heesung Sohn, Joseph Downing, Arin Ellingson, David Nuckley, Daniel F. Keefe

Visual and Analytical Methods to Assess Geoscientific Model Configurations, Andrea Unger, Sven Schulte, Volker Klemann, Doris Dransch

Visualizing Multiple Scalar Fields with Hierarchical Topology Based on Contour Trees and Morse-Smale Complexes, Keqin Wu, Song Zhang

Discovery Exhibit

Tuesday 5pm - 5:30pm

Ballroom D

Data Visualization of Immunological Competence of HIV Exposed but Uninfected (HEU) infants, Samar Al-Hajj, Edgardo S. Fortuno III, Brian Fisher

VSEM: Teaching using visualization, Bill Ferster

Interactive Visual Analysis Supporting Design, Tuning, and Optimization of Diesel Engine Injection, Kresimir Matkovic, Denis Gracanin, Mario Jelovic, Helwig Hauser

Improving Document Review in E-Discovery, Sean M. McNee, Ben Arnette, Manfred Gabriel

VoteEasy: Helping Voters Find Political Matches, Kim Rees

Artist Melding Art, Science, Visualization - Creating Clearer Understanding of Environmental Issues, Francesca Samsel

Visual Analytics meets Political Science: Visualizing Patterns and Changes in States' Policies toward Religion, Richard Traunmüller, Enrico Bertini, Lyubomyr Havrylyuk, Oliver Sampson

Visual Analysis on Traffic Trajectory Data, Zuchao Wang, Hanqi Guo, Xiaoru Yuan, Hao Liu, Hailing Zhang

VAST Challenge Awards Tuesday 5pm - 5:30pm

Ballroom D

Mini Challenge 1 Award

[Outstanding Integration of Computational and Visual Methods] Outstanding Integration of Computational and Visual Methods, N. Bánfi, L. Dudás, Zs. Feket, e J. Göbölös-Szabó, A. Lukács, Á. Nagy, A. Szabó, Z. Szabó, G. Szücs

[Informative Use of Statistics and Evidence in Debrief] Mapping an Epidemic Outbreak: Effective Analysis and Presentation, Kevin Boone, Edward Swing

[Unique Integration of Tag Clouds In Geospatial Visualizations] ScatterBlogs: Geo-Spatial Document Analysis, Harald Bosch, Dennis Thom, Michael Wörner, Steffen Koch, Edwin Püttmann, Dominik Jäckle, Thomas Ertl

[Outstanding Analysis Using Custom Tools] epSpread - Storyboarding for Visual Analytics, Llyrap Cenydd, Rick Walker, Serban Pop, Helen Miles, Chris Hughes, William Teahank, Jonathan C. Roberts

[Novel Extension of Visual Analytics to Mobile Devices] MobileAnalymator: Animating Data Changes on Mobile Devices, Yingjie Victor Chen, Zhenyu Cheryl Qian, Li Zhang

Mini Challenge 2 Award

[Innovative Tool Adaptation] Geovisual Analytics for Cyber Security: Adopting the GeoViz Toolkit, Nicklaus A. Giacobe, Sen Xu

[*High Potential for Scalability*] Guiding Security Analysis through Visualization, Lane Harrison, Wenwen Dou, Aidong Lu, William Ribarsky, Xiaoyu Wang

[Outstanding Integrated Overview Display] An Integrated Visualization on Network Events, Walter Marcelo Lamagna

Mini Challenge 3 Award

[Novel Use of Large Screen Workspace To Support Analysis] Analyst's Workspace: Protecting Vastopolis, Christopher Andrews, M. Shahriar Hossain, Samah Gad, Naren Ramakrishnan, Chris North

[Good Use of the Analytic Process] Jigsaw to Save Vastopolis, Elizabeth Braunstein, Carsten Görg, Zhicheng Liu, John Stasko

[Good Analysis & Support Debrief] Interactive Data Analysis with nSpace2[®], Casey M. Canfield, David Sheffield

Grand Challenge Award

[Outstanding Comprehensive Submission] Visual Analytics of Terrorist Activities Related to Epidemics, Enrico Bertini, Juri Buchmüller, Fabian Fischer, Stephan Huber, Thomas Lindemeier, Fabian Maaß, Florian Mansmann, Thomas Ramm, Michael Regenscheit, Christian Rohrdantz, Christian Scheible, Tobias Schreck, Stephan Sellien, Florian Stoffel, Mark Tautzenberger, Matthias Zieker, Daniel A. Keim

Vis Contest

Tuesday 11:40am - 12:10pm

Ballroom A

Information-guided Streamtube Seeding for the Visualization of Vortex Behavior in a Centrifugal Pump at Deep Part Load, Thomas Kanzok, Paul Rosenthal

[Honorable Mention] Visualization of Vortex Core Differences between Ensemble Simulations, Alexis Yee Lyn Chan, Joohwi Lee, Russell M. Taylor II

[Winner] Analyzing Vortical Transport Properties of a Centrifugal Pump, Mathias Otto, Alexander Kuhn, Wito Engelke, Holger Theisel

Vortex Catchment, Filip Sadlo, Grzegorz Karch, Marcel Hlawatsch, Daniel Weiskopf, Thomas Ertl

Interactive Fluid Dynamics Visualization, Victor Mateevitsi, Andrew Johnson

Vortices Identification Based on Projection of Streamlines, Anonymous

VisWeek Art show

Tuesday - Thursday 10am - 6pm Rotunda, 555A - 556B, Ballroom E

Featured Artist, Maxwell Roberts

Moston, Anya Belkina

A China Of Many Senses, Bill Seaman / Todd Berreth

There's No Place Like House, Mark Cypher

Fluid Automata, Angus Graeme Forbes

Noise Of..., Samuel Huron

Sketching In Space, Johann Habakuk Israel

Firewire Picture: Half-Day Closing, Matthew Kluber

Frido Viewer (Art For The Science-Inspired Mind™), Studio Frido (Charles Keller, David M. Weinstein, Suresh I. Prajapati), Jens Krueger **Limbique**, David Paulsen & Pinar Yoldas

Black Rock, Francesca Samsel (With Brandt Westing And Karla Vega)

CCC, Keith Soo & Supernature Design

First 24 Hours Of Spring, Lauren Thorson

Night Lights, Lauren Thorson

Birds-Of-Feather

Wednesday 12:30pm - 1:45pm Prefunction & Ballroom A Foyer

Compass: Lunch with the Leaders

Beginning researchers go for lunch with leaders of the visualization community (pay for your own lunch). Please sign up through the Compass Visweek page http://www.visweek.org/visweek/2011/ info/volunteer/professionals-compass [1] [1] http://www.visweek. org/visweek/2011/info/volunteer/professionals-compass

Thursday 6:15pm - 7:15pmEast PrefunctionCompass: Meet the Postdoc / Faculty Candidate

Graduating students and postdocs going on the job market present their work. Please sign up for a poster slot through the Compass Visweek page http://www.visweek.org/visweek/2011/info/volunteer/professionals-compass [1] [1] http://www.visweek.org/ visweek/2011/info/volunteer/professionals-compass

Please see BoF board near registration desk for current BoF sessions

Symposia Supporters

The IEEE 2011 BioVis & LDAV Committees gratefully acknowledges the following supporters:



Supporters & Exhibitors

The IEEE 2011 VisWeek Committee gratefully acknowledges the following supporters and exhibitors:

