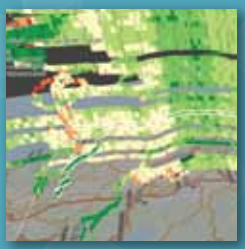
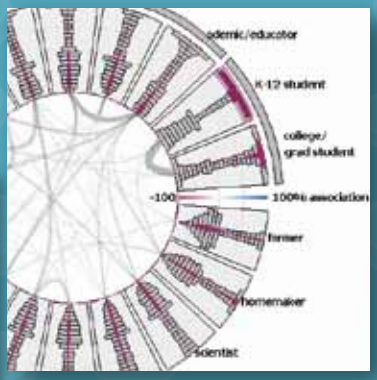



SCIVIS • INFOVIS • VAST

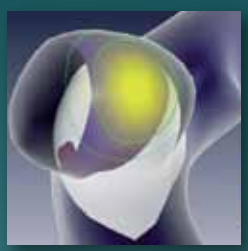
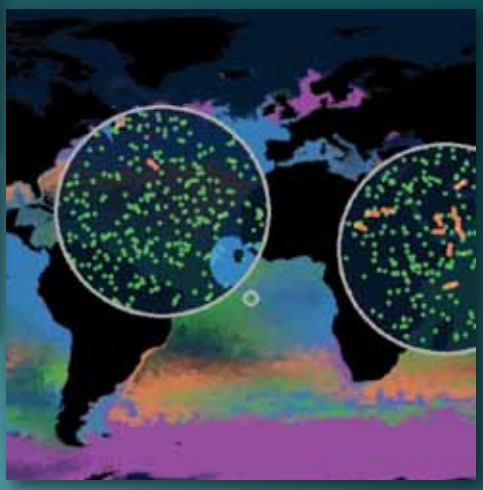
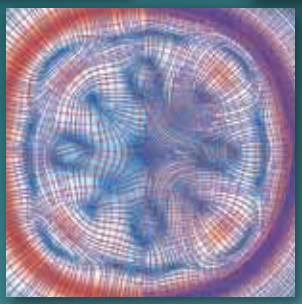
BIOVIS • LDAV

VisWeek 2012

14-19 OCTOBER 2012
SEATTLE, WASHINGTON, USA

Program

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

Welcome

Welcome to VisWeek 2012! This year's program includes three conferences: IEEE Scientific Visualization (SciVis), Information Visualization (InfoVis), and Visual Analytics Science and Technology (VAST); two symposia: the IEEE Symposium on Biological Data Visualization (BioVis), and the IEEE Symposium on Large-Scale Data Analysis and Visualization (LDAV); an art show; and the traditional panels, posters, tutorials, workshops, birds-of-a-feather (BOF) meetings, exhibitions, and doctoral colloquium. A new track has been added tailored for practitioners and industry issues. It promises to be an exciting and stimulating week.

We continue the tradition started last year with topical papers published during the last year in IEEE Transactions on Visualization and Computer Graphics (TVCG) making up four of the technical paper sessions. TVCG will once again publish all of the SciVis and InfoVis papers in a special issue of the journal. We are proud to announce that this year 10 of the VAST papers will also be included in the special issue.

The opening session Tuesday will feature keynote speaker Mary Czerwinski of Microsoft Research; the closing session features capstone speaker Felice Frankel of MIT. Each of the four days will start with a fast-forward session, where every paper to be presented during the day will offer a 25 second preview. The morning fast-forward session showcases the growing body of quality work that our discipline is producing in four parallel technical sessions.

As always, a number of other events will enrich the week. Posters from all five venues plus some of the workshops will be on display, with their own fast-forward early Tuesday evening, and a special viewing right before the Wednesday evening VisWeek reception. The expanded tutorial, workshop, and panel sessions will provide even more stimulating discussions. The receptions, breaks, evenings in the lobby, various Compass events, and the walkable Seattle downtown area will provide opportunities for social and collaborative interactions. The doctoral colloquium will provide PhD students a chance to make connections with researchers outside their institution and get feedback on their research plans. The exhibitions and special sessions provide a chance to interact with industry leaders and other sponsors.

Welcome to Seattle, and have a great VisWeek!

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William Pike, *Pacific Northwest National Laboratory*
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Raghu Machiraju, *(BioVis) The Ohio State University*
Nils Gehlenborg, *(BioVis) Harvard University*
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TOC

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By mail: 10662 Los Vaqueros Circle, Los Alamitos, CA 90720
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For information on awards, national initiatives, conferences and symposia, and a comprehensive membership directory, please visit **http://vgtc.org/**.

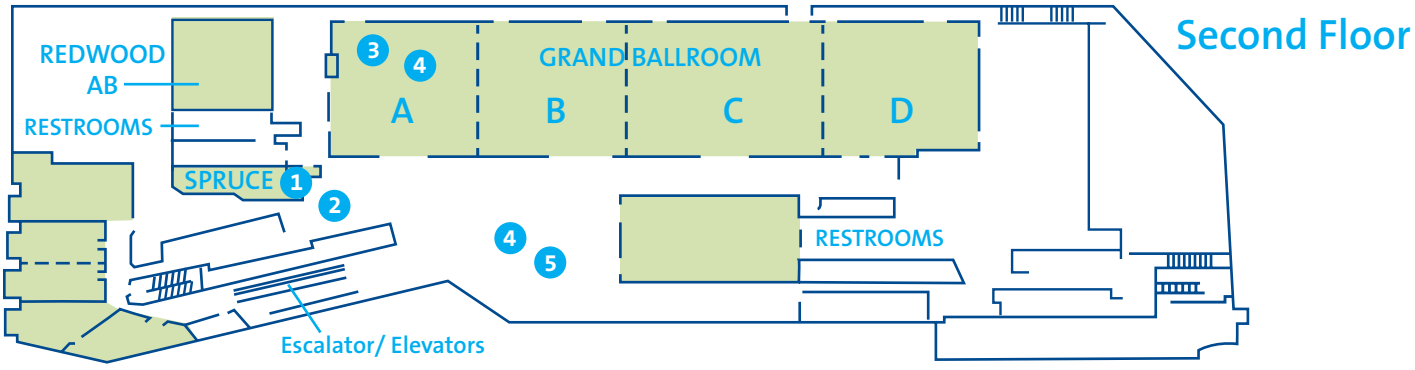
Seattle, WA

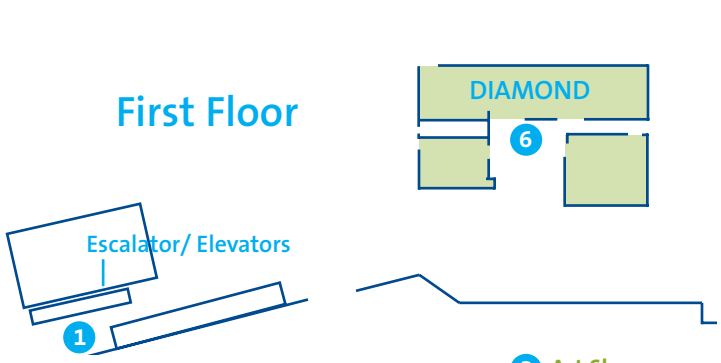
About Seattle, Washington

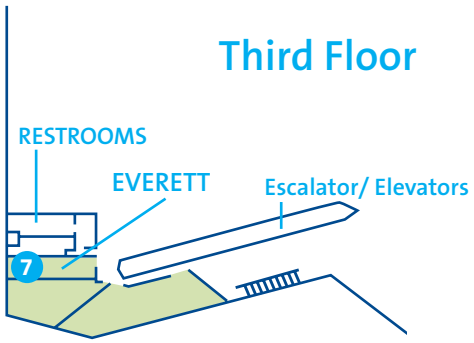
In 2012, VisWeek comes to the beautiful city of Seattle, Washington. Downtown Seattle is easily walkable and waiting to be explored. Shopping, dining, arts, and visitor attractions are within steps of hotels and inns. The city is surrounded by pristine waterways, two mountain ranges, and three national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

Map of Venue

The Sheraton Seattle Hotel







1 Conference Registration

Located in Spruce (except Saturday)
Saturday, 6pm - 8pm (located @ 1st floor lobby, near escalator)
Sunday, 7am - 4:30pm
Monday - 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 next to Registration.

3 Art Show

Located in Grand Ballroom A & throughout the conference area.
Opening Show, Wednesday, 7:30pm during VisWeek reception.
Tuesday, 10am - 6pm
Wednesday - Thursday, 8:30am - 6pm

4 Posters

Symposia: BioVis & LDAV
Located in 2nd Floor Foyer
Sunday - Monday, 8:30am - 5:55pm
Hosted Viewing, Sunday, 6:15pm - 7:30pm

VisWeek
Located in Grand Ballroom A
Tuesday, 10:10am - 5:55pm
Wednesday - Thursday, 8:30am - 5:55pm
Hosted Viewing, Wednesday, 6:15pm - 7:30pm

5 Exhibits

Located in 2nd Floor Foyer
Tuesday - Thursday, 10am - 6pm

6 Internet Access

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

7 Speaker Preparation

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

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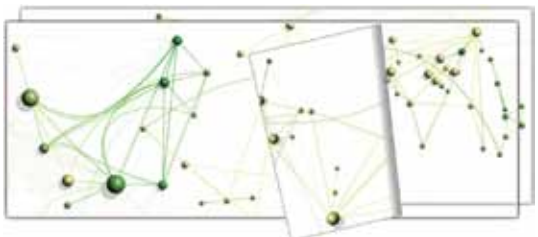

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Allen Sanderson, *University of Utah*
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Philipp Slusallek, *University Saarbrücken*
Ruediger Westermann, *Technical University Munich*
Hongfeng Yu, *University of Nebraska*

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 Posters

BioVis Posters

Poster Viewings *2nd Floor Foyer*
Sunday 8:30am - Monday 5:55pm

Hosted Poster Viewing
Sunday 6:15pm - 7:30pm

Tractography in Context: Multimodal Visualization of Probabilistic Tractograms in Anatomical Context, Anne Berres, Mathias Goldau, Marc Tittgemeyer, Gerik Scheuermann, Hans Hagen

compreheNGSive: A Tool for Exploring Next-Gen Sequencing Variants, Alex Bigelow, Miriah Meyer, Nicola Camp

Bulk Synchronous Visualization, Lars Ailo Bongo

The New UCSC Cancer Genomics Browser, Brian Craft, Teresa Swatloski, Mary Goldman, Kyle Ellrott, Singer Ma, Chris Wilks, Josh Stuart, David Haussler, Jing Zhu

MedSavant: Visual Analytics for Genetic Variation Datasets, Marc Fiume, Eric Smith, Andrew Brook, Michael Brudno

GenomeRing: alignment visualization based on SuperGenome coordinates, Alexander Herbig, Günter Jäger, Florian Battke, Kay Nieselt

Getting Into Visualization of Large Biological Data Sets, Martin Krzywinski, Inanc Birol, Steven Jones, Marco Marra

StratomeX: Enabling Visualization-Driven Cancer Subtype Analysis, Alexander Lex, Marc Streit, Hans-Joerg Schulz, Christian Partl, Dieter Schmalstieg, Peter J. Park, Nils Gehlenborg

Visualization and Exploration of 3D Toponome Data, Steffen Oeltze, Paul Klemm, Reyk Hillert, Bernhard Preim, Walter Schubert

An Abstract View of Associations Between Diseases and Developmental Gene Sets, Jisoo Park, Keith Noto, Daniel Kee, Heather Wick, Donna Slonim

Visual Analysis of Genome-wide Tracts of Homozygosity, Sean Reber, Ye Zhao, Li Zhang, Mohammed Orloff, Charis Eng

Aracari: exploration of eQTL data through visualization, Ryo Sakai, Christopher Bartlett, Dusan Popovic, William Ray, Jan Aerts

User-guided Segmentation of Thoracic Computed Tomography Data for Electrical Impedance Tomography Image Reconstruction, Peter Salz, Andreas Reske, Hermann Wrigge, Gerik Scheuermann, Hans Hagen

Using a Mathematical Graph Framework for Visualization of Inheritance Patterns in Commercial Plant Pedigrees, Paul D. Shaw, Jessie Kennedy, Iain Milne, Martin Graham, David F. Marshall

Scalable Interactive Analysis of Retinal Astrocyte Networks, Panuakdet Suwannatat, Gabriel Luna, Geoffrey P. Lewis, Steven K. Fisher, Tobias Höllerer

Can Adjacency Matrices help in the exploration and understanding of Multi-Omics Data?, Georg Tremmel, Atsushi Niida, Satoru Miyano

Extending The Grammar of Graphics for Biological Data Visualization, Tengfei Yin, Dianne Cook, Michael Lawrence

LDAV Posters

Poster Viewings *2nd Floor Foyer*
Sunday 8:30am - Monday 5:55pm

Hosted Poster Viewing
Sunday 6:15pm - 7:30pm

Enabling Interactive Mesh Quality Exploration of Large Scale CFD Simulations in Virtual Environments, Fang Chen, Christian Wagner, Markus Flatken, Andreas Gerndt, Hans Hagen

Better Understanding of the Web through 3D Visualization, Zhiming Chen, Andras Farago

Poster: Building a Large Tiled-Display Cluster, Jonathan Decker, Mark Livingston

DASH- Data Abstraction and Sharing, Stefan Eilemann

Interactive Visual Analytics of Coastal Oceanographic Simulation data, Richard George, Peter Robbins, Alan Davies, Jonathan Roberts

Spectroscopy of Performance Anomalies in the Cloud, Arun Kejariwal

Interaction Techniques for a Strata Treemap, Oh-hyun Kwon, Junghong Choi, Kyungwon Lee

Anomaly Analysis and Visualization through Compressed Graphs, Qi Liao, Lei Shi, Xiaohua Sun

A Static Load Balancing Scheme for Parallel Volume Rendering on Multi-GPU Clusters, Shusen Liu, Venkatram Vishwanath, Joseph Insley, Mark Hereld, Michael E. Papka, Valerio Pascucci

Visualizing Nearest Neighbours for Large High Dimensional Real Datasets, Mounica Maddela, Kamalakar Karlapalem

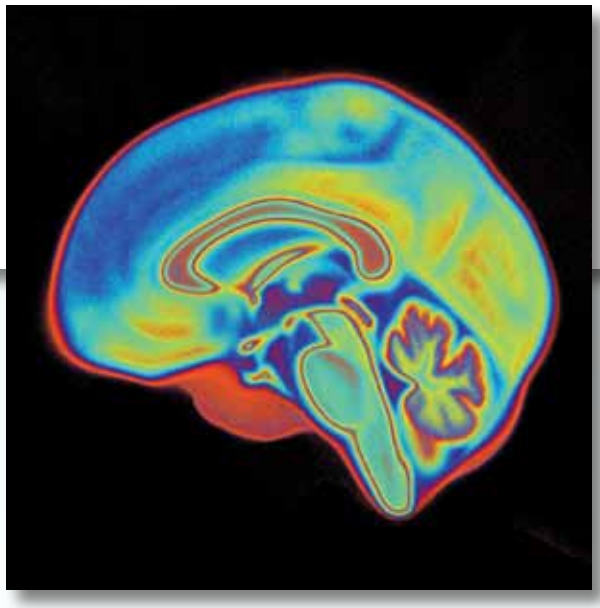
Hybrid Distributed Rendering, Georg Tamm, Thomas Fogal, Jens Krüger

Hybrid Parallel Streamline Extraction Combining MPI and OpenCL, Michael Vetter, Stephan Olbrich

Volumetric Data Modeling and Reduction in a Compressive Sensing Framework, Xie Xu, Mahsa Mirzargar, Alireza Entezari

A Particle Filter Based Approach of Visualizing Time-varying Volume, Jian Zhao

A System for More Intuitive Multivariate Volume Exploration and Visualization, Liang Zhou, Charles Hansen



VisWeek 2012

Sunday

VISWEEK EVENTS

- Symposia Posters @ *2nd Floor Foyer*
- Tutorial: Visualizing Data in R and Ggobi @ *Grand Ballroom A*
- Tutorial: Perception & Cognition for Imaging, Vis, Visual Data Analytics & CG @ *Grand Ballroom B*
- Tutorial: Natural Language Processing for Text Visualization @ *Willow AB*
- Workshop: BELIV 2012: Beyond Time and Errors - Novel Evaluation Methods for Visualization @ *Willow AB*

BioVis — *Grand Blrm C*

- Welcome & Keynote: Project Mind-Scope, *Christof Koch*
- Papers: Neuro-biology
- Papers: Systems Biology & Omics Data
- Poster Talks & Poster FF

LDAV — *Grand Blrm D*

- Keynote: Divide & Recombine, *Pat Hanrahan*, & Paper FF
- Papers: Interacting with Large Data
- Papers: Features in Large Data
- Poster FF, Panel: Insights into Large Data Analysis

VAST

- Workshop: VAST Challenge @ *Cedar*

LUNCH BREAK

BREAK

- Symposia Poster Viewing @ *2nd Floor Foyer (6:15pm - 7:30pm)*
- Symposia Reception @ *Grand Ballroom CD (7:30pm - 9:30pm)*

Monday

VISWEEK EVENTS

- Symposia Posters @ *2nd Floor Foyer*
- Tutorial: Uncertainty and Parameter Space Analysis in Visualization @ *Grand Ballroom A*
- Tutorial: Introduction to Data Visualization on the Web with D3.js @ *Grand Ballroom B*
- Workshop: Interactive Visual Text Analytics: Task-Driven Analysis of Social Media Content @ *Willow AB*
- Workshop: Symposium on Visualization for Cyber Security @ *Redwood AB*

BioVis — *Grand Blrm C*

- Papers: Cellular Data
- Papers: Bio-molecular Data & Pathways
- Contest & Community
- Challenges Session, Awards & Closing Remarks

LDAV — *Grand Blrm D*

- Announcements, Keynote & Paper FF
- Papers: Visualization of Large Data
- Papers: Foundational Techniques for Large Data
- Awards

LUNCH BREAK

BREAK

Tuesday

VW

- VisWeek Posters @ *Grand Ballroom A*
- *Exhibits @ 2nd Floor Foyer*
- Tutorial: Good Practice of Visual Comm @ *Willow AB*

VAST — *Grand Blrm B*

- Papers: Clustering, Classification & Correlation
- Papers: Text and Categorical Data Analysis
- Papers: Visual-Computational Analysis of Multivariate Data

InfoVis — *Grand Blrm C*

- Papers: Evaluation and Methodology
- Papers: Graphs and Networks
- Papers: Representation & Perception

SciVis — *Grand Blrm D*

- SciVis Special Session: Four Views on Vis in Science & Edu.
- Papers: Evaluation
- Invited Papers: TVCG on Volume Visualization

- VisWeek Welcome & Keynote @ *Grand Ballroom BCD*

  Keynote: Lessons Learned Evaluating Two Decades of Novel Information Visualizations, *Mary Czerwinski*
- VisWeek Papers FF @ *Grand Ballroom C*

LUNCH BREAK

- Compass: Industry Lunch @ *2nd Floor Foyer*

BREAK

- Visweek Posters Fast Forward @ *Grand Ballroom C (6pm- 6:45pm)*

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At-a-Glance

Wednesday

VW EVENTS (Willow AB)	VAST (Grand Blrm B)	InfoVis (Grand Blrm C)	SciVis (Grand Blrm D)
VisWeek Papers Fast Forward @ Grand Ballroom C			
VisWeek Posters @ Grand Ballroom A / Exhibits @ 2nd Floor Foyer			
Industry Presentations: A View for the Future	Papers: Sensemaking and Collaboration	Papers: Space and Maps	Papers: Flow and Turbulence
BREAK			
Panel: Global Challenges in Financial Systemic Risk Analysis	VAST Special Session Visual Analytics in Practice	Papers: Design Spaces	Papers: Volume Data Handling
LUNCH BREAK			
Compass: Mentors' Lunch @ 2nd Floor Foyer			
Tutorial: Color Theory Methods for Visualization	Workshop: Visual Analytics in Healthcare—Open Health Data	Panel: Reproductable Visualization Research	Papers: Interaction and Rendering
		BREAK	
		Papers: TVCG on Information Visualization	Papers: Topology and Fields

VisWeek Poster Viewing @ Grand Ballroom A (6:15pm - 7:30pm)

VisWeek Reception @ Grand Ballroom BCD (7:30pm)

Art Show Opening @ the Reception.

Thursday

VW EVENTS (Willow AB)	VAST (Grand Blrm B)	InfoVis (Grand Blrm C)	SciVis (Grand Blrm D)
VisWeek Papers Fast Forward @ Grand Ballroom C			
VisWeek Posters @ Grand Ballroom A / Exhibits @ 2nd Floor Foyer			
Workshop: Scheherazade's Toolbox: Artists Meet Visualization	Papers: Space and Time + The Analysis Process	Papers: Interaction	Papers: Analytics
	BREAK		
	Papers: Applications, Design Studies, and Tools	InfoVis Special Session: Tales from the Trenches	Papers: Volume Rendering
LUNCH BREAK			
VisWeek Feedback Session @ Grand Ballroom B			
Tutorial: Interactive Visual Analysis of Scientific Data	Panel: Quality of Visualization: The Bake Off	Papers: Text and Time	Papers: Geo Applications
	BREAK		
	Papers: TVCG on Visual Analytics	Papers: Sketching and Designing Visualizations	Papers: Physical Science Applications
			SciVis Contest (6 - 6:30)

Compass: Meet the Candidate @ 2nd Floor Foyer

Friday

EVENTS (Grand Blrm B)	InfoVis (Grand Blrm C)	SciVis (Grand Blrm D)
VisWeek Papers Fast Forward @ Grand Ballroom C		
Panel: Balancing Personal & Professional Life as a Visualization Scientist	Papers: Education and Popular Applications	Papers: TVCG on Flow Visualization
BREAK		
VisWeek Closing & Capstone @ Grand Ballroom BCD Capstone: Help Me See! Some Thoughts From a Potential User, *Felice C. Frankel*		

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Program Details
VisWeek 2012
Sunday, 14 October

Full Day

Tutorial (8:30am - 5:55pm) *Grand Ballroom A*
Visualizing Data in R and Ggobi
Contributors: Di Cook, Heike Hofmann, Hadley Wickham

We will describe how the open-source statistical programming environment R, the interactive and dynamic graphics package ggobi, and the plotting system ggplot2, together support effective high-dimensional data exploration and visualization. The course will introduce these tools, and highlight how modern algorithmic techniques can help discern "real" structure from randomness in plots.

Workshop (8:30am - 5:55pm) *Willow AB*
BELIV 2012: Beyond Time and Errors - Novel Evaluation Methods for Visualization
Contributors: Enrico Bertini, Adam Perer, Heidi Lam, Petra Isenberg, Tobias Isenberg

The BELIV workshop series is a bi-annual event focusing on the challenges of evaluation in visualization. While it has been focused on information visualization in the past, BELIV 2012 aims at gathering researchers in all fields of visualization to continue the exploration of novel evaluation methods, and to structure the knowledge on evaluation in visualization around a schema, where researchers can easily identify unsolved problems and research gaps.

VAST Workshop (8:30am - 5:55pm) *Cedar*
VAST Challenge
Chairs: Kristen Cook, Georges Grinstein, Mark Whiting

The VAST Challenge is a participation category of the IEEE VAST Conference (part of VisWeek). The VAST Challenge continues in the footsteps of the VAST Challenges of 2008 through 2011, and the 2007 and 2006 contests with the purpose of pushing the forefront of visual analytics tools using benchmark data sets. The VAST Challenge workshop will be an event where contest organizers, participants, and conference attendees can come together to review and discuss this year's Challenge. The workshop will include presentations by participant about their submissions, invited speakers, panel discussions, and other activities.

Half day

Tutorial (8:30am - 12:10pm) *Grand Ballroom B*
Perception and Cognition for Imaging, Visualization, Visual Data Analysis and Computer Graphics
Contributor: Bernice E. Rogowitz

The visual representations provided by imaging, visualization, and computer graphics are processed with a highly evolved perceptual and cognitive systems in the human observer. This course will teach the principles of these systems and help practitioners apply this knowledge to create interactive visualization and computer graphics applications.

Tutorial (2:00pm - 5:55pm) *Grand Ballroom B*
Natural Language Processing for Text Visualization
Contributors: Daniela Oelke, Saeedeh Momtazi, Daniel A. Keim

The complexity of natural language challenges automated methods of natural language processing (NLP). We describe current visual analytics tools and underlying NLP methods for visualizing large quantities of text data in a way that helps users bridge the semantic gap between background knowledge and algorithmic output.

8:30am - 10:10am

BioVis Welcome *Grand Ballroom C*
BioVis Keynote: Project MindScope
Speaker: Christof Koch, *PhD, Chief Scientific Officer, Allen Institute of Brain Science*

The Allen Institute for Brain Science has initiated a ten year project to study the principles by which information is encoded, transformed and represented in the mammalian cerebral cortex and related structures. The Institute will build a series of brain observatories to identify, record and intervene in the neuronal networks underlying visually guided behaviors in the mouse, including visual perception, decision making and consciousness. This is a large-scale, in-house team effort to synthesize genomic, anatomical, physiological and theoretical knowledge into a description of the wiring scheme of the cortex, at both the structural and the functional levels. I will describe the associated computational and informatics challenges. The fruits of this cerebroscope will be freely available to the public.

8:45am - 10:10am

LDAV *Grand Ballroom D*
Welcome, Keynote, Paper Fast Forward
Keynote: Divide and Recombine: An Approach for Analyzing Large Datasets
Speaker: Pat Hanrahan, *Stanford University*

Analyzing large datasets is often difficult because systems and algorithms do not scale. Even routine processing tasks are difficult to run and may take a long time. Many common analytical algorithms cannot be applied to large datasets because they are either superlinear in time or space. In this talk I will describe our approach for analyzing large datasets that we call Divide and Recombine (D&R). D&R is built using RHIPE, a system that runs parallel R map-reduce jobs using Hadoop. We use D&R to run virtual experiments over large datasets. In a virtual experiment, we sample the data using a technique from experimental design, we then analyze the results of that experiment, and finally combine all the experiments into a single result. This is joint work with Bill Cleveland.

10:10am - 10:30am

Coffee Break

10:30am - 12:10pm

BioVis Papers *Grand Ballroom C*
Neurobiology
Chair: Hans-Christian Hege

Neurobiology Primer Talk, Christopher Bartlett

Interactive Extraction of Neural Structures with User-Guided Morphological Diffusion, Yong Wan, Hideo Otsuna, Chi-Bin Chien, Charles Hansen

INCIDE the Brain of a Bee: Visualising Honeybee Brain Activity in Real Time by Semantic Segmentation, Martin Strauch, Marc P. Broeg, Clemens Müthing, Paul Szyszka, Oliver Deussen, C. Giovanni Galizia, Dorit Merhof

Towards Real-Time Visualization of Detailed Neural Tissue Models: View Frustum Culling for Parallel Rendering, Juan Hernando, Felix Schürmann, Luis Pastor

Visualization of Serial Electron Microscopy Images Using Local Variance, David Mayerich, John Hart

LDAV Papers *Grand Ballroom D*
Interacting with Large Data

Panning and Zooming the Observable Universe with Subsequence-Matching Trees, Timothy Luciani

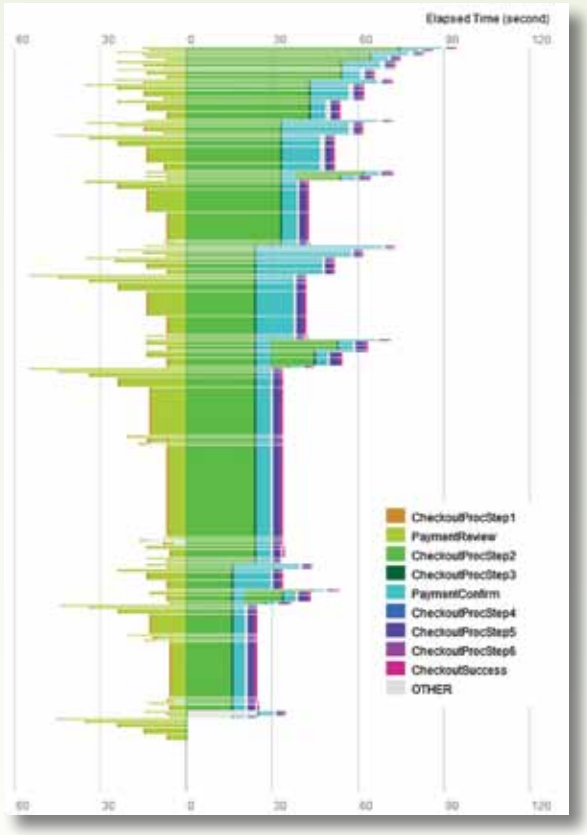
Interactive Exploration of Large-scale Time-varying Data using Dynamic Tracking Graphs, Wathsala Widanagamaachchi

Interactive Transfer Function Design on Large Multiresolution Volumes, Steven Martin

Query-driven Parallel Exploration of Large Datasets, Atanas Atanasov

12:10pm - 2:00pm

Lunch Break



2:00pm - 3:40pm

BioVis Papers *Grand Ballroom C*
Systems Biology and Omics Data
Chair: Larry Hunter

Systems Biology and Omics Data Primer Talk, Cydney Nielsen

MaTSE: The Microarray Time-Series Explorer, Paul Craig, Alan Cannon, Robert Kukla, Jessie Kennedy

Gene-RiViT: A Visualization Tool for Comparative Analysis of Gene Neighborhoods in Prokaryotes, Adam Price, Robert Kosara, Cynthia Gibas

ADVISe: Visualizing the Dynamics of Enzyme Annotations in UniProt/SwissProt, Sabrina Silveira, Artur Rodrigues, Raquel Melo-Minardi, Carlos Silveira, Wagner Meira Jr

Heterogeneity-based Guidance for Exploring Multiscale Data in Systems Biology, Martin Luboschik, Carsten Maus, Hans-Jörg Schulz, Heidrun Schumann, Adelinde Uhrmacher

LDAV Papers *Grand Ballroom D*
Features in Large Data

Efficient Parallel Extraction of Crack-free Isosurfaces from Adaptive Mesh Refinement (AMR) Data, Gunther Weber

Parallel Stream Surface Computation for Large Data Sets, David Camp

Salient Time Steps Selection from Large Scale Time-Varying Data Sets with Dynamic Time Warping, Xin Tong

On The Use of Graph Search Techniques for The Analysis of Extreme-scale Combustion Simulation Data, Janine Bennett

3:40pm - 4:15pm

Coffee Break

4:15pm - 5:30pm

LDAV Poster Fast Forward *Grand Ballroom D*
LDAV Panel: Insights into Large Data Analysis
Chair: Chris Johnson

4:15pm - 5:55pm

BioVis Poster Talks & Poster Fast Forwards *Grand Ballroom C*
Chair: Robert Kincaid & Cydney Nielsen

StratomeX: Enabling Visualization-Driven Cancer Subtype Analysis, Alexander Lex, Marc Streit, Hans-Joerg Schulz, Christian Partl, Dieter Schmalstieg, Peter J. Park, Nils Gehlenborg

Visualization and Exploration of 3D Toponome Data, Steffen Oeltze, Paul Klemm, Reyk Hillert, Bernhard Preim, Walter Schubert

compreheNGSive: A Tool for Exploring Next-Gen Sequencing Variants, Alex Bigelow, Miriah Meyer, Nicola Camp

MedSavant: Visual Analytics for Genetic Variation Datasets, Marc Fiume, Eric Smith, Andrew Brook, Michael Brudno

6:15pm - 7:30pm

Symposia Poster Session *2nd Floor Foyer*

7:30pm - 9:30pm

Symposia Reception *Grand Ballroom CD*

Monday, 15 October

Full Day

Tutorial (8:30am - 5:55pm) *Grand Ballroom A*
Uncertainty and Parameter Space Analysis in Visualization
Contributors: Christoph Heinzl, Stefan Bruckner, M. Eduard Gröller, Alex T. Pang, Hans-Christian Hege, Kristi Potter, Rüdiger Westermann, Torsten Möller

Visualization of uncertainty is increasingly important for a wide range of scientific and engineering applications, in which domain specialists require methods for understanding the reliability of original data and a pipeline of subsequent computations. In the tutorial we describe the combination of uncertainty visualization and parameter space analyses, which we believe is essential for the acceptance and applicability of future data analysis methods.

Workshop (8:30am - 5:55pm) *Willow AB*
Interactive Visual Text Analytics: Task-Driven Analysis of Social Media Content
Contributors: Eser Kandogan, Shixia Liu, John T. Stasko, Huahai Yang, Michelle X. Zhou

The goal of this workshop is to bring together researchers and practitioners interested in social media, text visualization, text analytics, and visual analytics, to define the emerging field of visual text analysis of social media. We are particularly interested in discussing tasks, techniques, and applications in different domains. In other words, we would like to establish a better understanding what major tasks that people aim to accomplish in using visual text analysis of social media and how different tasks call for different text analytics and/or interactive visualization techniques.

Workshop (8:30am - 5:55pm) *Redwood AB*
Symposium on Visualization for Cyber Security
Contributors: Dino Schweitzer, Daniel Quist, John Goodall

The International Symposium on Visualization for Cyber Security (VizSec) is a forum that brings together researchers and practitioners from academia, government, and industry to address the needs of the cyber security community through new and insightful visualization techniques. Our focus is to explore effective, scalable visual interfaces for security domains, where visualization may provide a distinct benefit, including computer forensics, reverse engineering, insider threat detection, cryptography, privacy, preventing 'user assisted' attacks, compliance management, wireless security, secure coding, and penetration testing in addition to traditional network security.

Half Day

Tutorial (8:30am - 12:10pm) *Grand Ballroom B*
Introduction to Data Visualization on the Web with D3.js
Contributors: Scott Murray, Jeffrey Heer, Jérôme Cukier

D3.js is a powerful JavaScript-based tool for creating web-based, interactive data visualizations. Our D3.js tutorial is intended for beginners familiar with basic visualization concepts, but with little or no experience with web development technologies such as HTML, CSS, JavaScript, and SVG.

Tutorial (2:00pm - 5:55pm) *Grand Ballroom B*
Connecting the Dots – Showing Relationships in Data and Beyond
Contributors: Marc Streit, Hans-Jörg Schulz, Alexander Lex

This tutorial discusses the visual expression of relationships in data, via a process we call linking. The three parts (what to link, how to link, and when to link) touch on interaction, perceptual grouping, and collaboration.

8:30am - 10:10am

BioVis Papers *Grand Ballroom C*
Cellular Data
Chair: Lars Linsen

Cellular Data Primer Talk, Larry Hunter

mzRepeat: Visual Analysis of Lipids in Mass Spectrometry, Shinichi Mukosaka, Kanae Teramoto, Hideki Koike

Epithelial Cell Reconstruction and Visualization of the Developing Drosophila Wing Imaginal Disc, David Breen, Thomas Widmann, Linge Bai, Frank Julicher, Christian Dahmann

Similarity Analysis of Cell Movements in Video Microscopy, Jens Fangerau, Burkhard Höckendorf, Joachim Wittbrodt, Heike Leitte

Visualizing Cells and their Connectivity Graphs for CompuCell3D, Randy Heiland, Maciek Swat, James Sluka, Benjamin Zaitlen, Abbas Shirinifard, Gilberto Thomas, Andrew Lumsdaine, James Glazier

8:45am - 10:10am

LDAV Announcements, Keynote, & Paper Fast Forward *Grand Ballroom D*

10:10am - 10:30am

Coffee Break

10:30am - 12:10pm

BioVis Papers *Grand Ballroom C*
Biomolecular Data and Pathways
Chair: Kay Nieselt

Biomolecular Data and Pathways Primer Talk, Igor Jurisica

Dynamic Channels in Biomolecular Systems: Path Analysis and Visualization, Norbert Lindow, Daniel Baum, Ana-Nicoleta Bondar, Hans-Christian Hege

Uncertainty-Aware Visual Analysis of Biochemical Reaction Networks, Corinna Vehlow, Jan Hasenauer, Andrei Kramer, Julian Heinrich, Nicole Radde, Frank Allgoewer, Daniel Weiskopf

enRoute: Dynamic Path Extraction from Biological Pathway Maps for In-Depth Experimental Data Analysis, Christian Partl, Alexander Lex, Marc Streit, Denis Kalkofen, Karl Kashofer, Dieter Schmalstieg

Implicit Surfaces for Interactive Graph Based Cavity Analysis of Molecular Simulations, Julius Parulek, Cagatay Turkay, Nathalie Reuter, Ivan Viola

○ **LDAV Papers** *Grand Ballroom D*
Visualization of Large Data

Visual Analysis of Massive Web Session Data, Zeqian Shen

Gaussian Mixture Model Based Volume Visualization, Shusen Liu

Virtual Rheoscopic Fluids for Dense, Large-Scale Fluid Flow Visualization, Paul Navratil

Meta Parallel Coordinates for Visualizing Features in Large, High-Dimensional, Time-Varying Data, Aritra Dasgupta

Redirecting Research in Large-format Displays for Visualization, Kenneth Moreland

12:10pm - 2:00pm

○ **Lunch Break**

2:00pm - 3:40pm

○ **BioVis** *Grand Ballroom C*
Contest and Community Session

○ **LDAV Papers** *Grand Ballroom D*
Foundational Techniques for Large Data

Group Dynamics in Scientific Visualization, Sedat Ozer

***In-situ* Fragment Detection at Scale,** Nathan Fabian

Flow-guided File Layout for Out-of-core Pathline Computation, Chunming Chen

Scalable Computation of Distributions from Large Scale Data Sets, Abon Chaudhuri

Using NoSQL Databases for Streaming Network Analysis, Brian Wylie

3:40pm - 4:15pm

○ **Coffee Break**

4:15pm - 4:45pm

○ **LDAV Awards Ceremony:** *Grand Ballroom D*
Best Paper and Best Poster

4:15pm - 5:30pm

○ **BioVis** *Grand Ballroom C*
Challenges Session

Key Challenges with Genome & Population Data, Inna Dubchak

Key Challenges with Visualising Macromolecules, Valerie Daggett

5:30pm - 5:55pm

○ **BioVis Awards Ceremony &** *Grand Ballroom C*
Closing Remarks

VisWeek 2013

25th IEEE Visualization Conference
20th IEEE InfoVis Conference
9th IEEE VAST Conference

Oct. 13 - 18, 2013
Atlanta, GA, USA

Call for Participation

VisWeek 2013 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 Scientific 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 2013
Contest / Challenge sample data released

March 21, 2013
Paper Abstracts (Mandatory)

March 31, 2013
Full Paper submission

April 28, 2013
Tutorial Proposals
Workshop Proposals

In 2013, IEEE VisWeek comes to the city of Atlanta, Georgia, the heart and high-tech center of the American south. Home to CNN and Coca-Cola, the spectacular Georgia Aquarium, and Centennial Olympic Park, Atlanta is an exceptionally easy to reach national and international airline hub. Visitors can discover the city's history from the Civil War to the Civil Rights Movement and experience a thriving cultural scene at the city's many theatres, museums, galleries, and family attractions. For more information please visit

www.visweek.org

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

Questions? Email info@visweek.org

VIsWeek 2013 General Chair:
John T. Stasko, *Georgia Institute of Technology*

Tuesday, 16 October

8:00am - 10:00am

VisWeek Welcome *Grand Ballroom BCD*

VisWeek Keynote: Lessons Learned Evaluating Two Decades of Novel Information Visualizations

Speaker: Mary Czerwinski, *Microsoft Research*

In this talk I will review the many number of ways my colleagues and I, especially George Robertson, have chosen to evaluate novel information visualization designs and the lessons we learned from them. Often, paradigms borrowed from Psychology were pivotal in discovering breakthroughs in our designs and guided us forward in our research. In addition, controlling for various variables such as gender, spatial ability, visualization ability, computer experience or gameplay made a huge difference in our findings and subsequent explorations. I will begin by giving an overview of many of our early experiments and then provide a more recent overview of information visualization research currently ongoing at Microsoft Research. Finally, I will close with new, on body and automated methods for tracking emotion, such as frustration, interest and engagement that might provide a new, useful direction for information visualization research.

10:00am - 10:20am

VisWeek Papers Fast Forward *Grand Ballroom C*

10:20am - 10:30am

Coffee Break

10:30am - 12:10pm

VAST Papers *Grand Ballroom B*

Clustering, Classification, and Correlation

Chair: Daniel Weiskopf

Visual Cluster Exploration of Web Clickstream Data, Jishang Wei, Zeqian Shen, Neel Sundaresan, Kwan-Liu Ma

An Adaptive Parameter Space-Filling Algorithm for Highly Interactive Cluster Exploration, Zafar Ahmed, Chris Weaver

Inter-Active Learning of Ad-Hoc Classifiers for Video Visual Analytics, Benjamin Höferlin, Rudolf Netzel, Markus Höferlin, Daniel Weiskopf, Gunther Heidemann

[TVCG] Scatter/Gather Clustering: Flexibly Incorporating User Feedback to Steer Clustering Results, M. Shahriar Hossain, Praveen Kumar Reddy Ojili, Cindy Grimm, Rolf Müller, Layne T. Watson, Naren Ramakrishnan

A Correlative Analysis Process in a Visual Analytics Environment, Abish Malik, Ross Maciejewski, Yun Jang, Whitney Huang, Niklas Elmqvist, David S. Ebert

InfoVis Papers *Grand Ballroom C*

Evaluation and Methodology

Chair: Leland Wilkinson

[Best Paper] How Capacity Limits of Attention Influence Information Visualization Effectiveness, Steve Haroz, David Whitney

Different Strokes for Different Folks: Visual Presentation Design Between Disciplines, Steven R. Gomez, Radu Jianu, Caroline Ziemkiewicz, Hua Guo, David H. Laidlaw

Does an Eye Tracker Tell the Truth about Visualizations?: Findings while Investigating Visualizations for Decision Making, Sung-Hee Kim, Zhihua Dong, Hanjun Xian, Benjavan Upatising, Ji Soo Yi

[Honorable Mention] Design Study Methodology: Reflections from the Trenches and the Stacks, Michael Sedlmair, Miriah Meyer, Tamara Munzner

Graphical Tests for Power Comparison of Competing Designs, Heike Hofmann, Lendie Follett, Mahbubul Majumder, Dianne Cook

SciVis Special Session *Grand Ballroom D*

Four Views on Visualization in Science and Education

Chair: Russell M. Taylor II

Scientific visualization is by its very nature driven by the needs of collaborators in the sciences who have data sets and the need to understand and to clearly and concisely describe them. The best collaborations drive research in both the domain science and visualization, with buy-in from both teams. This venue provides an opportunity for the visualization community to hear from and interact with four practicing scientists and educators who use visualization in their work and who are looking for visualization help with future projects. Each is involved in successful collaborations with visualization researchers and brings a unique perspective on what visualization means to them. Each of them will give examples of how visualization has been helpful to them in the past and a description of the kind of data sets and questions they deal with in their field. Together, this provides a cross-sectional view of what it looks like to be part of such collaborations from the viewpoint of the domain scientist.

12:10pm - 2:00pm

Lunch Break

Compass: Industry Lunch *2nd Floor Foyer*

2:00pm - 3:40pm

VAST Papers *Grand Ballroom B*

Text and Categorical Data Analysis

Chair: David S. Ebert

[TVCG] Visual Classifier Training for Text Document Retrieval, Florian Heimerl, Steffen Koch, Harald Bosch, Thomas Ertl

LeadLine: Interactive Visual Analysis of Text Data through Event Identification and Exploration, Wenwen Dou, Xiaoyu Wang, Drew Skau, William Ribarsky, Michelle Zhou

Relative N-Gram Signatures: Document Visualization at the Level of Character N-Grams, Magdalena Jankowska, Vlado Keselj, Evangelos Milios

[TVCG] [Honorable Mention] Reinventing the Contingency Wheel: Scalable Visual Analytics of Large Categorical Data, Bilal Alsallakh, Wolfgang Aigner, Silvia Miksch, M. Eduard Gröller

The Deshredder: A Visual Analytic Approach to Reconstructing Shredded Documents, Patrick Butler, Prithwish Chakraborty, Naren Ramakrishnan

○ **InfoVis Papers** *Grand Ballroom C*
Graphs and Networks
Chair: Nathalie Henry Riche

A User Study on Curved Edges in Graph Visualization, Kai Xu, Chris Rooney, Peter Passmore, Dong-Han Ham, Phong H. Nguyen

Compressed Adjacency Matrices: Untangling Gene Regulatory Networks, Kasper Dinkla, Michel A. Westenberg, Jarke J. van Wijk

Visualizing Network Traffic to Understand the Performance of Massively Parallel Simulations, Aaditya G. Landge, Joshua A. Levine, Katherine E. Isaacs, Abhinav Bhatele, Todd Gamblin, Martin Schulz, Steve H. Langer, Peer-Timo Bremer, Valerio Pascucci

Memorability of Visual Features in Network Diagrams, Kim Marriott, Helen Purchase, Michael Wybrow, Cagatay Goncu

Interactive Level-of-Detail Rendering of Large Graphs, Michael Zinsmaier, Ulrik Brandes, Oliver Deussen, Hendrik Strobelt

○ **SciVis Papers** *Grand Ballroom D*
Evaluation
Chair: Dan Keefe

Evaluation of Fast-Forward Video Visualization, Markus Höferlin, Kuno Kurzhals, Benjamin Höferlin, Gunther Heidemann, Daniel Weiskopf

Human Computation in Visualization: Using Purpose Driven Games for Robust Evaluation of Visualization Algorithms, Nafees Ahmed, Ziyi Zheng, Klaus Mueller

Evaluation of Multivariate Visualization on a Multivariate Task, Mark A. Livingston, Jonathan W. Decker, Zhuming Ai

A Data-Driven Approach to Hue-Preserving Color-Blending, Lars Kühne, Joachim Giesen, Zhiyuan Zhang, Sungsoo Ha, Klaus Mueller

Effects of Stereo and Screen Size on the Legibility of Three-Dimensional Streamtube Visualization, Jian Chen, Haipeng Cai, Alexander P. Auchus, David H. Laidlaw

2:00pm - 5:55pm

○ **Tutorial** *Willow AB*
Good Practice of Visual Communication Design in Scientific and Data Visualization
Chair: Marek Kultys

Graphic design is a broad discipline of organizing visual communication in a meaningful, accessible and engaging way. In this interdisciplinary tutorial the students will learn the basics of good graphic design practice necessary to create legible, clear and engaging scientific/data visualizations that make an impact.

3:40pm - 4:15pm

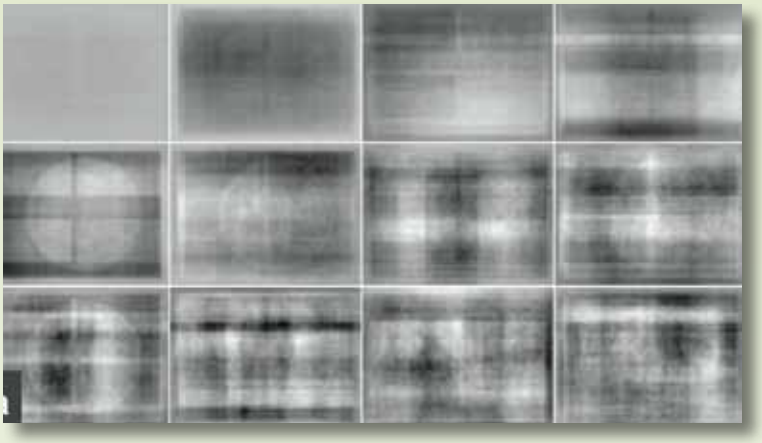
○ **Coffee Break**

4:15pm - 5:55pm

○ **VAST Papers** *Grand Ballroom B*
Visual-Computational Analysis of Multivariate Data
Chair: Jean-Daniel Fekete

Visual Pattern Discovery using Random Projections, Anushka Anand, Leland Wilkinson, Tuan Nhon Dang

iLAMP: Exploring High-Dimensional Spacing Through Backward Multidimensional Projection, Elisa Portes dos Santos Amorim, Emilio Vital Brazil, Joel Daniel II, Paulo Joia, Luis Gustavo Nonato, Mario Costa Sousa



Subspace Search and Visualization to Make Sense of Alternative Clusterings in High-Dimensional Data, Andrada Tatu, Fabian Maaß, Ines Färber, Enrico Bertini, Tobias Schreck, Thomas Seidl, Daniel Keim

Just-in-Time Annotation of Clusters, Outliers, and Trends in Point-Based Data Visualizations, Eser Kandogan

Dis-Function: Learning Distance Functions Interactively, Eli T. Brown, Jingjing Liu, Carla E. Brodley, Remco Chang

○ **InfoVis Papers** *Grand Ballroom C*
Representation and Perception
Chair:Enrico Bertini

[Honorable Mention] Visual Semiotics & Uncertainty Visualization: An Empirical Study, Alan M. MacEachren, Robert E. Roth, James O'Brien, Bonan Li, Derek Swingley, Mark Gahegan

Comparing Clusterings Using Bertin's Idea, Alexander Pilhöfer, Alexander Gribov, Antony Unwin

Perception of Visual Variables on Tiled Wall-Sized Displays for Information Visualization Applications, Anastasia Bezerianos, Petra Isenberg

Visualizing Flow of Uncertainty through Analytical Processes, Yingcai Wu, Guo-Xun Yuan, Kwan-Liu Ma

[Honorable Mention] Assessing the Effect of Visualizations on Bayesian Reasoning Through Crowdsourcing, Luana Micallef, Pierre Dragicevic, Jean-Daniel Fekete

○ **SciVis Invited Papers** *Grand Ballroom D*
TVCG on Volume Visualization
Chair: Deborah Silver

A Versatile Optical Model for Hybrid Rendering of Volume Data, Fei Yang, Qingde Li, Dehui Xiang, Yong Cao, Jie Tian

Unified Boundary-Aware Texturing for Interactive Volume Rendering, Timo Ropinski, Stefan Diepenbrock, Stefan Bruckner, Klaus Hinrichs, M. Eduard Gröller

Parallel Computation of 2D Morse-Smale Complexes, Nithin Shivashankar, Senthilnathan Maadaswamy, Vijay Natarajan

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

Multimodal Data Fusion Based on Mutual Information, Roger Bramon, Imma Boada, Anton Bardera, Joaquim Rodríguez, Miquel Feixas, Josep Puig, Mateu Sbert

6:00pm - 6:45pm

○ **VisWeek Posters Fast Forward** *Grand Ballroom C*

Wednesday, 17 October

8:00am - 8:30am

VisWeek Papers Fast Forward — *Grand Ballroom C*

8:30am - 10:10am

VisWeek Industry Presentations: A View for the Future — *Willow AB*

Contributors: Frank van Ham, *Researcher at IBM Netherlands*, John David Miller, *Principal Engineer at Intel*, Will Schroeder, *CEO Kitware*

Senior researchers from major players in the commercial visualization space discuss their vision of the next few years of information, data, and scientific visualization. Hear an industry perspective on important issues, upcoming challenges, and their visions for the future of visualization.

VAST Papers — *Grand Ballroom B*

Sensemaking and Collaboration

Chair: Niklas Elmqvist

[TVCG] An Affordance-Based Framework for Human Computation and Human-Computer Collaboration, R. Jordan Crouser, Remco Chang

[TVCG] Examining the Use of a Visual Analytics System for Sensemaking Tasks: Case Studies with Domain Experts, Youn-ah Kang, John T. Stasko

[TVCG] Semantic Interaction for Sensemaking: Inferring Analytical Reasoning for Model Steering, Alex Endert, Patrick Fiaux, Chris North

Analyst's Workspace: An Embodied Sensemaking Environment for Large, High Resolution Displays, Christopher Andrews, Chris North

SocialNetSense: Supporting Sensemaking of Social and Structural Features in Networks with Interactive Visualization, Liang Gou, Xiaolong (Luke) Zhang, Airong Luo, Patricia Anderson

InfoVis Papers — *Grand Ballroom C*

Space and Maps

Chair: Tobias Isenberg

Organizing Search Results with a Reference Map, Arlind Nocaj, Ulrik Brandes

Spatial Text Visualization Using Automatic Typographic Maps, Shehzad Afzal, Ross Maciejewski, Yun Jang, Niklas Elmqvist, David S. Ebert

Stacking-Based Visualization of Trajectory Attribute Data, Christian Tominski, Heidrun Schumann, Gennady Andrienko, Natalia Andrienko

Adaptive Composite Map Projections, Bernhard Jenny

Algorithms for Labeling Focus Regions, Martin Fink, Jan-Henrik Haunert, André Schulz, Joachim Spoerhase, Alexander Wolff

SciVis Papers — *Grand Ballroom D*

Flow and Turbulence

Chair: Eugene Zhang

Analysis of Streamline Separation at Infinity Using Time-Discrete Markov Chains, Wieland Reich, Gerik Scheuermann

Derived Metric Tensors for Flow Surface Visualization, Harald Obermaier, Kenneth I. Joy

Lagrangian Coherent Structures for Design Analysis of Revolving Doors, Benjamin Schindler, Raphael Fuchs, Stefan Barp, Jürgen Waser, Armin Pobitzer, Robert Carnecky, Krešimir Matković, Ronald Peikert

Turbulence Visualization at the Terascale on Desktop PCs, Marc Treib, Kai Bürger, Florian Reichl, Charles Meneveau, Alex Szalay, Rüdiger Westermann

Automatic Detection and Visualization of Qualitative Hemodynamic Characteristics in Cerebral Aneurysms, Rocco Gasteiger, Dirk J. Lehmann, Roy van Pelt, Gábor Janiga, Oliver Beuing, Anna Vilanova, Holger Theisel, Bernhard Preim

10:10am - 10:30am

Coffee Break

10:30am - 12:10pm

Panel — *Willow AB*

Global Challenges in Financial Systemic Risk Analysis: Defining Visual Analytics Solutions

Panelists: V. Lemieux, David S. Ebert, Brian Fisher, Mark Flood, Daniel Keim, Marcus Lem, William Wong

The financial crisis of 2007-2009 exposed the complexity of the global financial system. This panel will explore the use of Visual Analytics in analyzing financial systemic risk.

VAST Special Session — *Grand Ballroom B*

Visual Analytics in Practice

Chair: Jonathan C. Roberts

Jason Alcock, from Appature, who will talk about visualization in the context of medical marketing. Jonathan A. Schwabish, from the Congressional Budget Office, talking about visualization for government. Kevin Lynagh, from Kerning Labs, talking about commercial visualization. Shahtab Wahid, from Bloomberg, talking about data analytics for stock traders.

InfoVis Papers — *Grand Ballroom C*

Design Spaces

Chair: Tamara Munzner

Capturing the Design Space of Sequential Space-Filling Layouts, Thomas Baudel, Bertjan Broeksema

Taxonomy-Based Glyph Design—with a Case Study on Visualizing Workflows of Biological Experiments, Eamonn Maguire, Philippe Rocca-Serra, Susanna-Assunta Sansone, Jim Davies, Min Chen

An Empirical Model of Slope Ratio Comparisons, Justin Talbot, John Gerth, Pat Hanrahan

Representative Factor Generation for the Interactive Visual Analysis of High-Dimensional Data, Cagatay Turkay, Arvid Lundervold, Astri Johansen Lundervold, Helwig Hauser

Graphical Overlays: Using Layered Elements to Aid Chart Reading, Nicholas Kong, Maneesh Agrawala

SciVis Papers — *Grand Ballroom D*

Volume Data Handling

Chair: Chaoli Wang

[Honorable Mention] Interactive Volume Exploration of Petascale Microscopy Data Streams Using a Visualization-Driven Virtual Memory Approach, Markus Hadwiger, Johanna Beyer, Won-Ki Jeong, Hanspeter Pfister

An Adaptive Prediction-Based Approach to Lossless Compression of Floating-Point Volume Data, Nathaniel Fout, Kwan-Liu Ma

On the Interpolation of Data with Normally Distributed Uncertainty for Visualization, Steven Schlegel, Nico Korn, Gerik Scheuermann

Coherency-Based Curve Compression for High-Order Finite Element Model Visualization, Alexander Bock, Erik Sundén, Bingchen Liu, Burkhard Wünsche, Timo Ropinski

ElVis: A System for the Accurate and Interactive Visualization of High-Order Finite Element Solutions, Blake Nelson, Eric Liu, Robert Haimes, Robert M. Kirby

12:10pm - 2:00pm

○ **Lunch Break**

○ **Compass: Mentors' Lunch** *2nd Floor Foyer*

2:00pm - 3:40pm

○ **Panel** *Grand Ballroom C*

Reproducible Visualization Research: How Do We Get There?

Panelists: Juliana Freire, Gordon Kindlmann, Tamara Munzner, Tim Dwyer

Science relies on the reproducible. But visualization research is often hard to reproduce, and there is a drive in other areas of computational science to improve the reproducibility of research. What changes are needed to visualization research to assure greater reproducibility?

○ **SciVis Papers** *Grand Ballroom D*

Interaction and Rendering

Chair: Xiaoyu Wang

WYSIWYP: What You See Is What You Pick, Alexander Wiebel, Frans M. Vos, David Foerster, Hans-Christian Hege

[Honorable Mention] Efficient Structure-Aware Selection Techniques for 3D Point Cloud Visualizations with 2DOF Input, Lingyun Yu, Konstantinos Efstathiou, Petra Isenberg, Tobias Isenberg

Sketching Uncertainty into Simulations, Hrvoje Ribičić, Jürgen Waser, Roman Gurbat, Bernhard Sadransky, M. Eduard Gröller

A Perceptual-Statistics Shading Model, Veronika Šoltészová, Cagatay Turkay, Mark C. Price, Ivan Viola

Visual Steering and Verification of Mass Spectrometry Data Factorization in Air Quality Research, Daniel Engel, Klaus Greff, Christoph Garth, Keith Bein, Anthony Wexler, Bernd Hamann, Hans Hagen

2:00pm - 5:55pm

○ **Workshop** *Grand Ballroom B*

Visual Analytics in Healthcare - Open Health Data

Chair: Jesus J. Caban, David Gotz

○ **Tutorial** *Willow AB*

Color Theory Methods for Visualization

Chair: Theresa-Marie Rhyne

We highlight the usage of various color theory methods and tools for creating effective visualizations and visual analytics. This hands-on session will describe examples of colormaps in a different application areas, and teach how to build and evaluate color schemes with a variety of online tools and mobile apps.

3:40pm - 4:15pm

○ **Coffee Break**

4:15pm - 5:55pm

○ **InfoVis Invited Papers** *Grand Ballroom C*

TVCG on Information Visualization

Chair: Stephen North

Empirical Studies in Information Visualization: Seven Scenarios, Heidi Lam, Enrico Bertini, Petra Isenberg, Catherine Plaisant, Sheelagh Carpendale

Enhanced Spatial Stability with Hilbert and Moore Treemaps, Susanne Tak, Andy Cockburn

LineAO - Improved Three-Dimensional Line Rendering, Sebastian Eichelbaum, Mario Hlawitschka, Gerik Scheuermann

Using Patterns to Encode Color Information for Dichromats, Behzad Sajadi, Aditi Majumder, Manuel M. Oliveira, Rosália G. Schneider, Ramesh Raskar

Toward Visualization for Games: Theory, Design Space, and Patterns, Brian Bowman, Niklas Elmqvist, T.J. Jankun-Kelly

○ **SciVis Papers** *Grand Ballroom D*

Topology and Fields

Chair: Georgeta-Elisabeta Marai

Generalized Topological Simplification of Scalar Fields on Surfaces, Julien Tierny, Valerio Pascucci

Computing Morse-Smale Complexes with Accurate Geometry, Attila Gyulassy, Peer-Timo Bremer, Valerio Pascucci

Visualization of Temporal Similarity in Field Data, Steffen Frey, Filip Sadlo, Thomas Ertl

Visualizing Nuclear Scission Through a Multifield Extension of Topological Analysis, David Duke, Hamish Carr, Aaron Knoll, Nicolas Schunck, Hai Ah Nam, Andrzej Staszczak

Augmented Topological Descriptors of Pore Networks for Material Science, Daniela M. Ushizima, Dmitriy Morozov, Gunther H. Weber, Andrea G.C. Bianchi, James A. Sethian, E. Wes Bethel

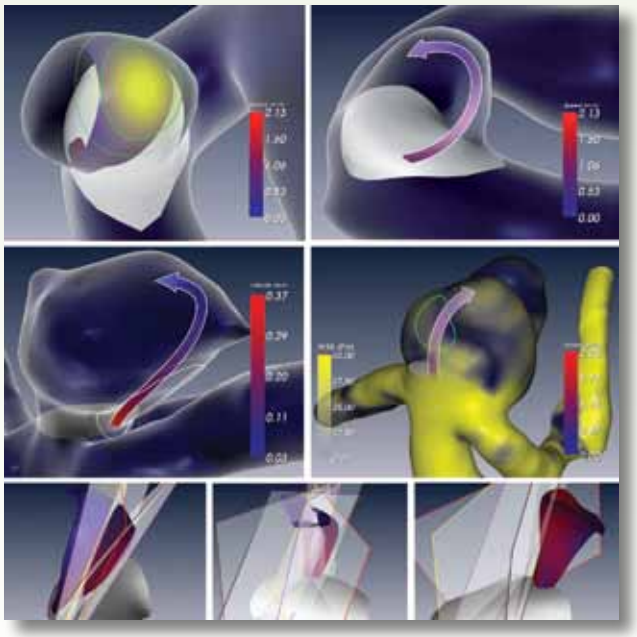
6:15pm - 7:30pm

○ **VisWeek Poster Viewing** *Grand Ballroom A*

7:30pm - 9:30pm

○ **VisWeek Reception** *Grand Ballroom BCD*

Art Show Opening



Thursday, 18 October

8:00am - 8:30am

○ **VisWeek Papers Fast Forward** *Grand Ballroom C*

8:30am - 12:10pm

○ **Workshop** *Willow AB*
Scheherazade's Toolbox: Artists Meet Visualization
Chair: Francesca Samsel

This workshop will explore the artist's toolbox, and open discussion to which tools might be put to use. The goal of this workshop is to tap into the participating artist's expertise and discuss how to effectively employ their tools while maintaining the integrity of the visualization and the science.

8:30am - 10:10am

○ **VAST Papers** *Grand Ballroom B*
Space and Time + The Analysis Process
Chair: Bill Ribarsky + Brian Fisher

[TVCG] A Visual Analytics Approach to Multi-scale Exploration of Environmental Time Series, Mike Sips, Patrick Köthur, Andrea Unger, Hans-Christian Hege, Doris Dransch

Visual Analytics Methods for Categoric Spatio-Temporal Data, Tatiana von Landesberger, Sebastian Bremm, Natalia Andrienko, Gennady Andrienko, Maria Tekusova

Watch This: A Taxonomy for Dynamic Data Visualization, Joseph Cottam, Andrew Lumsdaine, Chris Weaver

[TVCG] The User Puzzle - Explaining the Interaction with Visual Analytics Systems, Margit Pohl, Michael Smuc, Eva Mayr

[TVCG] [Honorable Mention] Enterprise Data Analysis and Visualization: An Interview Study, Sean Kandel, Andreas Paepcke, Joseph M. Hellerstein, Jeffrey Heer

○ **InfoVis Papers** *Grand Ballroom C*
Interaction
Chair: Miriah Meyer

Beyond Mouse and Keyboard: Expanding Design Considerations for Information Visualization Interactions, Bongshin Lee, Petra Isenberg, Nathalie Henry Riche, Sheelagh Carpendale

Intelligent Graph Layout Using Many Users' Input, Xiaoru Yuan, Limei Che, Yifan Hu, Xin Zhang

PivotPaths: Strolling through Faceted Information Spaces, Marian Dörk, Nathalie Henry Riche, Gonzalo Ramos, Susan Dumais

Interaction Support for Visual Comparison Inspired by Natural Behavior, Christian Tominski, Camilla Forsell, Jimmy Johansson

RelEx: Visualization for Actively Changing Overlay Network Specifications, Michael Sedlmair, Annika Frank, Tamara Munzner, Andreas Butz

○ **SciVis Papers** *Grand Ballroom D*
Analytics
Chair: Helwig Hauser

Multivariate Data Analysis Using Persistence-Based Filtering and Topological Signatures, Bastian Rieck, Hubert Mara, Heike Leitte

Surface-Based Structure Analysis and Visualization for Multifield Time-Varying Datasets, Samer S. Barakat, Markus Rütten, Xavier Tricoche

[Invited TVCG] Integrating Isosurface Statistics and Histograms, Brian Duffy, Hamish Carr, Torsten Möller

[Invited TVCG] ViSizer: A Visualization Resizing Framework, Yingcai Wu, Xiaotong Liu, Shixia Liu, Kwan-Liu Ma

[Invited TVCG] TripAdvisorN-D: A Tourism-Inspired High-Dimensional Space Exploration Framework with Overview and Detail, Julia EunJu Nam, Klaus Mueller

10:10am - 10:30am

○ **Coffee Break**

10:30am - 12:10pm

○ **VAST Papers** *Grand Ballroom B*
Applications,Design Studies, and Tools
Chair: Enrico Bertini

[TVCG] [Best Paper] Visual Analytics Methodology for Eye Movement Studies, Gennady Andrienko, Natalia Andrienko, Michael Burch, Daniel Weiskopf

Spatiotemporal Social Media Analytics for Abnormal Event Detection using Seasonal-Trend Decomposition, Junghoon Chae, Dennis Thom, Harald Bosch, Yun Jang, Ross Maciejewski, David S. Ebert, Thomas Ertl

AlVis: Situation Awareness in the Surveillance of Road Tunnels, Harald Piringer, Matthias Buchetics, Rudolf Benedik

Smart Super Views—A Knowledge-Assisted Interface for Medical Visualization, Gabriel Mistelbauer, Hamed Bouzari, Rüdiger Schernthaner, Ivan Baclija, Arnold Köchl, Stefan Bruckner, Milos Sramek, M. Eduard Gröller

Visual Analytics for the Big Data Era—A Comparative Review of State-of-the-Art Commercial Systems, Leishi zhang, Andreas Stoffel, Michael Behrisch, Sebastian Mittelstädt, Tobias Schreck, René Pompl, Stefan Hagen Weber, Holger Last, Daniel Keim

○ **InfoVis Special Session** *Grand Ballroom C*
Tales from the Trenches
Chair: Frank van Ham

Jon Hopson, from Bungie, who will talk about game player visualization based on telemetry and other data sources. Kim Rees, from Periscopic, who will talk about building visualizations for non-profits. Lori Williams, from Tableau, who will talk about visualizing how users use a popular piece of desktop/web software (Tableau Public.) Peter Speyer, from the Institute for Health Metrics and Evaluation, who will talk about visualizing health information.

○ **SciVis Papers** *Grand Ballroom D*
Volume Rendering
Chair: Carlos Correa

Fuzzy Volume Rendering, Nathaniel Fout, Kwan-Liu Ma

Automatic Tuning of Spatially Varying Transfer Functions for Blood Vessel Visualization, Gunnar Läthén, Stefan Lindholm, Reiner Lenz, Anders Persson, Magnus Borga

[Best Paper] Hierarchical Exploration of Volumes Using Multilevel Segmentation of the Intensity-Gradient Histograms, Cheuk Yiu Ip, Amitabh Varshney, Joseph JaJa

Historygrams: Enabling Interactive Global Illumination in Direct Volume Rendering using Photon Mapping, Daniel Jönsson, Joel Kronander, Timo Ropinski, Anders Ynnerman

Structure-Aware Lighting Design for Volume Visualization, Yubo Tao, Hai Lin, Feng Dong, Chao Wang, Gordon Clapworthy, Hujun Bao

12:10pm - 2:00pm

○ Lunch Break; Feedback Session: Open to all — *Grand Ballroom B*

2:00pm - 3:40pm

○ Panel — *Grand Ballroom B*

Quality of Visualization: The Bake Off

Panelists: Min Chen, Kelly Gaither, M. Eduard Gröller, Penny Rheingans, Matthew O. Ward

What does "quality" mean when discussing visualization? Algorithmic quality? Empirical studies? Measurements of quality? Real-world users? All or none of the above?

○ InfoVis Papers — *Grand Ballroom C*

Text and Time

Chair: Melanie Tory

Facilitating Discourse Analysis with Interactive Visualization, Jian Zhao, Fanny Chevalier, Christopher Collins, Ravin Balakrishnan

Whisper: Tracing the Spatiotemporal Process of Information Diffusion in Real Time, Nan Cao, Yu-Ru Lin, Xiaohua Sun, David Lazer, Shixia Liu, Huamin Qu

Exploring Flow, Factors, and Outcomes of Temporal Event Sequences with the Outflow Visualization, Krist Wongsuphasawat, David Gotz

RankExplorer: Visualization of Ranking Changes in Large Time Series Data, Conglei Shi, Weiwei Cui, Shixia Liu, Panpan Xu, Wei Chen, Huamin Qu

Design Considerations for Optimizing Storyline Visualizations, Yuzuru Tanahashi, Kwan-Liu Ma

○ SciVis Papers — *Grand Ballroom D*

Geo Applications

Chair: Jens Krüger

Visualization of Astronomical Nebulae via Distributed Multi-GPU Compressed Sensing Tomography, Stephan Wenger, Marco Ament, Stefan Guthe, Dirk Lorenz, Andreas Tillmann, Daniel Weiskopf, Marcus Magnor

Visualization of Flow Behavior in Earth Mantle Convection, Simon Schröder, John A. Peterson, Harald Obermaier, Louise H. Kellogg, Kenneth I. Joy, Hans Hagen

Interactive Retro-Deformation of Terrain for Reconstructing 3D Fault Displacements, Rolf Westerteiger, Tracy Compton, Tony Bernardin, Eric Cowgill, Klaus Gwinner, Bernd Hamann, Andreas Gerndt, Hans Hagen

A Visual Analysis Concept for the Validation of Geoscientific Simulation Models, Andrea Unger, Sven Schulte, Volker Klemann, Doris Dransch

SeiVis: An Interactive Visual Subsurface Modeling Application, Thomas Höllt, Wolfgang Freiler, Fritz M. Gschwantner, Helmut Doleisch, Gabor Heinemann, Markus Hadwiger

2:00pm - 5:55pm

○ Tutorial — *Willow AB*

Interactive Visual Analysis of Scientific Data

Chairs: Steffen Oeltze, Helmut Doleisch, Helwig Hauser, Gunther Weber

Interactive visual analysis (IVA) comprises concepts and techniques for a user-guided knowledge discovery in data with complex spatiotemporal, multi-variate, multi-modal, or multi-run/ensemble properties. In this tutorial, we discuss examples for successful applications of IVA to scientific data from various fields: automotive engineering, climate research, biology, and medicine.

3:40pm - 4:15pm

○ Coffee Break

4:15pm - 5:55pm

○ VAST Invited Papers — *Grand Ballroom B*

TVCG on Visual Analytics

Chair: Silvia Miksch

Evaluating the Role of Time in Investigative Analysis of Document Collections, Bum chul Kwon, Waqas Javed, Sohaib Ghani, Niklas Elmqvist, Ji Soo Yi, David S. Ebert

Coherent Time-Varying Graph Drawing with MultiFocus+Context Interaction, Kun-Chuan Feng, Chaoli Wang, Han-Wei Shen, Tong-Yee Lee

TimeSeer: Scagnostics for High-Dimensional Time Series, Tuan Dang, Anushka Anand, Leland Wilkinson

Simplification of Node Position Data for Interactive Visualization of Dynamic Datasets, Paul Rosen, Voicu Popescu

Visualization and Visual Analysis of Multi-faceted Scientific Data: a Survey, Johannes Kehrer, Helwig Hauser

○ InfoVis Papers — *Grand Ballroom C*

Sketching and Designing Visualizations

Chair: Caroline Ziemkiewicz

Evaluating the Effect of Style in Information Visualization, Andrew Vande Moere, Martin Tomitsch, Christoph Wimmer, Christoph Boesch, Thomas Grechenig

Sketchy Rendering for Information Visualization, Jo Wood, Petra Isenberg, Tobias Isenberg, Jason Dykes, Nadia Boukhelifa, Aidan Slingsby

An Empirical Study on Using Visual Embellishments in Visualization, Rita Borgo, Alfie Abdul-Rahman, Farhan Mohamed, Philip W. Grant, Irene Reppa, Luciano Floridi, Min Chen

Evaluating Sketchiness as a Visual Variable for the Depiction of Qualitative Uncertainty, Nadia Boukhelifa, Anastasia Bezerianos, Tobias Isenberg, Jean-Daniel Fekete

Understanding Pen and Touch Interaction for Data Exploration on Interactive Whiteboards, Jagoda Walny, Bongshin Lee, Paul Johns, Nathalie Henry Riche, Sheelagh Carpendale

○ SciVis Papers — *Grand Ballroom D*

Physical Science Applications

Chair: Heike Leitte

KnotPad: Visualizing and Exploring Knot Theory with Fluid Reidemeister Moves, Hui Zhang, Jianguang Weng, Lin Jing, Yiwen Zhong

Visualization of Electrostatic Dipoles in Molecular Dynamics of Metal Oxides, Sebastian Grottel, Philipp Beck, Christoph Müller, Guido Reina, Johannes Roth, Hans-Rainer Trebin, Thomas Ertl

Cumulative Heat Diffusion Using Volume Gradient Operator for Volume Analysis, Krishna Chaitanya Gurijala, Lei Wang, Arie Kaufman

A Novel Approach to Visualizing Dark Matter Simulations, Ralf Kaehler, Oliver Hahn, Tom Abel

Visual Data Analysis as an Integral Part of Environmental Management, Joerg Meyer, E. Wes Bethel, Jennifer L. Horsman, Susan S. Hubbard, Harinarayan Krishnan, Alexandru Romosan, Elizabeth H. Keating, Laura Monroe, Richard Strelitz, Phil Moore, Glenn Taylor, Ben Torkian, Timothy C. Johnson, Ian Gorton

6:00pm - 6:30pm

○ SciVis Contest — *Grand Ballroom D*

6:00pm - 8:00pm

○ Compass: Meet the Candidate — *2nd Floor Foyer*

Friday, 19 October

8:00am - 8:30am

○ **VisWeek Papers Fast Forward** *Grand Ballroom C*

8:30am - 10:10am

○ **Panel** *Grand Ballroom B*

Balancing Personal and Professional Life as a Visualization Scientist

Panelists: Robert S. Laramee, Robert M. Kirby, Robert J. Moorhead, Klaus Mueller, Melanie Tory, Daniel Weiskopf

Balancing personal and professional lives is a task we all grapple with. How do scientists in visualization achieve this, and how does the nature of the field interact with the work and academic environment and the personal lives of its practitioners?

Doctoral Colloquium 2013

CALL FOR PARTICIPATION

VisWeek 2013 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

○ **InfoVis Papers** *Grand Ballroom C*

Education and Popular Applications

Chair: Danyel Fisher

The DeepTree Exhibit: Visualizing the Tree of Life to Facilitate Informal Learning, Florian Block, Michael S. Horn, Brenda Caldwell Phillips, Judy Diamond, E. Margaret Evans, Chia Shen

Living Liquid: Design and Evaluation of an Exploratory Visualization Tool for Museum Visitors, Joyce Ma, Isaac Liao, Kwan-Liu Ma, Jennifer Frazier

Visualizing Student Histories Using Clustering and Composition, David Trimm, Penny Rheingans, Marie desJardins

SnapShot: Visualization to Propel Ice Hockey Analytics, Hannah Pileggi, Charles D. Stolper, J. Michael Boyle, John T. Stasko

○ **SciVis Invited Papers** *Grand Ballroom D*

TVCG on Flow Visualization

Chair: Hans Hagen

Mesh-Driven Vector Field Clustering and Visualization: An Image-Based Approach, Zhenmin Peng, Edward Grundy, Robert S. Laramee, Guoning Chen, T. Nick Croft

Hierarchical Streamline Bundles, Hongfeng Yu, Chaoli Wang, Ching-Kuang Shene, Jacqueline H. Chen

Efficient Computation of Combinatorial Feature Flow Fields, Jan Reininghaus, Jens Kasten, Tino Weinkauf, Ingrid Hotz

A Time-Dependent Vector Field Topology Based on Streak Surfaces, Markus Üffinger, Filip Sadlo, Thomas Ertl

Robust Morse Decompositions of Piecewise Constant Vector Fields, Andrzej Szymczak, Eugene Zhang

10:10am - 10:30am

○ **Coffee Break**

10:30am - 12:30pm

○ **VisWeek Closing** *Grand Ballroom BCD*

Capstone Speaker: Help Me See! Some Thoughts From a Potential User

Speaker: Felice C. Frankel, *MIT Research Scientist*

What you are doing is critical and, in fact, your role is more important than ever in this age of massive data. I desperately want to use your work, but sometimes I just cannot seem to wrap my head around what you are showing—even if it really looks cool. Cool doesn't cut it for me. This talk will give examples from my own successes and failures in photography and graphics and suggest, with a little imagination and open minds, there might be some lessons learned from my own commitment to delving into and communicating information.

VisWeek Posters & Contests

SciVis Posters

Feature Sensitive Isosurface Extraction from Gradient Data, Arindam Bhattacharya, Rephael Wenger

An Extensible Framework for Modeling Simplicial Complexes, David Canino, Leila De Floriani

[Best Poster] Exploring Flow Fields Using Fractal Analysis of Field Lines, Abon Chaudhuri, Teng-Yok Lee, Han-Wei Shen, Marc Khoury, Rephael Wenger

Dimension-Independent Simplification and Multi-Resolution Representation of Morse Complexes, Lidija Comic, Leila De Floriani, Federico Iuricich

Arrangement of Product Data in CAVE systems, Elisabeth Dittrich, Johann Habakuk Israel

Recent Advances in the Equalizer Parallel Rendering Framework, Stefan Eilemann

Exploring Vector Fields with Distribution-based Streamline Analysis, Kewei Lu, Abon Chaudhuri, Teng-Yok Lee, Alexander G. Suttmiller, Han-Wei Shen, Pak Chung Wong

A Novel Method for Tracking Tensor-based Regions of Interest in Large-Scale, Spatially-Dense Turbulent Combustion Data, Timothy Luciani, Adrian Maries, Hoang Tran, Levent Yilmaz, Mehdi Nik

[Honorable Mention] Whole-Brain Vascular Reconstruction, Simulation, and Visualization, Thomas Marrinan, Ian Gould, Chih-Yang Hsu, Andreas Linninger

[Honorable Mention] VisNEST - Interactive Analysis of Neural Activity Data, Christian Nowke, Bernd Hentschel, Torsten Kuhlen, Jochen Eppler, Sacha van Albada, Rembrandt Bakker, Markus Diesmann, Maximilian Schmidt

Query-driven Analysis of Plasma-based Particle Acceleration Data, Oliver Rübel, Cameron G.R. Geddes, Min Chen, Estelle Cormier-Michel, E. Wes Bethel

Tensor Approximation Properties for Multiresolution and Multiscale Volume Visualization, Susanne K. Suter, Renato Pajarola

Multiscale Interactive Visualization: Concrete Achievements, Debora Testi, Gordon Clapworthy, Stephen Aylward, Xavier Planes, Richard Christie

Visualizing Flu Pandemic for Model Validation, Karla Vega, Kelly Gaither, Francesca Samsel, Gregory P. Johnson, Nedialko Dimitrov, Lauren Ancel Meyers

Extending the Processing Programming Environment to Tiled Displays, Brandt Westing, Robert Turknett

Feature-Enhanced Map for 2D Multivariate Data with Uncertainty, Keqin Wu, Song Zhang

Towards Constructing a Fiber Bundle Atlas on Porcine Hearts with Diffusion Tensor Imaging, Ruiyi Wu, Song Zhang, Allen Crow

InfoVis Posters

Using Entropy in Enhancing Visualization of High Dimensional Categorical Data, Jamal Alsakran, Ye Zhao, Xiaoke Huang, Alex Midget, Jing Yang

Animated Transitions and Navigation in Dynamic Networks, Benjamin Bach, Emmanuel Pietriga, Jean-Daniel Fekete

Facettice: Integrating Faceted Navigation and Concept Lattices for Visual Data Exploration, Benjamin Bach, Jan Polowinski, Dietrich Kammer

The Effect of Information Visualization Delivery on Narrative Construction and Development, Donia Badawood, Jo Wood

Clustering Large Image Collections through Pixel Descriptors, Tuan Dang, Leland Wilkinson

A Design, Analysis and Evaluation Model to Support the Visualization Designer-User, Iain Dillingham, Jason Dykes, Jo Wood

Visualizing Book Similarity as Topographic Map, Martin Gronemann, Michael Jünger

ProxiViz: an Interactive Visualization Technique to Overcome Multidimensional Scaling Artifacts, Nicolas Heulot, Michaäl Aupetit, Jean-Daniel Fekete

[Best Poster] Towards Visual Sedimentation, Samuel Huron, Romain Vuillemot, Jean-Daniel Fekete

Investigating Physical Visualizations, Yvonne Jansen, Pierre Dragicevic, Jean-Daniel Fekete

A New Radial Space-Filling Visualization Approach for Planar st-Graphs, Ilir Jusufi, Andreas Kerren, Yuanmao Yuanmao

Comparing Interactive Web-Based Visualization Rendering Techniques, Daniel E. Kee, Liz Salowitz, Remco Chang

Interactive Word Cloud Rendering with Semantic Zooming, Xiaotong Liu, Kang-Che Lee, Teng-Yok Lee, Han-Wei Shen

Practical Web Based Visualization for Comparative Energy Usage Analysis, Christopher Maness, Chad Steed, Olufemi Omitaomu

The Beatles Genome Project: Cluster Analysis and Visualization of Popular Music, Douglas Mason

Visualization Technique of Gene Network and Ontology Applying Edge Bundling, Rina Nakazawa, Takayuki Itoh, Jun Sese, Aika Terada

[Honorable Mention] Progressive Horizon Graphs: Improving Small Multiples Visualization of Time Series, Charles Perin, Frederic Vernier, Jean-Daniel Fekete

"Show Me the Cracks in Our Teams": Visual Representations of Demographic Diversity Faultlines, Tuan Pham, Ronald Metoyer, Katerina Bezrukova, Chester Spell

SketchPad$^{N\text{-}D}$: An Interface for High-Dimensional Dataset Generation and Editing, Puripant Ruchikachorn, Bing Wang, Klaus Mueller

Visualizing *InfoVis* Researchers using *ContactTrees*, Arnaud Sallaberry, Kwn-Liu Ma

OD Maps for Studying Historical Internal Migration in Ireland, Aidan Slingsby, Mary Kelly, Jason Dykes, Jo Wood

Toward Composable Interactive Visualizations, Karl Smeltzer, Martin Erwig, Ronald Metoyer, Christophe Torne

Interactive Visual Clustering of High Dimensional Data by Exploring Low-Dimensional Subspaces, Adrian Waddell, R. Wayne Oldford

A Multi-Dimensional Data Visualization Applying a Scatterplot Packing Technique, Zheng Yunzhu, Haruka Suematsu, Takayuki Itoh, Ryohei Fujimaki, Satoshi Morinaga, Yoshinobu Kawahara

VAST Posters

Information Retrieval Failure Analysis: Visual Analytics as a Support for Interactive "What-If"-Investigation, Marco Angelini, Nicola Ferro, Guido Granato, Giuseppe Santucci, Gianmaria Silvello

A Visual Analytics Approach to Understanding Cycling Behaviour, Roger Beecham, Jo Wood, Audrey Bowerman

Matrix-Based Visual Correlation Analysis on Large Timeseries Data, Michael Behrisch, James Davey, Tobias Schreck, Daniel Keim, Jörn Kohlhammer

Feature-Similarity Visualization of MRI Cortical Surface Data, Ian Bowman, Shantanu Joshi, Vaughan Greer, Jack Van Horn

Augmenting Visual Representation of Affectively Charged Information using Sound Graphs, Nadya A. Calderon, Bernhard E. Riecke, Brian Fisher

Time-Oriented Visualization and Anticipation, Cindy Chamberland, Francois Vachon, Jean-Francois Gagnon, Simon Banbury, Sebastien Tremblay

Visualising Variations in Household Energy Consumption, Sarah Goodwin, Jason Dykes

Optimizing an SPT-Tree for Visual Analytics, Connor Gramazio, Remco Chang

Using Translational Science in Visual Analytics, Tera Marie Green, Brian Fisher

Incorporating GOMS Analysis into the Design of an EEG Data Visual Analysis Tool, Hua Guo, Diem Tran, David H. Laidlaw

[Honorable Mention] Visualizing Cyber Physical Data Streams Using Radial Pixel Rings, Ming Hao, Manish Marwah, Sebastian Mittelstadt, Halldór Janetzko, Daniel Keim, Umeshwar Dayal, Cullen Bash, Carlos Felix, Chandrakant Patel, Meichun Hsu

[Best Poster] Exploring the Impact of Emotion on Visual Judgement, Lane Harrison, Remco Chang, Aidong Lu

Visualizing Flows of Images in Social Media, Masahiko Itoh, Masashi Toyoda, Tetsuya Kamijo, Masaru Kitsuregawa

Using Visual Analytics to Detect Problems in Datasets Collected From Photo-Sharing Services, Alexander Kachkaev, Jo Wood

A Generic Model for the Integration of Interactive Visualization and Statistical Computing Using R, Johannes Kehrer, Roland N. Boubela, Peter Filzmoser, Harald Piringer

The Spatiotemporal Multivariate Hypercube for Discovery of Patterns in Event Data, Fred Olislagers, Marcel Worring

Priming Locus of Control to Affect Performance, Alvitta Ottley, R. Jordan Crouser, Caroline Ziemkiewicz, Remco Chang

Visual Exploration of Local Interest Points in Sets of Time Series, Tobias Schreck, Lyubka Sharalieva, Franz Wanner, Juergen Bernard, Tobias Ruppert, Tatiana von Landesberger, Benjamin Bustos

Infographics at the Congressional Budget Office, Jonathan Schwabish

A Case Study: Tracking and Visualizing the Evolution of Dark Matter Halos and Groups of Satellite Halos in Cosmology Simulations, Jay Takle, Deborah Silver, Katrin Heitmann

VDQAM: A Toolkit for Database Quality Evaluation based on Visual Morphology, Dongxing Teng, Haiyan Yang, Cuixia Ma, Hongan Wang

LensingWikipedia: Parsing Text for the Interactive Visualization of Human History, Ravikiran Vadlapudi, Maryam Siahbani, Anoop Sarkar, John Dill

SciVis Contest

Winner

Visualization of Polarization Domains in Barium Titanate, Katrin Scharnowski, Michael Krone, Philipp Beck, Filip Sadlo

Second Place

Visual Analysis of Phase Transitions and Polarisation Domains in Barium Titanate, Florian Lindemann, Tobias Brix, Stefan Diepenbrock Jörg-Stefan Praßni, Bernd Hemmer, Sören Linnemann, Paul Weingardt, Gerhard Wilde, Klaus Hinrichs

Third Place

Visualization of Barium Titanate Phase Transition using Quantization of Dipole Moment Vectors, Henry Lehmann, Patrick Heyne, Oliver Mothes, Heiko Müller, Tim Smyth, Erik Berger, Katja Fiedler, David Vogt, Bernhard Jung

VAST Challenge

Committee Paper

VAST Challenge 2012: Visual Analytics for Big Data, Kristin Cook, Georges Grinstein, Mark Whiting, Michael Cooper, Paul Havig, Kristen Liggett, Bohdan Nebesh, Celeste Lyn Paul

Mini-Challenge 1 Award Winners

BANKSAFE: A Visual Situational Awareness Tool for Large-Scale Computer Networks, Fabian Fischer, Johannes Fuchs, Florian Mansmann, Daniel A. Keim

SemanticPrism: a Multi-Aspect View of Large High-Dimensional Data, Victor Yingjie Chen, Ahmad M. Razip, Sungahn Ko, Cheryl Zhenyu Qian, David S.Ebert

BusinessForensics HQ, Robert Pabst

Visual Analytics for Situation Awareness of a Large-Scale Network, Chris Horn, Chris Ellsworth

M-Sieve: A Visualisation Tool for Supporting Network Security Analysts, S. Choudhury, N. Kodagoda, P. Nguyen, C. Rooney, S. Attfield, K. Xu, Y. Zheng, B.L.W. Wong, R. Chen, G. Mapp, L. Slabbert, M. Aiash, A. Lasebae

OWLAP - using OLAP approach in anomaly detection, L. Dudás, Zs. Fekete, J. Göbölös-Szabó, A. Radnai, Á. Salánki, A. Szabó, G. Szücs

Monitoring the Health of Computer Networks with Visualization, A. Kachkaev, I. Dillingham, R. Beecham, S. Goodwin, N. Ahmed, A. Slingsby

Mini-Challenge 1 Honorable Mentions

Visualizing Large Scale Patterns and Anomalies in Geospatial Data, Robert F. Stark, Arthur Wollocko, Michael Borys, Megan Kierstead, Michael Farry

SitaVis - Interactive Situation Awareness Visualization of Large Datasets, Francis C. B. Williams, William J. Faithfull, Jonathan C. Roberts

Enhancing the "Think Loop Process" with Consistent Interactions, Lya Laberge, Sid Kaul, Naomi Anderson, Charles Agnew, David Goldstein, Jake Kolojejchick

HIVEBEAT - A Highly Interactive Visualization Environment for Broad-Scale Exploratory Analysis and Tracing, Robert Krüger Harald Bosch, Steffen Koch, Christoph Müller, Guido Reina, Dennis Thom , Thomas Ertl

Mini-Challenge 2 Award Winner

Investigating Network Traffic Through Compressed Graph Visualization, Lei Shi, Qi Liao, Chunxin Yang

Mini-Challenge 2 Honorable Mentions

NetSecRadar: A Real-Time Visualization System for Network Security, Ying Zhao, Fangfang Zhou, Ronghua Shi

Dynamic Analysis of Large Datasets with Animated and Correlated Views, Yong Cao, Reese Moore, Peng Mi, Alex Endert, Chris North, Randy Marchany

Other Submissions

Big Data Exploration through Visual Analytics, Nascif A. Abousalh-Neto, Sumeyye Kazgan

Chart- and Matrix-based Approach to Network Operations Forensics, Jan Hildenbrand, Daniel-Ionut Paval, Prakash Thapa, Christian Rohrdantz, Florian Mansmann, Enrico Bertini, Tobias Schreck

Pixel-Oriented Treemap for Multiple Displays, Haeyong Chung, Yong Ju Cho, Jessica Self, Chris North

3D Anomaly Bar Visualization for Large-Scale Network, Tao Zhang, Qi Liao, Lei Shi

Network Infrastructure Visualisation Using High-Dimensional Node-Attribute Data, Helen Gibson, Paul Vickers

Combining Traditional and High-Density Visualizations in a Dashboard to Network Health Monitoring, Yussif Barcelos, Flavia Aburjaile, Laura R. Leite, Solange T. Oliveira, Raquel C. de Melo-Minardi

Interactively Finding Anomalies in Geo-temporal Multivariate Data, Gosia Migut, Justin van Wees, Diederik Bakker, Bart de Goede, Haska Steltenphol, Nick Oude Lenferink, Marcel Worring

Agile Visual Analytics for Banking Cyber "Big Data", David Jonker, Scott Langevin, Peter Schretlen, Casey Canfield

Visual Analytics for Network Security, Georgiy Shurkhovetskyy, Ahmed Bahey, Mohammad Ghoniem

Federating Geovisual Analytic Tools for Cyber Security Analysis, Mingyi Zhao, Chen Zhong, Richard Ciamaichelo, Michael Konek, Neela Sawant, Nicklaus A. Giacobe

Irregular Trend Finder: Visualization Tool for Analyzing Time-Series Big Data, Shinnosuke Takeda, Aimi Kobayashi, Hiroaki Kobayashi, Saori Okubo, Kazuo Misue

situ: Situational Understanding and Discovery for Cyber Attacks, Lane Harrison, Jason Laska, Riley Spahn, Mike Iannacone, Evan Downing, Erik M. Ferragut, John R. Goodall

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