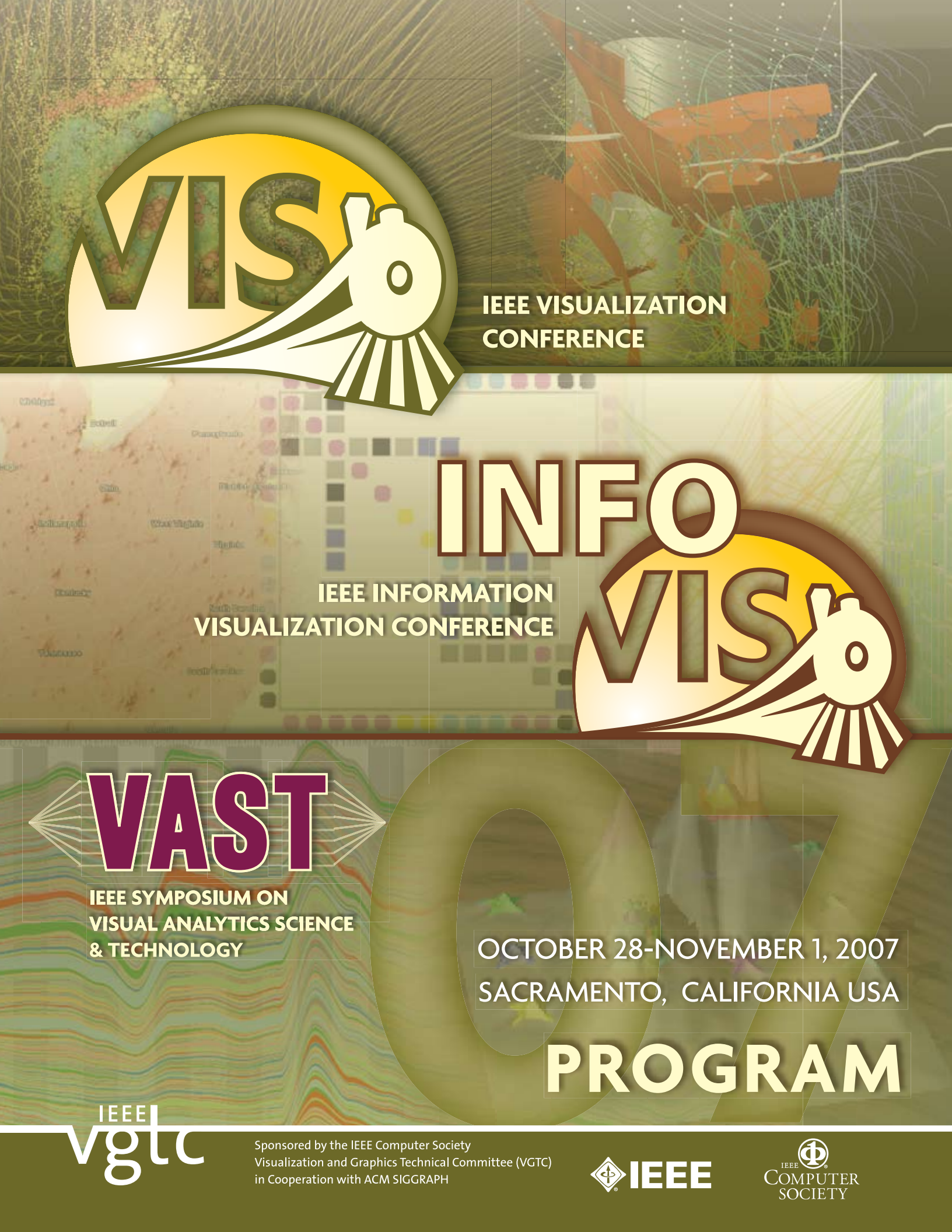
VIS
IEEE VISUALIZATION CONFERENCE
INFO VIS
IEEE INFORMATION VISUALIZATION CONFERENCE
VAST
IEEE SYMPOSIUM ON VISUAL ANALYTICS SCIENCE & TECHNOLOGY
07
OCTOBER 28-NOVEMBER 1, 2007
SACRAMENTO, CALIFORNIA USA
PROGRAM
IEEE vgtc
Sponsored by the IEEE Computer Society Visualization and Graphics Technical Committee (VGTC) in Cooperation with ACM SIGGRAPH
IEEE
IEEE COMPUTER SOCIETY

WELCOME

Welcome to the IEEE Visualization 2007 Conference, the InfoVis 2007 Conference, and the 2007 Symposium on Visual Analytics Science and Technology (VAST)!

This year the technical community presents a varied program covering a wide array of topics. The papers provide an integrated selection of outstanding research contributions and creative application papers. The panels discuss some of the most pressing current topics, while the workshops and tutorials offer a dedicated learning experience. The posters allow for very current results to be presented in informal interactive sessions. The Scientific Animation Theater enters its second year with an exciting collection of film clips highlighting the best in scientific visualization. Also in its second year, the PhD Colloquium allows for interaction between current experts and the next generation of visualization researchers. These venues, combined with our exhibitors, the Interactive Demonstrations Laboratory, and Birds-of-a-Feather sessions deliver a powerful experience in California's expansive Central Valley.

Two receptions and numerous breaks have been scheduled throughout this week to allow time for you to interact with peers and colleagues. This is the place where government, academic, industrial, and venture communities come together to meet and learn from each other and have fun!

Thank you for coming, and enjoy your week!

Ken Joy, *University of California, Davis*
Amitabh Varshney, *University of Maryland*
Visualization 2007 Conference Chairs

John Stasko, *Georgia Tech*
InfoVis 2007 General Chair

John Dill, *Simon Fraser University*
William Ribarsky, *University of North Carolina at Charlotte*
VAST 2007 Symposium Chairs

ABOUT SACRAMENTO

Visualization 2007 is located in California's expansive Central Valley, in the capital city of Sacramento. Largely settled during the California Gold Rush, Sacramento was a major distribution point, a commercial and agricultural center, and a terminus for wagon trains, stagecoaches, riverboats, the Pony Express, and the First Transcontinental Railroad.

Major attractions include the California State Railroad Museum, the Crocker Art Museum, the Delta King Riverboat, Sutter's Fort State Historic Park, and the Discovery Museum. Old Sacramento, an area of the city preserved from the original buildings of the Gold Rush, includes museums, entertainment, restaurants and great shopping.

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How to Order Proceedings

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VAST 2007: IEEE Catalog Number: CFP07VAS-PRT

IEEE Computer Society

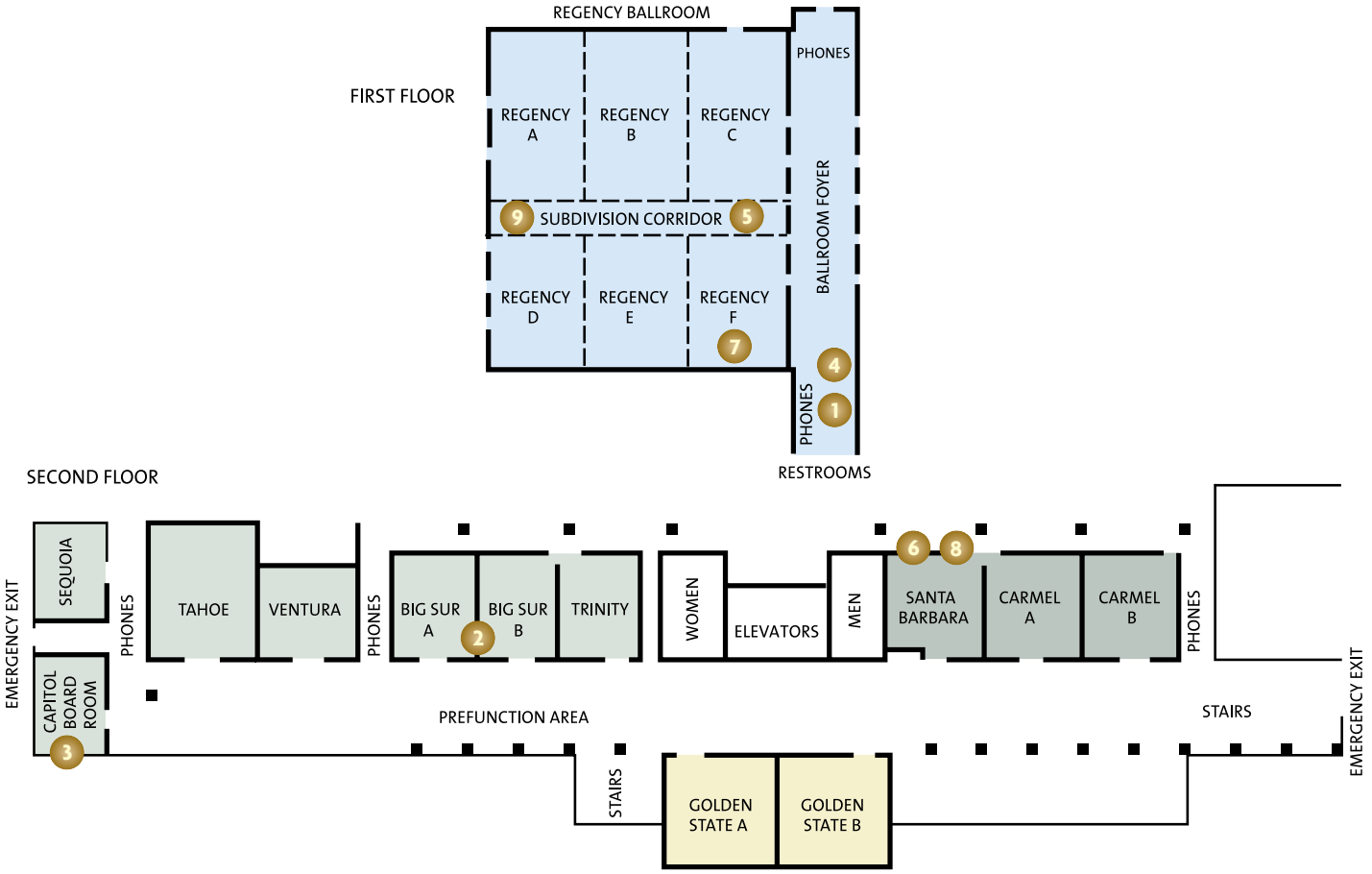
To become a member visit http://computer.org/join

IEEE Visualization and Graphics Technical Committee

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

MAP

HYATT REGENCY SACRAMENTO



ALL MEETING SPACE, RESTROOMS, AND PHONES ARE WHEELCHAIR ACCESSIBLE

1 Conference Registration
Located in Regency Ballroom Foyer

Sunday - Wednesday 7:30 am - 5:00 pm
Thursday 7:30 am - 2:00 pm

2 Internet Access / Email
Located in Big Sur A/B

Sunday - Wednesday 7:30 am - 5:00 pm
Thursday 7:30 am - 2:00 pm

3 Speaker Preparation
Located in the Capitol Boardroom

Sunday - Wednesday 7:30 am - 5:00 pm
Thursday 7:30 am - 10:30 am

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

Check the board for times and locations.
All conference attendees are welcome.

5 Interactive Demonstrations Lab
Located in Regency Corridor

InfoVis Sunday 8:30 am - Tuesday 12:00 pm
Hosted Viewing Sunday 7:00 pm - 9:00 pm

Vis Tuesday 1:00 pm - Thursday 12:10 pm
Hosted Viewing Wed 6:00 pm - 7:00 pm

6 Scientific Animation Theater
Located in Santa Barbara

Sunday 12:00 pm - 6:00 pm
Monday 8:30 am - 6:00 pm
Tuesday 10:30 am - 5:55 pm
Wednesday 8:30 am - 7:00 pm

7 Exhibition
Located in Regency F

Tuesday 10:30 am - 5:55 pm
Wednesday 8:30 am - 7:00 pm
Thursday 8:30 am - 12:10 pm

8 Art Show
Located in Santa Barbara

Sunday 12:00 pm - 6:00 pm
Monday 8:30 am - 6:00 pm
Tuesday 10:30 am - 5:55 pm
Wednesday 8:30 am - 7:00 pm

9 Posters
Located in the Regency Corridor

InfoVis Sunday 8:30 am - Tuesday 12:00 pm
Hosted Viewing Sunday 7:00 pm - 9:00 pm

Vis/VAST Tuesday 1:00 pm - Thursday 12:10 pm
Hosted Viewing Wed 6:00 pm - 7:00 pm

AT-A-GLANCE

SUNDAY

Morning Tutorials

Regency C
Intro to Level Sets

Carmel A/B
Color in Information Displays

Regency D/E
Experimental Design and Analysis

Golden State A/B
Wrkshp: (8:30am-6:00pm) Metrics for the Evaluation of Visual Analytics

lunch break

Afternoon Tutorials

Regency C
Level Set Applications for Vis

Carmel A/B
Perceptual Issues for Visualization & Evaluation

Regency D/E
GeoVisualization with Google Earth & GIS

Santa Barbara / *Regency Corridor*
Art Show and Scientific Animation Theater
Posters and Interactive Demos Lab

INFOVIS

Regency A/B
Keynote: Visualizing Data for the Masses
Matthew Ericson, *NY Times*

break

Regency A/B
Papers Fast Forward

Regency A/B
Applications

lunch break

Regency A/B
InfoVis for the Masses

break

Regency A/B
Best Paper, Posters Fast Forward, Contest Review, Art Show Review

Regency Corridor / Regency Foyer

Reception

InfoVis Poster Viewing and Demos

MONDAY

Morning Tutorials

Regency D/E
Illustrative Display and Interaction in Visualization

Regency C
Introduction to Visual Medicine

Carmel A/B
Wrkshp: (8:30am-6:00pm) Knowledge-Assisted Visualization

Golden State A/B
Wrkshp: (8:30am-6:00pm) VizSec: Visualization for Computer Security

lunch break

Afternoon Tutorials

Regency D/E
Scope and Challenges of Visual Analytics

Regency C
Advanced Visual Medicine: Techniques, Applications and Software

Santa Barbara / *Regency Corridor*
Art Show and Scientific Animation Theater
Posters and Interactive Demos Lab

INFOVIS

Regency A/B
Geographic Visualization

break

Regency A/B
Novel Techniques

lunch break

Regency A/B
Panel: Impact of Social Data Vis

break

Regency A/B
Interaction & Animation

TUESDAY

Santa Barbara / *Regency Corridor* / *Regency F*
Art Show and Scientific Animation Theater
Posters and Interactive Demos Lab
Exhibits

VIS

Regency A/B/C

Keynote: Visualization Challenges at the Intersection of Petascale Computing and Biological Science
Rick Stevens, *Argonne National Laboratory/The University of Chicago*

break

Regency A/B
2008 Contest Description
Papers Fast Forward

lunch break

Carmel A/B
Illustrative Visualization

Regency C
Tiled Displays and Parallel Processing

Golden State A/B
Multi-field & Multivariate

break

Regency D/E
Vis/InfoVis 08 Open Session

break

Carmel A/B
Topology

Regency D/E
Panel: Meet the Scientists

Golden State A/B
Flow Field Visualization I

INFOVIS

Regency C
Evaluation

lunch break

Regency A/B
Tree and Graph Vis

break

VAST

Regency D/E
Geotemporal Analysis

lunch break

Regency D/E
Emergency & Surveillance

break

Regency A/B/C
InfoVis Capstone/ VAST Keynote: InfoVis as Seen by the World Out There: 2007 in Review
Stephen Few, *Perceptual Edge/University of California, Berkeley*

Reception at Roundhouse, California State Railroad Museum

8:30 9:00 9:30 10:00 10:30 11:00 11:30 12:00 12:30 1:00 1:30 2:00 2:30 3:00 3:30 4:00 4:30 5:00 5:30 6:00 6:30 7:00 7:30 8:00 8:30 9:00

WEDNESDAY

Regency C
PhD Colloquium:
Presentations

break

Regency C
PhD Colloquium:
Panel:
Life After Graduate School

lunch break

Regency C
PhD Colloquium:
Presentations

break

Regency C
PhD Colloquium:
Presentations

Morning Tutorials
Golden State A/B
Bridging the Chasm between InfoVis Research and the World Out There

lunch break

Afternoon Tutorials
Golden State A/B
Statistical Graphics for High-D data

Santa Barbara
Art Show and Scientific Animation Theater

Regency Corridor
Posters and Interactive Demos Lab

Regency F
Exhibits

VIS

Regency A
DT-MRI & Medical

Regency B
Surfaces

break

Regency A
Navigation in Parameter Space

Regency B
Panel:
"Though this be madness, yet there is method in it"...

lunch break

Regency A
Volume Rendering

Regency B
Panel:
All Vis Software is the Same

break

Regency A/B
Posters Fast Forward

Best Posters

Regency Corridor
Poster Viewing and Interactive Demos Lab

VAST

Regency D/E
Panel:
Contest Results

break

Regency D/E
Multivariate Analytics

lunch break

Regency D/E
Panel:
Outlook for Visual Analytics Research Funding

break

Regency D/E
Text & Media Exploration

Regency Corridor
Poster Viewing

THURSDAY

Regency Corridor
Posters and Interactive Demos Lab

Regency F
Exhibits

VIS

Regency A
Molecules, Proteins, Medical

Regency B
Uncertainty and Perception

Regency C
Multimodal Interactions

break

Regency A
Points, Segmentation, and Isosurfaces

Regency B
Panel:
Human Computing/ Sci Vis

Regency C
Flow Field Visualization II

lunch break

Regency B/C
Capstone
Chris Johnson, *Director of the Scientific Computing and Imaging Institute, University of Utah*
Best of Awards
Closing Remarks

VAST

Regency D/E
Security & Investigative Analysis

break

Regency D/E
Social Analysis & Interaction

8:30
9:00
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CALL FOR PARTICIPATION 2008

COLUMBUS, OHIO USA • OCTOBER 19 - OCTOBER 24, 2008

Visualization 2008 and InfoVis 2008, the premier forums for data and information visualization advances for academia, government, and industry, will be located in downtown Columbus, near the bustling Short North Arts District. Please check the conference web sites for the latest information on submission deadlines and conference events, and plan to join us in Columbus in 2008!

Conference Chairs:
Raghu Machiraju, *The Ohio State University*
Roger Crawfis, *The Ohio State University*
Ken Joy, *University of California - Davis*
John Stasko, *Georgia Institute of Technology*

More information at **http://vis.computer.org/vis2008**
http://conferences.computer.org/infovis/infovis2008

For questions, email: info@vis.computer.org

Co-located with Visualization 2008 and InfoVis 2008 is **IEEE VAST 2008: IEEE Symposium on Visual Analytics Science and Technology:**

http://conferences.computer.org/vast/vast2008/

Symposium Chairs:
David Ebert, *Purdue University*
Thomas Ertl, *University of Stuttgart*

Sponsored by:
IEEE Computer Society Visualization and Graphics Technical Committee

SUNDAY EVENTS

8:30 a.m. – 6:00 p.m.

Golden State A/B

Workshop: Metrics for the Evaluation of Visual Analytics

Organizers: Jean Scholtz, *Pacific Northwest National Laboratory,* Georges Grinstein, *University of Massachusetts Lowell,* Catherine Plaisant, *University of Maryland*

The field of visual analytics is now recognized as a research area in many universities and organizations. As new fields develop ways of assessing progress in those fields also emerge. In the field of visual analytics, we are fortunate in that we already have lessons learned about evaluating visualizations. Unfortunately, these lessons still point out that this is a difficult problem. Visual analytics compounds this problem by adding more dimensions; not only are we concerned with some measure of the visualizations, but we are concerned with evaluating the impact these visualizations have in helping analysts in their work. This workshop will explore the issues we face in developing user-centered evaluations for visual analytics.

8:30 a.m. – 12:10 p.m.

Regency C

Tutorial: Introduction to Level Set Methods, Data Structures and Efficient Algorithms

Organizer: Ken Museth, *Linköping University & Digital Domain*
Additional Speaker: Aaron Lefohn, *Neoptica*
Level: Advanced

The level set method is a mathematical tool for dynamic interface problems that has gained widespread popularity in an array of applications ranging from segmentation in medical imaging to deforming surfaces in the general field of computer graphics. While numerous research papers and even a few text books have been devoted to this mathematically advanced method, very little material has been published on how to efficiently implement algorithms and data structures that form the backbone of this method. This course will focus on the mathematical and computational background material needed to fully understand and appreciated the potential of the level set method.

Carmel A/B

Tutorial: Color in Information Display

Organizer: Maureen Stone, *StoneSoup Consulting*
Level: Beginner/Intermediate

Color is a key component of information display that is easy to use badly. As a result, Edward Tufte's key principle for color design is "do no harm." The principles that underlie good color design have their roots in human perception, and a deep understanding of the color properties of different media. To be effective, color design, like all design, grows out of a clear model of the underlying information and its relationship to the user's task. This course will present the visual principles that inform good design, and the advances in color science and color technology that can be applied to the problem of using color effectively in information display.

Regency D/E

Tutorial: Experimental Design and Analysis for Human-Subject Visualization Experiments

Organizer: J. Edward Swan II, *Mississippi State University*
Level: All

This tutorial is for researchers and engineers working in the field of visualization who wish to conduct visualization evaluation experiments with human subjects, or gain a better understanding of the basic terminology of experimental design and analysis. This tutorial will include illustrative case studies of actual human-subject experiments conducted by the proposer, and will introduce the basics of experimental design and analysis. The course will focus on the fundamental logic behind topics such as hypothesis testing and analysis of variance, while avoiding the complexities that come from considering individual statistical tests.

LUNCH BREAK 12:10 p.m. – 2:00 p.m.

12:00 p.m. – 6:00 p.m.

Santa Barbara

Art Show

Lipsticks, Stacy Greene
We Feel Fine, Jonathan Harris, Sepandar Kamvar
Flags by Colours, Shahee Ilyas
Eventide, Cassandra C. Jones
The Sheep Market, Aaron Koblin
Skymall Liberation, Evan Roth
Color Code, Martin Wattenberg

Santa Barbara

Scientific Animation Theater (SAT)

Regency Corridor

Interactive Demos Lab

2:00 p.m. – 6:00 p.m.

Regency C

Tutorial: Level Set Applications for Visualization

Organizer: David Breen, *Drexel University*
Additional Speakers: Ken Museth, *Linköping University*, Aaron Lefohn, *Neoptica,* Mikael Rousson, *Siemens Corporate Research*
Level: Intermediate

Level set methods define dynamic surfaces implicitly as the level set (iso-surface) of a sampled, evolving n-D function. This course is targeted for researchers interested in learning about the application of level set methods/models to visualization. The course material will include lectures on a variety of level set applications. The course will describe in detail level set methods for 3D morphing, contour-based surface reconstruction, a volume dataset segmentation framework, advanced segmentation techniques that utilize statistical shape models, piecewise smooth intensity models and ordered spatial dependencies.

Carmel A/B

Tutorial: Perceptual Issues for Visualization and Evaluation

Organizer: Mark Livingston, *Naval Research Laboratory*
Level: Beginner/Intermediate

This tutorial discusses perceptual issues important for developing visualizations and evaluating the perceptual effectiveness of techniques. Discussions will use numerous case studies, demonstrations, and results from statistical studies to demonstrate surprising effects on human perception created by variables that are often used as parameters in visual representations. Areas will include spatial perception, the appearance of color and numerous theories of how it operates, the perception of motion with a focus on how this affects animation, and on visual attention and operator workload in perceiving changes in visual displays.

Regency D/E

Tutorial: Visualization with Google Earth and GIS

Organizer: Jason Dykes & Jo Wood, *City University, London*
Level: Beginner

This tutorial will equip Information Visualization specialists with geo-spatial knowledge and skills that will help them use geographic information techniques and technologies effectively in their visualization. Our 'hands on' introduction focuses on visualizing the population through a series of accessible technologies and formats. We highlight key issues in Geographic Information Science that are fundamental to effective geovisualization, and aim to draw attention to key considerations in geovisualization, share expertise across disciplinary boundaries and develop cross-disciplinary dialog. Laptop with pre-installed software required for an interactive experience. See http://vis.computer.org/vis2007/session/tutorials.html for further information.

INFOVIS CONFERENCE

8:30 a.m. – 10:10 a.m.

Regency A/B

Keynote: Visualizing Data for the Masses: Information Graphics at The New York Times

Matthew Ericson, *Deputy Graphics Director, The New York Times*

Each day, The New York Times uses information graphics in print and on the Web to present data, tell stories and make information more understandable for more than a million readers. Data visualization is used to help explain subjects as varied as the role of political contributions in the presidential campaign, the changing face of the insurgency in Iraq and Afghanistan, problems in the American car industry, and Barry Bonds's pursuit of Hank Aaron's home run record. Data visualization at a newspaper presents unique challenges. Many readers are not used to thinking visually. Deadlines can be as short as a few hours. Graphics editors have to be knowledgeable on a wide range of topics, so when news breaks, they can quickly report and produce interesting graphics.

In this talk, I'll explain the process behind information graphics at The Times, from choosing which stories to explain visually, reporting and visualizing data, through marshalling to a staff of 30 to make InfoVis understandable by a mass audience.

Matthew Ericson is the deputy graphics director at The New York Times, where he helps oversee a staff of 30 journalists who produce information graphics for the printed newspaper and interactive pieces for www.nytimes.com.

BREAK 10:10 a.m. – 10:30 a.m.

10:30 a.m. – 11:15 a.m.

Regency A/B

Papers Fast Forward

11:15 a.m. – 12:10 p.m.

Regency A/B

Applications

Chair: Jean-Daniel Fekete

Visual Analysis of Network Traffic for Resource Planning, Interactive Monitoring, and Interpretation of Security Threats, Florian Mansmann, Daniel A. Keim, Stephen C. North, Brian Rexroad, Daniel Sheleheda

AdaptiviTree: Adaptive Tree Visualization for Tournament-Style Brackets, Desney Tan, Greg Smith, Bongshin Lee, George Robertson

LUNCH BREAK 12:10 p.m. – 2:00 p.m.

2:00 p.m. – 3:40 p.m.

Regency A/B

InfoVis for the Masses

Chair: Ben Shneiderman

Many Eyes: A Site for Visualization at Internet Scale, Fernanda Viégas, Martin Wattenberg, Frank van Ham, Jesse Kriss, Matt McKeon

Scented Widgets: Improving Navigation Cues with Embedded Visualizations, Wesley Willett, Jeffrey Heer, Maneesh Agrawala

Show Me: Automatic Presentation for Visual Analysis, Jock Mackinlay, Pat Hanrahan, Chris Stolte

Casual Information Visualization: Depictions of Data in Everyday Life, Zachary Pousman, John Stasko, Michael Mateas

BREAK 3:40 p.m. – 4:15 p.m.

4:15 p.m. – 5:45 p.m.

Regency A/B

Best Paper, Posters Fast Forward, Contest Review, Art Show Review

Chair, Best Paper Award Committee: Daniel Keim

Visualizing the History of Living Spaces, Yuri A. Ivanov, Christopher R. Wren, Alexander Sorokin, Ishwinder Kaur

7:00 p.m. – 9:00 p.m.

Regency Corridor / Regency Foyer

Reception / InfoVis Poster Viewing

MONDAY EVENTS

8:30 a.m. – 6:00 p.m.

Santa Barbara

Art Show and Scientific Animation Theater (SAT)

Regency Corridor

Interactive Demos Lab

Carmel A/B

Workshop: Knowledge-Assisted Visualization (KAV 2007)

Organizers: Gerik Scheuermann, *University of Leipzig,* Kwan-Liu Ma, *University of California, Davis,* Robert van Liere, *CWI/Eindhoven University of Technology,* Min Chen, *Swansea University,* Hans Hagen, *Technische Universität Kaiserslautern*

Most visualization techniques were not designed to utilize the knowledge derived from the process of scientific visualization or from abstract data analysis. As visual exploration is an inherently iterative process, it is highly desirable to enable more effective visualization by utilizing information about the visualization process itself, and information about the scientific data to be visualized. This workshop aims at stimulating the research efforts for knowledge- and information - enabled data visualization by providing a forum for shaping this important and exciting research area.

Golden State A/B

Workshop: VizSec: Visualization for Computer Security

Organizers: John Goodall, *Secure Decisions,* Kwan-Liu Ma, *University of California, Davis,* Gregory Conti, *United States Military Academy*

The VizSEC 2007 Workshop on Visualization for Computer Security will provide a forum for new research in visualization for computer security. As a result of previous VizSEC workshops, we have seen the application of existing visualization techniques to security problems and the development of novel security visualization approaches. This year's focus is on applying user-centered design to VizSEC research, focusing on integrating users' needs, visualization design, and evaluation.

8:30 a.m. – 12:10 p.m.

Regency D/E

Tutorial: Illustrative Display and Interaction in Visualization

Organizer: Ivan Viola, *University of Bergen*
Additional Speakers: Stefan Bruckner, *Vienna University of Technology,* Mario Costa Sousa, *University of Calgary,* David S. Ebert, *Purdue University,* Carlos D. Correa, *Rutgers University*
Level: All

The tutorial starts with a general introduction to illustrative visualization, followed by a discussion of how traditional abstraction techniques can be applied in an interactive context using importance-based methods. We will discuss approaches for selecting objects of interest in a three-dimensional environment using intuitive sketch-based interfaces, and examine the concept of layering interfaces based on user expertise. Finally, the application of illustrative display and interaction techniques for non-traditional modalities such as mobile devices concludes the tutorial.

Regency C

Tutorial: Introduction to Visual Medicine: Techniques, Applications and Software

Organizer: Bernhard Preim, *University of Magdeburg*
Additional Speakers: Dirk Bartz, *University of Leipzig,* Felix Ritter, *MeVis - Center for Medical Diagnostic Systems and Visualization,* Klaus Müller, *Stony Brook University,* Karel Zuiderveld, *Vital Images*
Level: Beginner

We will give an introduction into medical imaging methods such as data acquisition, data analysis, segmentation, registration and rendering. Surface and volume rendering (including transfer function specification) and hybrid combinations of both are covered. Acceleration strategies which provide efficient rendering without (significant) loss of accuracy and image quality are described.

LUNCH BREAK 12:10 p.m. – 2:00 p.m.

2:00 p.m. – 6:00 p.m.

Regency D/E

Tutorial: Scope and Challenges of Visual Analytics

Organizer: Daniel Keim, *Konstanz University*
Addl Speaker: Jim Thomas, *Pacific Northwest National Laboratory*
Level: Beginner/Intermediate

The science of Visual Analytics is a relatively new multidisciplinary field that combines various research areas including visualization, human-computer interaction, data analysis, data management, geo- spatial and temporal data processing and statistics. This tutorial will provide an overview of Visual Analytics, defining the scope of research in this novel area, outlining the challenges of different applications, and presenting Visual Analytics techniques and systems.

Regency C

Tutorial: Advanced Visual Medicine: Techniques, Applications and Software

Organizer: Steffen Oeltze, *University of Magdeburg*
Addl Speakers: Dirk Bartz, *University of Leipzig,* Florian Link, *MeVis - Center for Medical Diagnostic Systems & Visualization,* Bernhard Preim, *University of Magdeburg,* Anna Vilanova, *Eindhoven University of Technology,* Stefan Zachow, *Zuse-Institute Berlin (ZIB)*
Level: Intermediate/Advanced

In this tutorial, we discuss the visualization of vascular structures, visual analysis of perfusion data, diffusion tensor imaging, fast tagged multi-resolution volume rendering, OR-fit mixed reality methods for surgery, and the integration of simulation and visualization for surgical planning. The tutorial includes software issues based on an advanced, freely available software system for visualization in medicine: MeVisLab.

INFOVIS CONFERENCE

8:30 a.m. – 10:10 a.m.

Regency A/B

Geographic Visualization

Chair: Chris Weaver

Geographically Weighted Visualization: Interactive Graphics for Scale-Varying Exploratory Analysis, Jason Dykes, Chris Brunsdon

Legible Cities: Focus-Dependent Multi-Resolution Visualization of Urban Relationships, Remco Chang, Ginette Wessel, Robert Kosara, Eric Sauda, William Ribarsky

Interactive Visual Exploration of a Large Spatio-Temporal Dataset: Reflections on a Geovisualization Mashup, Jo Wood, Jason Dykes, Aidan Slingsby, Keith Clarke

Hotmap: Looking at Geographic Attention, Danyel Fisher

BREAK 10:10 p.m. – 10:30 a.m.

10:30 a.m. – 12:10 p.m.

Regency A/B

Novel Techniques

Chair: Matthew Ward

VisLink: Revealing Relationships Amongst Visualizations, Christopher Collins, Sheelagh Carpendale

Visualization of Heterogeneous Data, Mike Cammarano, Xin (Luna) Dong, Bryan Chan, Jeff Klingner, Justin Talbot, Alon Halevy, Pat Hanrahan

Sequential Document Visualization, Yi Mao, Joshua Dillon, Guy Lebanon

A Taxonomy of Clutter Reduction for Information Visualisation, Geoffrey Ellis, Alan Dix

LUNCH BREAK 12:10 p.m. – 2:00 p.m.

2:00 p.m. – 3:40 p.m.

Regency A/B

Panel: The Impact of Social Data Visualization

Organizer: Robert Kosara. UNC Charlotte
Panelists: Brent Fitzgerald, *Swivel*, Hans Rosling, *Gapminder,* Warren Sack, *UC Santa Cruz,* Fernanda B. Viégas, *IBM*

Visualization research produces tools not only to help analyze and explore data, but also to communicate very effectively to the general public. We will discuss existing visualization websites for the masses like Gapminder, Swivel, and Many Eyes, and explore their potential impact on the future of the field.

BREAK 3:40 p.m. – 4:15 p.m.

4:15 p.m. – 5:55 p.m.

Regency A/B

Interaction and Animation

Chair: Frank van Ham

Toward a Deeper Understanding of the Role of Interaction in Information Visualization, Ji Soo Yi, Youn ah Kang, John T. Stasko, Julie A. Jacko

Interactive Tree Comparison for Co-located Collaborative Information Visualization, Petra Isenberg, Sheelagh Carpendale

Animated Transitions in Statistical Data Graphics, Jeffrey Heer, George Robertson

Browsing Zoomable Treemaps: Structure-Aware Multi-Scale Navigation Techniques, Renaud Blanch, Éric Lecolinet

TUESDAY EVENTS

10:30 a.m. – 5:55 p.m.

Santa Barbara

Art Show and Scientific Animation Theater (SAT)

Regency Corridor

Interactive Demos Lab

Regency F

Exhibits

3:40 p.m. – 4:15 p.m.

Regency D/E

Vis/InfoVis/VAST 08 Open Session

VIS CONFERENCE

8:30 a.m. – 10:15 a.m.

Regency A/B/C

Keynote: Visualization Challenges at the Intersection of Petascale Computing and Biological Science

Rick Stevens, *Argonne National Laboratory/The University of Chicago*

In this talk I will propose a short list of open visualization problems from large-scale computational and theoretical biology. These datasets are not large by physical science standards but they are complex and they are noisy, making them a challenge to interpret. Often interpretation itself requires comparative analysis with dozens or hundreds of other genomes and the knowledge associated with those organisms' genes, proteins, networks, physiology and phenotypes. The need to visualize data in a comparative framework results in a new set of challenging visualization and data analysis problems. I will also discuss how the twin revolutions in computation and biological science are combining to develop theoretical biology and will discuss the enormous impact this will have on science, medicine, and engineering.

Rick Stevens is associate laboratory director for Computing and Life Sciences at Argonne National Laboratory. He is also a professor of computer science at the University of Chicago and is senior fellow of the Argonne/University of Chicago Computation Institute. In addition, he heads the Argonne/Chicago Futures Lab, a research group he started in 1994 to investigate problems in large-scale scientific visualization and advanced collaboration environments.

BREAK 10:15 a.m. – 10:30 a.m.

10:30 a.m. – 12:10 p.m.

Regency A/B

2008 Contest Description

Papers Fast Forward

LUNCH BREAK 12:10 p.m. – 2:00 p.m.

2:00 p.m. –3:40 p.m.

Carmel A/B

Illustrative Visualization

Chair: David Ebert

Illustrative Deformation for Data Exploration, Carlos Correa, Deborah Silver, Min Chen

An Effective Illustrative Visualization Framework Based on Photic Extremum Lines (PELs), Xuexiang Xie, Ying He, Feng Tian, Hock-Soon Seah, Xianfeng Gu, Hong Qin

Semantic Layers for Illustrative Volume Rendering, Peter Rautek, Stefan Bruckner, M. Eduard Gröller

Enhancing Depth-Perception with Flexible Volumetric Halos, Stefan Bruckner, M. Eduard Gröller

Regency C

Tiled Displays and Parallel Processing

Chair: James Ahrens

Tile-based Level of Detail for the Parallel Age, Krzysztof Niski, Jonathan D. Cohen

A Unified Paradigm for Scalable Multi-Projector Displays, Niranjan Damera-Venkata, Nelson L. Chang, Jeffrey M. DiCarlo

Registration Techniques for Using Imperfect and Partially Calibrated Devices in Planar Multi-Projector Displays, Ezekiel Bhasker, Ray Juang, Aditi Majumder

Time Dependent Processing in a Parallel Pipeline Architecture, John Biddiscombe, Berk Geveci, Ken Martin, Kenneth Moreland, David Thompson

Golden State A/B

Multifield and Multivariate Visualization

Chair: Raghu Machiraju

Multifield Visualization Using Local Statistical Complexity, Heike Jänicke, Alexander Wiebel, Gerik Scheuermann, Wolfgang Kollmann

Interactive Visual Analysis of Perfusion Data, Steffen Oeltze, Helmut Doleisch, Helwig Hauser, Philipp Muigg, Bernhard Preim

Variable Interactions in Query-Driven Visualization, Luke J. Gosink, John C. Anderson, E. Wes Bethel, Kenneth I. Joy

Visual Analysis of the Air Pollution Problem in Hong Kong, Huamin Qu, Wing-Yi Chan, Anbang Xu, Kai-Lun Chung, Kai-Hon Lau, Ping Guo

BREAK 3:40 p.m. – 4:15 p.m.

4:15 p.m. – 5:55 p.m.

Carmel A/B

Topology

Chair: Issei Fujishiro

Topological Landscapes: A Terrain Metaphor for Scientific Data, Gunther H. Weber, Peer-Timo Bremer, Valerio Pascucci

IStar: A Raster Representation for Scalable Image and Volume Data, Joe Kniss, Warren Hunt, Kristin Potter, Pradeep Sen

Topologically Clean Distance Fields, Attila G. Gyulassy, Mark A. Duchaineau, Vijay Natarajan, Valerio Pascucci, Eduardo M. Bringa, Andrew Higginbotham, Bernd Hamann

Efficient Computation of Morse-Smale Complexes for Three-dimensional Scalar Functions, Attila Gyulassy, Vijay Natarajan, Valerio Pascucci, Bernd Hamann

Golden State A/B

Flow Field Visualization I

Chair: Daniel Weiskopf

Similarity-Guided Streamline Placement with Error Evaluation, Yuan Chen, Jonathan D. Cohen, Julian H. Krolik

Efficient Visualization of Lagrangian Coherent Structures by Filtered AMR Ridge Extraction, Filip Sadlo, Ronald Peikert

Efficient Computation and Visualization of Coherent Structures in Fluid Flow Applications, Christoph Garth, Florian Gerhardt, Xavier Tricoche, Hans Hagen

Texture-based Feature Tracking for Effective Time-varying Data Visualization, Jesus Caban, Alark Joshi, Penny Rheingans

Regency D/E

Panel: Meet the Scientists

Organizer: Kwan-Liu Ma, *University of California, Davis*
Panelists: John Blondin, *NC State University,* Jacqueline H. Chen, *Sandia National Laboratories,* Mark Rast, *University of Colorado at Boulder,* Ravi Samtaney, *Princeton Plasma Physics Laboratory*

Through the DOE SciDAC Institute for Ultrascale Visualization (Ultravis Institute), scientists in various application areas will participate in this panel. Each scientist will describe his/her application, data sets, and the corresponding visualization challenges, and then answer questions. By making their data sets openly available through the Ultravis Institute after the Conference, more visualization researchers will be given the chance to work on the problems truly faced by the scientists.

7:00 p.m. – 10:00 p.m.

Reception at Roundhouse, California State Railroad Museum

INFOVIS CONFERENCE

10:30 a.m. – 12:10 p.m.

Regency C

Evaluation

Chair: Penny Rheingans

Visualizing Causal Semantics using Animations, Nivedita Kadaba, Pourang Irani, Jason Leboe

Spatialization Design: Comparing Points and Landscapes, Melanie Tory, David W. Sprague, Fuqu Wu, Wing Yan So, Tamara Munzner

Weaving Versus Blending: a quantitative assessment of the information carrying capacities of two alternative methods for conveying multivariate data with color, Haleh Hagh-Shenas, Sunghee Kim, Victoria Interrante, Christopher Healey

Overview Use in Multiple Visual Information Resolution Interfaces, Heidi Lam, Tamara Munzner, Robert Kincaid

LUNCH BREAK 12:10 p.m. – 2:00 p.m.

2:00 p.m. – 3:40 p.m.

Regency A/B

Tree and Graph Visualization

Chair: Tamara Munzner

Visualizing Changes of Hierarchical Data using Treemaps, Ying Tu, Han-Wei Shen

Exploring Multiple Trees through DAG Representations, Martin Graham, Jessie Kennedy

NodeTrix: a Hybrid Visualization of Social Networks, Nathalie Henry, Jean-Daniel Fekete, Michael J. McGuffin

Multi-Level Graph Layout on the GPU, Yaniv Frishman, Ayellet Tal

BREAK 3:40 p.m. – 4:15 p.m.

4:15 p.m. – 5:55 p.m.

Regency A/B/C

Combined InfoVis Capstone/VAST Keynote: InfoVis as Seen by the World Out There: 2007 in Review

Stephen Few, *Perceptual Edge/ University of California, Berkeley*

How we as insiders see and understand InfoVis is quite different from how it is seen by most people in the world out there. Most people get only glimpses of what we do, and those glimpses rarely tell the story clearly. Think about the view of InfoVis that has been created in 2007 through marketing, blogs, and articles. This view is peppered with misperception. In this presentation, I'll take you on a tour of InfoVis's exposure in 2007: the highlights and the failures that have shaped the world's perception of our beloved and important work.

Stephen Few is not your typical infovis professional. After getting an undergraduate degree in Communication Studies, he went on to get an advanced degree in Religious Studies. Few has spent the last 25 years immersed in the world of business, helping people to make better use of their data. As such, he brings a critical eye and practical concerns to InfoVis, constantly asking the questions: "Does it really work and does it really matter?"

VAST SYMPOSIUM

10:30 a.m. – 12:10 p.m.

Regency D/E

Geotemporal Analysis

Chair: Alan MacEachren

Activity Analysis Using Spatio-Temporal Trajectory Volumes in Surveillance Applications, Firdaus Janoos, Shantanu Singh, Okan Irfanoglu, Raghu Machiraju, Richard Parent

FemaRepViz: Automatic Extraction and Geo-Temporal Visualization of FEMA National Situation Updates, Chi-Chun Pan, Prasenjit Mitra

Stories in GeoTime, Ryan Eccles, Thomas Kapler, Robert Harper, William Wright

LAHVA: Linked Animal-Human Health Visual Analytics, Ross Maciejewski, Benjamin Tyner, Yun Jang, Cheng Zheng, Rimma V. Nehme, David S. Ebert, William S. Cleveland, Mourad Ouzzani, Shaun J. Grannis, Lawrence T. Glickman

LUNCH BREAK 12:10 p.m. – 2:00 p.m.

2:00 p.m. – 3:40 p.m.

Regency D/E

Emergency & Surveillance Analytics & Systems

Chair: Daniel Keim

Visual Analytics on Mobile Devices for Emergency Response, SungYe Kim, Yun Jang, Angela Mellema, David Ebert, Timothy Collins

Visual Analytics Approach to User-Controlled Evacuation Scheduling, Gennady Andrienko, Natalia Andrienko, Ulrich Bartling

Thin Client Visualization, Stephen Eick, Andrew Eick, Jesse Fugitt, Brian Horst, Maxim Khailo, Russell Lankenau

IMAS: The Interactive Multigenomic Analysis System, Chris Shaw, Greg A Dasch, Marina E Eremeeva

BREAK 3:40 p.m. – 4:15 p.m.

4:15 p.m. – 5:55 p.m.

Regency A/B/C

Combined InfoVis Capstone/VAST Keynote: InfoVis as Seen by the World Out There: 2007 in Review

Stephen Few, *Perceptual Edge/ University of California, Berkeley*

See left column for description

PHD COLLOQUIUM

8:30 a.m. – 10:00 a.m.

Regency C

Multi-Layer Visualization for Remotely Sensed Hyperspectral Imagery, Shangshu Cai

Visualization of Statistical Measures of Uncertainty, Kristin Potter

Illustrative Visualization Techniques for Pre-Operative Planning, Christian Tietjen

BREAK 10:00 a.m. – 10:30 a.m.

10:30 a.m. – 12:00 p.m.

Regency C

Panel: Life After Graduate School

LUNCH BREAK 12:00 p.m. – 2:00 p.m.

2:00 p.m. – 3:30 p.m.

Regency C

Augmenting Digital Library Search Interfaces with Visual Analysis Tools, Edward Clarkson

Personal Information Management Through Interactive Visualizations, Florian Evequoz

Towards Exploratory Visualization of Multivariate Streaming Data, Zaixian Xie

Understanding Information Visualization Within the Context of Visual Representation, Caroline Ziemkiewicz

BREAK 3:30 p.m. – 4:15 p.m.

4:15 p.m. – 5:45 p.m.

Regency C

Distributed Cognition Planning and Training through Interactive Simulation and Visualization, Bruce Campbell

Synthesizing Geovisual Analytic Results, Anthony Robinson

Naviation and Synthesis in Interactive Visualization, Yedendra Shrinivasan

WEDNESDAY EVENTS

8:30 a.m. – 7:00 p.m.

Santa Barbara

Art Show and Scientific Animation Theater (SAT)

Regency Corridor

Interactive Demos Lab

Regency F

Exhibits

8:30 a.m. – 12:10 p.m.

Golden State A/B

Tutorial: Bridging the Chasm between InfoVis and the World Out There

Organizer: Stephen Few, *Perceptual Edge*
Level: All

This tutorial is for InfoVis researchers who want their work to find its way into software where it can make a difference beyond the walls of academia. Topics will include an overview of the current use of infovis in business applications, a discussion on how to determine what infovis research is most needed, fundamental principles of visual perception and how they apply to infovis, what all infovis products should do to augment cognition, appropriate color choices, appropriate data encoding object choices, appropriate balancing of visual salience, elimination of distracting visual content and/or attributes, and best practices in data presentation.

LUNCH BREAK 12:10 p.m. – 2:00 p.m.

2:00 p.m. – 5:55 p.m.

Golden State A/B

Tutorial: Statistical Graphics for High-D Data

Organizer: Diane Cook, *Iowa State University*
Additional Speakers: Heike Hofmann, *Iowa State University,* Michael Lawrence, *Iowa State University,* Hadley Wickham, *Iowa State University*
Level: Intermediate

In this tutorial we'll describe interactive statistical graphics methods for visualizing high-dimensional data. We will teach the basics of direct manipulation and dynamic graphics that facilitate exploratory data analysis. We will describe multiple linked windows and grand, guided and manual tours. Direct manipulation on the plots includes scaling, moving points, linked brushing and identification using categorical variables. Visual methods for handling missing values, supervised classification, clustering and statistical inference for plots. The methods taught are readily available in open source software, enabling all participants to reproduce, extend and use them with their own data after the workshop.

VIS CONFERENCE

8:30 a.m. – 10:10 a.m.

Regency A

DT-MRI and Medical

Chair: Gordon Kindlmann

Interactive Visualization of Volumetric White Matter Connectivity in DT-MRI Using a Parallel-Hardware Hamilton-Jacobi Solver, Won-Ki Jeong, P. Thomas Fletcher, Ran Tao, Ross T. Whitaker

Visualizing Whole-Brain DTI Tractography with GPU-based Tuboids and LoD Management, Vid Petrovic, James Fallon, Falko Kuester

Topological Visualization of Brain Diffusion MRI Data, Thomas Schultz, Holger Theisel, Hans-Peter Seidel

Stochastic DT-MRI Connectivity Mapping on the GPU, Tim McGraw, Mariappan Nadar

Regency B

Surfaces

Chair: Hans Hagen

Efficient Surface Reconstruction using Generalized Coulomb Potentials, Andrei C. Jalba, Jos B.T.M. Roerdink

Surface Extraction from Multi-Material Components for Metrology using Dual Energy CT, Christoph Heinzl, Johann Kastner, M. Eduard Gröller

Construction of Simplified Boundary Surfaces from Serial-sectioned Metal Micrographs, Scott E. Dillard, John F. Bingert, Dan Thoma, Bernd Hamann

Random-Accessible Compressed Triangle Meshes, Sung-Eui Yoon, Peter Lindstrom

BREAK 10:10 a.m. – 10:30 a.m.

10:30 a.m. – 12:10 p.m.

Regency A

Navigation in Parameter Space

Chair: Anna Vilanova

LiveSync: Deformed Viewing Spheres for Knowledge-Based Navigation, Peter Kohlmann, Stefan Bruckner, Armin Kanitsar, M. Eduard Gröller

Navigating in a Shape Space of Registered Models, Randall C. Smith, Richard Pawlicki, István Kókai, Jörg Finger, Thomas Vetter

Querying and Creating Visualizations by Analogy, Carlos E. Scheidegger, Huy T. Vo, David Koop, Juliana Freire, Cláudio Silva

Contextualized Videos: Combining Videos with Environment Models to Support Situational Understanding, Yi Wang, David A. Krum, Enylton M. Coelho, Doug A. Bowman

Regency B

Panel: "Though this be madness, yet there is method in it": The Importance Of Mathematical Concepts Beneath Contemporary Visualization

Organizers: Rita Borgo, *School of Computing, University of Leeds,* David Duke, *School of Computing, University of Leeds*

Panelists: David Banks, *UT/ORNL Joint Institute for Computational Sciences,* Hamish Carr, *University College Dublin,* Roger Crawfis, *Ohio State University,* Tamara Munzner, *University of British Columbia,* Valerio Pascucci, *Lawrence Livermore National Laboratory*

Visualization occupies an important role in the pursuit of knowledge as the understanding of real world phenomena. However, behind the image are mathematical models of the world and its representation. The panel will involve lively discussion and debate on the kinds of mathematics applicable to visualization and the means by which maths is brought into the discipline. After summarizing the 'case for the defense', members of the panel will be cross-examined by the audience on whether their own work is the madness of genius, or the product of mathematical methods.

LUNCH BREAK 12:10 p.m. – 2:00 p.m.

2:00 p.m. – 3:40 p.m.

Regency A

Volume Rendering

Chair: David Kao

Lattice-Based Volumetric Global Illumination, Feng Qiu, Fang Xu, Zhe Fan, Neophytos Neophytou, Arie Kaufman, Klaus Mueller

A Flexible Multi-Volume Shader Framework for Arbitrarily Intersecting Multi-Resolution Datasets, John Plate, Thorsten Holtkaemper, Bernd Froehlich

Scalable Hybrid Unstructured and Structured Grid Raycasting, Philipp Muigg, Markus Hadwiger, Helmut Doleisch, Helwig Hauser

Transform Coding for Hardware-accelerated Volume Rendering, Nathaniel Fout, Kwan-Liu Ma

Regency B

Panel: "All Visualization Software is Basically the Same, Right?" Comparing Commercial and Academic Visualization Software -- from Requirements, to the Development Process, to Intellectual Property

Organizer: David Weinstein, *Numira Biosciences*
Panelists: Randall Frank, *CEI,* Will Schroeder, *Kitware,* Scott Senften, *Landmark/Halliburton,* Karel Zuiderveld, *Vital Images*

The terrain is quickly shifting in the field of visualization: both on the commercial front, where visualization software is becoming a commodity tool; and on the academic front, where universities are increasingly focused on software patents and licensing fees. And as the situation on each of these fronts continues to evolve, the landscape at their intersection is increasingly filled with tremendous potential, but also dangerous land-mines.

BREAK 3:40 p.m. – 4:15 p.m.

4:15 p.m. – 4:45 p.m.

Regency A/B

Poster Fast Forward

4:45 p.m. – 5:45 p.m.

Regency A/B

Best Posters

6:00 p.m. – 7:00 p.m.

Regency Corridor

Poster Viewing and Interactive Demos Lab

VAST SYMPOSIUM

8:30 a.m. – 10:10 a.m.

Regency D/E

Panel: the VAST 2007 Contest

Blue Iguanodon, Georges Grinstein, Catherine Plaisant, Sharon Laskowski, Theresa O'Connell, Jean Scholtz, Mark Whiting

BREAK 10:10 a.m. – 10:30 a.m.

10:30 a.m. – 12:10 p.m.

Regency D/E

Multivariate Analytics

Chair: Leeland Wilkinson

Balancing Interactive Data Management of Massive Data with Situational Awareness through Smart Aggregation, Daniel Tesone, John Goodall

ClusterSculptor: A Visual Analytics Tool for High-Dimensional Data, Eun Ju Nam, Yiping Han, Klaus Mueller, Alla Zelenyuk, Dan Imre

Analysis Guided Visual Exploration of Multivariate Data, Di Yang, Elke A. Rundensteiner, Matthew O. Ward

Intelligent Visual Analytics Queries, Ming C. Hao, Umeshwar Dayal, Daniel A. Keim, Dominik Morent, Joern Schneidewind

LUNCH BREAK 12:10 p.m. – 2:00 p.m.

2:00 p.m. –3:40 p.m.

Regency D/E

Panel: Outlook for Visual Analytics Research Funding

Jim Thomas, Daniel Keim, Joe Kielman, Larry Rosenblum

BREAK 3:40 p.m. – 4:15 p.m.

4:15 p.m. – 5:55 p.m.

Regency D/E

Text & Media Exploration

Chair: Pat Hanrahan

Point Placement by Phylogenetic Trees and its Application to Visual Analysis of Document Collections, Ana M. Cuadros, Fernando V. Paulovich, Rosane Minghim, Guilherme P. Telles

Analyzing Large-Scale News Video Databases to Support Knowledge Visualization and Intuitive Retrieval, Hangzai Luo, Jianping Fan, Jing Yang, William Ribarsky, Shin'ichi Satoh

Literature Fingerprinting: A New Method for Visual Literary Analysis, Daniel A. Keim, Daniela Oelke

NewsLab: Exploratory Broadcast News Video Analysis, Mohammad Ghoniem, Dongning Luo, Jing Yang, William Ribarsky

6:00 p.m. – 7:00 p.m.

Regency Corridor

Poster Viewing

THURSDAY EVENTS

8:30 a.m. – 12:10 p.m.

Regency Corridor

Interactive Demos Lab

Regency F

Exhibits

VIS CONFERENCE

8:30 a.m. – 10:10 a.m.

Regency A

Molecules, Proteins, Medical

Chair: Terry Yoo

Molecular Surface Abstraction, Greg Cipriano, Michael Gleicher

Two-Level Approach to Efficient Visualization of Protein Dynamics, Ove Daae Lampe, Ivan Viola, Nathalie Reuter, Helwig Hauser

Visual Verification and Analysis of Cluster Detection for Molecular Dynamics, Sebastian Grottel, Guido Reina, Jadran Vrabec, Thomas Ertl

CoViCAD: Comprehensive Visualization of Coronary Artery Disease, Maurice Termeer, Javier Oliván Bescós, Marcel Breeuwer, Anna Vilanova, Frans Gerritsen, Meister Eduard Gröller

Regency B

Uncertainty and Perception

Chair: Penny Rheingans

Visualizing Large-scale Uncertainty in Astrophysical data, Hongwei Li, Chi-Wing Fu, Yinggang Li, Andrew Hanson

Uncertainty Visualization in Medical Volume Rendering Using Probabilistic Animation, Claes Lundström, Patric Ljung, Anders Persson, Anders Ynnerman

A Grid with a View: Optimal Texturing for Perception of Layered Surface Shape, Alethea Bair, Donald House

Conjoint Analysis to Measure the perceived Quality in Volume Rendering, Joachim Giesen, Klaus Mueller, Eva Schuberth, Lujin Wang, Peter Zolliker

Regency C

Multimodal Interactions

Chair: Amitabh Varshney

Interactive Sound Rendering in Complex and Dynamic Scenes using Frustum Tracing, Christian Lauterbach, Anish Chandak, Dinesh Manocha

Listener-based Analysis of Surface Importance for Acoustic Metrics, Frank Michel, Eduard Deines, Martin Hering-Bertram, Christoph Garth, Hans Hagen

Shadow-Driven 4D Haptic Visualization, Hui Zhang, Andrew J. Hanson

High-Quality Multimodal Volume Rendering for Preoperative Planning of Neurosurgical Interventions, Johanna Beyer, Markus Hadwiger, Stefan Wolfsberger, Katja Bühler

BREAK 10:10 a.m. – 10:30 a.m.

10:30 a.m. – 12:10 p.m.

Regency A

Points, Segmentation, and Isosurfaces

Chair: Hamish Carr

Topology, Accuracy, and Quality of Isosurface Meshes Using Dynamic Particles, Miriah Meyer, Robert M. Kirby, Ross Whitaker

Visualization of Cosmological Particle-Based Datasets, Paul Arthur Navrátil, Jarrett L. Johnson, Volker Bromm

Segmentation of Three-dimensional Retinal Image Data, Alfred R. Fuller, Robert J. Zawadzki, Stacey Choi, David F. Wiley, John S. Werner, Bernd Hamann

Interactive Isosurface Ray Tracing of Time-Varying Tetrahedral Volumes, Ingo Wald, Heiko Friedrich, Aaron Knoll, Charles Hansen

Regency B

Panel: Getting Human-Centered Computing and Scientific Visualization Married: the Myth and Critical Issues

Organizer: Jian Chen, *Brown University*

Panelists: Jian Chen, *Brown University,* Victoria Interrante, *University of Minnesota,* David Laidlaw, *Brown University,* William Ribarsky, *Charlotte Visualization Center*

The power of scientific visualization is to represent data as graphic images that humans can understand, allowing users to execute their real-world tasks effectively. Researchers need to tackle the human side of visualization to study how people make use of different visualization approaches and to build more usable visualization systems. This panel brings together diverse researchers across the human-centered computing and visualization spectrum to discuss their research, to reach beyond their own fields, and to understand the marriage of HCC and scientific visualization for future collaborations.

Regency C

Flow Field Visualization II

Chair: Xavier Tricoche

Generalized Streak Lines: Analysis and Visualization of Boundary Induced Vortices, Alexander Wiebel, Xavier Tricoche, Dominic Schneider, Heike Jänicke, Gerik Scheuermann

Moment Invariants for the Analysis of 2D Flow Fields, Michael Schlemmer, Manuel Heringer, Florian Morr, Ingrid Hotz, Martin Hering-Bertram, Christoph Garth, Wolfgang Kollmann, Bernd Hamann, Hans Hagen

Virtual Rheoscopic Fluids for Flow Visualization, William L. Barth, Christopher A. Burns

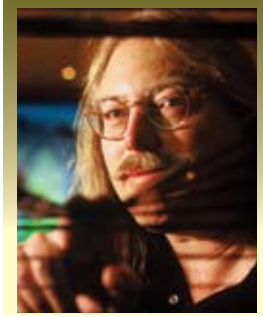
Cores of Swirling Particle Motion in Unsteady Flows, Tino Weinkauf, Jan Sahner, Holger Theisel, Hans-Christian Hege

LUNCH BREAK 12:10 p.m. – 2:00 p.m.

2:00 p.m. – 4:00 p.m.

Regency B/C

Capstone



Chris Johnson, *Director of the Scientific Computing and Imaging Institute, University of Utah*

VAST SYMPOSIUM

8:30 a.m. – 10:10 a.m.

Regency D/E

Security & Investigative Analysis

Chair: David Ebert

Jigsaw: Supporting Investigative Analysis through Interactive Visualization, John Stasko, Carsten Görg, Zhicheng Liu, Kanupriya Singhal

SpiralView: Towards Security Policies Assessment through Visual Correlation of Network Resources with Evolution of Alarms, Enrico Bertini, Patrick Hertzog, Denis Lalanne

Session Viewer: a Visual Exploratory Analysis of Web Session Logs, Heidi Lam, Daniel Russell, Diane Tang, Tamara Munzner

WireVis: Visualization of Categorical, Time-Varying Data From Financial Transactions, Remco Chang, Mohammad Ghoniem, Robert Kosara, William Ribarsky, Jing Yang, Evan Suma, Caroline Ziemkiewicz, Daniel Kern, Agus Sudjianto

BREAK 10:10 a.m. – 10:30 a.m.

10:30 a.m. – 12:10 p.m.

Regency D/E

Social Analysis & Interaction

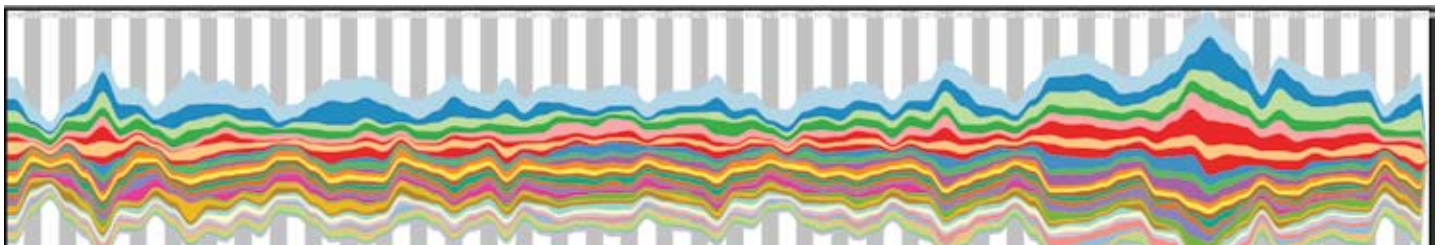
Chair: Pak Chung Wong

Us vs. Them: Understanding Social Dynamics in Wikipedia with Revert Graph Visualizations, Bongwon Suh, Ed Chi, Bryan Pendleton, Aniket Kittur

Design Considerations for Collaborative Visual Analytics, Jeffrey Heer, Maneesh Agrawala

Visual Analysis of Controversy in User-generated Encyclopedias, Ulrik Brandes, Jürgen Lerner

DataMeadow: A Visual Canvas for Analysis of Large-Scale Multivariate Data, Niklas Elmqvist, John Stasko, Philippas Tsigas



POSTERS

Regency Corridor

Infovis Posters

Name That Cluster-Text vs. Graphics, James Abello, Hans Jorg Schulz, Christian Tominski, Benoit Gaudin

Exploration of the 3D Treemap Design Space, Hans-Joerg Schulz, Martin Luboschik, Heidrun Schumann

CAT: A Hierarchical Image Browser Using a Rectangle Packing Technique, Ai Gomi, Takayuki Itoh, Jia Li

A Synchronized Tag Cloud and Timeline Visualization, Joris Klerkx, Erik Duval

Judging Correlation from Scatterplots and Parallel Coordinate Plots, Jing Li, Jack van Wijk

Exploring and Visualizing Patterns in Text Collections with FeatureLens, Anthony Don, Catherine Plaisant, Loretta Auvil, Tanya Clement, Elena Zheleva, Machon Gregory, Sureyya Tarkan, Ben Shneiderman

Visualizing very large layered graphs with quilts, Benjamin Watson, David Brink, Matthias Stallmann, Ravi Devarajan, Matthew Rakow, Theresa-Marie Rhyne, Himesh Patel

Visual Clustering in Parallel Coordinates, Hong Zhou, Xiaoru Yuan, Baoquan Chen, Huamin Qu

Concept Relationship Editor: A visual interface to support the creation of relationships between taxonomic classications, Paul Craig, Jessie Kennedy

Effective Display of Conserved Domains on a Multiple Sequence Alignment, Andrew D. Lindeman, Susan M. Bridges, T.J. Jankun-Kelly

Plugable Lenses for Interactive Visualizations, Georg Fuchs, Conrad Thiede, Heidrun Schumann

ThisStar: Declarative Visualization Prototype, Joseph Cottam, Andrew Lumsdaine

Indexing Similarity Visualization over the Medial Subject Headings (MeSH), Haixia Du, Terry Yoo

Teaching Science in Virtual Reality with a Freehand 3D Illustration, Miles Jadrian, Keefe Daniel, Acevedo Daniel, Drury Fritz, Swartz Sharon, Laidlaw David

Visualizing the Eclipse Bug Data, Michael Ogawa, Kwan-Liu Ma, Zhendong Su

Treemap Based Graph Layout, Chris Muelder, Kwan-Liu Ma

Comment Flow, Dietmar Offenhuber, Judith Donath

Developing Colour Sequences for High Dynamic Range Data, Matthew Tobiasz, Amanda Henderson, Sheelagh Carpendale, Alan Dunning, Paul Woodrow

FanLens: Dynamic Hierarchical Exploration of Tabular Data, Xinghua Lou, Shixia Liu, Tianshu Wang

Trammel Map: Providing a Clear View of the Enterprise Social Network, Shixia Liu, Nan Cao, Paul Moody, Tianshu Wang

Interactive Infovis Posters

Visual Support for Exploration within Web Search Results Lists, Orland Hoeber, Xue Dong Yang

Hairograph, Berkay Kaya, Can Cecen

CGV – Coordinated Graph Visualization, James Abello, Hans-Jörg Schulz, Heidrun Schumann, Christian Tominski

Visualization of Gene Combinations, Christian Tominski, Clemens Holzhüter, Heidrun Schumann

Maestro:3D Calendar Visualizer, Billur Engin, Mehves Cetinkaya

Visualization Posters

Browsing the Web Using Stacked Three-Dimensional Sunbursts to Visualize Term Co-Occurrences and Multimedia Content, Markus Schedl, Peter Knees, Gerhard Widmer, Klaus Seyerlehner, Tim Pohle

Practical Application of Parallel Coordinates to Hurricane Trend Analysis, Chad A. Steed, Patrick J. Fitzpatrick, T.J. Jankun-Kelly, Amber Yancey, J. Edward Swan II

Modeling Perceptual Dominance Among Visual Cues in Multi-layered Icon-based Scientific Visualizations, Daniel Acevedo, Jian Chen, David H. Laidlaw

Quantitative Effectiveness Metrics for Direct Volume Rendering, Yingcai Wu, Huamin Qu, Ka-Kei Chung, Wo-Ho Mak, Anbang Xu

Fast Filament Tracking Using Graphics Hardware, David Mayerich, Zeki Melek, John Keyser

Tractography Based Quantitative Similarity Analysis of Human Brain White Matter, Koji Sakai, Sho Iwasa, Takashi Azuma, Koji Koyamada, Sadami Tsutsumi

3-D Interactive Visualization with ACuTEMan, Megan Damon, Masanori Kameyama, Michael Knox, David Porter, Dave Yuen, Erik Sevre

Shape-Aware Focus and Context Views for Plasma Turbulence Simulation, Kristina Bennett, Deborah Silver, Carlos Correa, Scott Klasky, Seung-Hoe Ku

Mathematical Foundations for Generic Surfacing, Rita Borgo, David Duke, Colin Runciman, Malcolm Wallace

Analysis of Performance in Precise 3D Curve Input Tasks in Virtual Reality, Daniel F. Keefe, David H. Laidlaw

Application of Medical Imaging to the 3D Visualization of Astronomy Data, Michelle Borkin, Alyssa Goodman, Douglas Alan, Jens Kauffmann, Michael Halle

Applications of Visualization and Data Clustering to 3D Gene Expression Data, Oliver Rübel, Gunther H. Weber, Min-Yu Huang, E. Wes Bethel, Mark D. Biggin, Charless C. Fowlkes, Cris L. Luengo Hendriks, Soile V. E. Keränen, Michael B. Eisen, David W. Knowles, Jitendra Malik, Hans Hagen, Bernd Hamann

Interactive Visualization of Metabolic Pathways, Marc Streit, Michael Kalkusch, Dieter Schmalstieg

Visualisation and Simulation of Shoulder Range of Motion: Materials and Methods for an Evaluation Study, Peter Krekel, Paul de Bruin, Charl Botha, Edward Valstar, Piet Rozing, Frits Post

Whisper, Don't Shout: Characterizing Subtle Grids, Lyn Bartram, Maureen Stone

Use of Ray Tracing Techniques on Tsunami Simulation Data with the PlayStation, Erik Sevre, Monica Christiansen, Shuo Wang, Matt Broten, Martin Lyness, Dave Yuen, Yingchun Liu

Visualization Techniques for Improving Public Understanding of Catastrophic Events, Jean Mohammadi-Aragh, Derek Irby, Song Zhang, Robert Moorhead

Visualization of Osseointegration of Dental Implants, Raymund Espiritu, James Earthman, Joerg Meyer

Reading the Envelope: Understanding Visual Similarity Matrices, Joseph Cottam, Ben Martin, Chris Mueller, Andrew Lumsdaine

The Generalized Caseview, a qualitative pixelization method: case study, Pierre Levy

Visualization of Multiple-Roofed 3-D Building Models from Digital Maps, Kenichi Sugihara, Yoshitugu Hayashi

Visualizing Spatial Relations Between 3D-DTI Integral Curves Using Texture Patterns, Doria Jianu, Wenjin Zhou, Cagatay Demiralp, David Laidlaw

Interactive Mulitple Scale Small Multiples, Jian Chen, Andrew S. Forsberg, Sharon M. Swartz, David H. Laidlaw

VAST Posters

VAST to Knowledge: Combining tools for exploration and mining, Loretta Auvil, Xavier Llora, Duane Searsmith, Kelly Searsmith

VAST 2007 Contest Interactive Poster: Data Analysis Using NdCore and REGGAE, Lynn Schwendiman, Jonathan McLean, Jonathan Larson

Visual Analytics with Jigsaw, Carsten Görg, Zhicheng Liu, Neel Parekh, Kanupriya Singhal, John Stasko

Something's "Fishy" at Global Ways and Gill Breeders – Analysis with nSpace and GeoTime, Lynn Chien, Annie Tat, William Wright

TextPlorer: An application supporting text analysis, Chi-Chun Pan, Anuj R. Jaiswal, Junyan Luo, Anthony Robinson

University of British Columbia & Simon Fraser University – The Bricolage, William Chao, Daniel Ha, Kevin Ho, Linda Kaastra, Minjung Kim, Andrew Wade and Faculty Sponsor: Brian Fisher

VisPad: Integrating Visualization, Navigation and Synthesis, Yedendra B. Shrinivasan, Jarke J. van Wijk

C-GROUP: A Visual Analytic Tool for Pairwise Analysis of Dynamic Group Membership, Hyunmo Kang, Lise Getoor, Lisa Singh

Situation Awareness Tool for Global Argus, Jae Choi, Sang-joon Lee, Sarah Gigitashvilli, James Wilson

Spectra transformed for model-testing and visual exploration, Palmyra Catravas

Formalizing Analytical Discourse in Visual Analytics, Guoray Cai

Sunfall: A Collaborative Visual Analytics System for Astrophysics, Cecilia R. Aragon, Stephen J. Bailey, Sarah Poon, Karl J. Runge, Rollin C. Thomas

INTERACTIVE DEMOS LAB

Regency Corridor

Forward to the Past: Analog Glyphs for Real-Time Telemetry Monitoring, Helen Cunningham

Visualization of Events for Consumer's Photo Collections, Jiajian Chen, Stacie Hibino

Automatic Generation System for Multiple-Roofed 3-D Building Models from Digital Maps, Kenichi Sugihara, Yoshitugu Hayashi

Data360, Tom Paper, Jamie Anderson

Visualizing very large layered graphs with quilts, Ben Watson, Himesh Patel

Visual Verification and Analysis of Cluster Detection for Molecular Dynamics, Sebastian Grottel

SCIENTIFIC ANIMATION THEATER (SAT)

Santa Barbara

Towers in the Tempest, Greg Shirah, Lori Perkins, Horace Mitchell, Alex Kekesi, James W. Williams, Stuart A. Snodgrass, Marte Newcombe, Randall Jones, Joycelyn Jones, Tom Bridgman, Cindy Starr, Helen-Nicole Kostis

Digital Re-creation of a Seven Story Building Shake during an Earthquake, Amit Chourasia, Steve Cutchin

Reionization of the Universe, Ralf Kaehler, Tom Abel, Hans-Christian Hege

Elastic Secondary Deformations by Vector Field Integration, Wolfram von Funck, Hans-Peter Seidel, Holger Theisel

Visualization of Vascular Structures, Thomas Wischgoll

Breast Tumor Diagnosis, Steffen Oeltze, Bernhard Preim, Helmut Doleisch, Philipp Muigg, Helwig Hauser

Texture-based Feature Tracking for Effective Time-Varying Data Visualization, Jesus J. Caban, Alark Joshi, Penny Rheingans

Stochastic DT-MRI Connectivity Mapping on the GPU, Tim McGraw, Mariappan Nadar

Interactive Visualization of Volumetric White Matter Connectivity in DT-MRI Using a Parallel-Hardware Hamilton-Jacobi Solver, Won-Ki Jeong, P. Thomas Fletcher, Ran Tao, Ross T. Whitaker

The Golden Age of Supercomputing, Chris Johnson et al.

INFOVIS CONTEST FINALISTS

Exploring Meta-Data Associations with Bungee View, Mark Derthick

Interactive Exploration of the Movie DB on a Semantical Level, Thorsten Liebig, Olaf Noppens, Timo Weithöner

Blockbuster – A Visual Explorer for Motion Picture Data, Sebastian Rexhausen, Mischa Demarmels, Hans-Christian Jetter, Mathias Heilig, Jens Gerken, Harald Reiterer

Cinegraph, Chris Weaver

VAST 2007 CONTEST RESULTS

Corporate Category: nSpace and GeoTime, Lynn Chien, Annie Tat, Patricia Enns, Winnifred Kuang, Tom Kapler, Bill Wright

University Category: Jigsaw, Carsten Görg, Zhicheng Liu, Neel Parekh, Kanupriyah Singhal, John Stasko

Best Debriefing Award: The Bricolage, William Chao, Daniel Ha, Kevin Ho, Linda Kaastra, Minjung Kim, Andrew Wade

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