# TICIPATI





October 21 • October 26, 2001 San Diego Paradise Point Resort San Diego, California

Sponsored by IEEE Computer Society Technical Committee on Visualization and Graphics In Cooperation with ACM/SIGGRAPH

Visualization is a vital research and applications frontier shared by a variety of science, medical, engineering, business, and entertainment fields. IEEE Visualization 2001 focuses on interdisciplinary methods and collaboration among developers and users of visualization methods across all areas of science, engineering, medicine, and commerce. Sunday through Tuesday of Conference Week will include tutorials and symposia. Papers, panels, case studies, and work in progress will be presented Wednesday through Friday.

We invite you to participate in IEEE Visualization 2001 by submitting your original research through papers, case studies, work in progress, and exhibitions. Share your perspectives through panels and Birds-of-a-Feather, or your experience through tutorials. Please select the forum appropriate to your submission, where it will be considered by your peers for presentation. Particular foci on parallel and large-data visualization techniques (PVG 2001) and information visualization (InfoVis 2001) are addressed in special two-day symposia.

For further information on the conference, evolving symposia, or on submissions, contact: Mike Bailey, Conference Co-Chair, San Diego Supercomputer Center • 858-534-5142 • Fax: 858-534-5152 • mjb@sdsc.edu Charles Hansen, Conference Co-Chair, University of Utah • 801·581·3154 • Fax: 801·581·5843 • hansen@cs.utah.edu

or see: URL: http://vis.computer.org

The three conference tracks cover:

**Visualization Algorithms** *Volume Rendering, Flow Visualization, Isosurfaces,* 

Compression, Vector and Tensor Visualization, Sonification, etc.

Visualization Techniques Information Visualization, Databases, Human Perception, Human Factors, Multivariate Visualization, Virtual Reality, etc.

Visualization Applications Archaeology, Astrophysics, Aerospace, Automotive, Biomedicine, Chemistry, Education, Electronics, Environment, Finance, Mathematics, Mechanics, Molecular Biology, Physics, Virtual Reality, WWW, Java, VRML, HTML, AVS, Data Explorer, Iris Explorer, Khoros, vtk, etc.

### Paper Submissions (due March 31, 2001)

Papers are solicited that represent research results related to all areas of visualization. Original papers are limited to a maximum of 8 B/W pages plus one color page, and can be supplemented with up to 5 minutes of video. All papers must be submitted electronically in either PDF or postscript; supplemental videos may be mailed. A complete paper submission form, including the abstract, must be sent through the conference website for each submission. Details for submission are available at http://vis.computer.org/. Accepted papers will be included in the conference proceedings; the videos will be included in the conference video proceedings.

Questions and correspondence should be sent to **Kenneth I. Joy** • vis01@cs.ucdavis.edu.

# IMPORTANT DATES

March 31: Conference papers, Case Studies, Panels, Tutorials,

BOF proposals, and PVG 2001 papers due

April 2: InfoVis 2001 papers and posters due

May 28: InfoVis 2001 papers and posters selections announced May 30: Conference papers, Case Studies, Panels, Tutorials,

BOF proposals, and PVG 2001 selections announced

**June 11:** Revised InfoVis 2001 papers and poster abstracts due

**June 15:** Conference Work in Progress and Exhibition

proposals due

**June 26:** InfoVis 2001 Late Breaking Hot Topics papers due

Final Conference papers, and PVG 2001 papersdue **July 17:** 

to publisher

Author notification for InfoVis 2001 Late Breaking **July 23:** 

Hot Topics papers

Conference Work in Progress selections announced August 1:

August 6: Revised InfoVis 2001 Late Breaking Hot Topics

papers due

August 21: Conference Work in Progress final abstracts due to

August 31: Conference Work in Progress video submissions due

September 28: Close of Early Registration October 21: **Conference Commences** 

October 22: InfoVis 2001 and PVG 2001 Commence

# Case Study Papers (due March 31, 2001)

Case studies are reports on how visualization has contributed to the analysis of data in actual applications or studies of the visualization process. Possible application areas include engineering, commerce, and the physical, life, social, and information sciences. An emphasis on lessons learned from practical experience is strongly encouraged, particularly where visualization has been employed in a real, working environment. Original papers are limited to a maximum of four B/W pages plus one color page, and can be supplemented with up to 5 minutes of video. Papers longer than the page limit or those that lack a case study theme will not be considered. The phrase "Case Study" should appear in the title. Papers must be submitted electronically in either PDF or postscript; supplemental videos may be mailed. Details for electronic submission are available at http://vis.computer.org. Accepted papers will be included in the conference proceedings. NTSC VHS videos accompanying accepted submissions will be included in the conference video proceedings; movies viewable with QuickTime Player 4 or Windows Media Player 7 will be included in the CD-ROM proceedings.

For detailed information concerning submission guidelines, see the conference web site, or contact Pak Chung Wong • pak.wong@pnl.gov

#### Work in Progress (due June 15, 2001)

Submissions are solicited for Work In Progress sessions that pertain to all areas of Visualization. These submissions must be original abstracts, must describe work in progress by the authors and their collaborators, and may not exceed 1 page including images. Images and/or NTSC VHS video to accompany the abstract are recommended. Authors of accepted abstracts will have an opportunity to submit a revised and extended abstract, as well as present the work at the conference. These extended abstracts may not exceed 2 pages including images. All accepted abstracts will be distributed at the conference but not published in the conference proceedings. Videos associated with accepted abstracts may be included in the conference video proceedings. All submissions will be done electronically; supplemental videos may be mailed. Details for electronic submission are available at http://vis.computer.org/.

For further information, contact Kwan-Liu Ma • ma@cs.ucdavis.edu

### Panel Proposals (due March 31, 2001)

Panels should address the most important issues in visualization today. Panelists should be experts in their fields who can discuss the challenges of visualization, and engage the audience and fellow panel members in a stimulating, interactive debate. Panel proposals should describe the topic to be addressed and identify the prospective panelists. Each panelist should include a position statement on the topic and a short biography, the total of which should be limited to 500 words for each panelist. The statements will be included in the conference proceedings.

Demonstrations and innovative formats for the panels are encouraged. Please contact the panels co-chairs, **Val Watson** at vwatson@arc.nasa.gov or **Michael Goss** at goss@hpl.hp.com, if you have questions, suggestions, or need assistance.

Panel proposals should be sent to Val Watson • vwatson@arc.nasa.gov

### **Tutorial Proposals** (due March 31, 2001)

Half-day and full-day course proposals are invited for visualization systems, methods, and application areas. We welcome course proposals that introduce emerging technologies to the visualization community such as biotechnology, multi-user gaming, and intelligent agents. The intent is to provide new incentives and/or application domains for visualization research. Tutorials will be offered Sunday, Monday, and Tuesday.

For more detailed information concerning submission and format content, see the web site, or contact **Penny Rheingans** • rheingan@cs.umbc.edu.

#### Birds-of-a-Feather Proposals (due March 31, 2001)

Proposals may be submitted for evening Birds-Of-A-Feather (BOF) gatherings on visualization methods or application areas. They should deal with state-of-the-art topics and involve experts in the field. Discipline-focused proposals devoted to a particular discipline's methods and needs are encouraged. The IEEE Visualization Conference is interested in expanding its BOF sessions and will consider proposals for each evening, given room availability.

Birds-of-a-Feather Proposals should be sent to Mike Pique • pique@scripps.edu

### **Exhibition Proposals** (due June 15, 2001)

Visualization 2001 is a unique opportunity to present your products or research to visualization experts from a wide variety of fields. We invite exhibitions of commercial hardware, software, integrated systems peripherals and literature, as well as academic research. We encourage exhibitors to have technical representatives in attendance.

For more information on participating in the Visualization 2001 exhibition, contact  $\bf Theresa\text{-}Marie\ Rhyne \bullet \ rhyne@siggraph.org$ 

### IEEE SYMPOSIUM ON INFORMATION VISUALIZATION (INFOVIS 2001)

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

October 22-23, 2001 • San Diego Paradise Point Resort • San Diego California

#### http://www.infovis.org/infovis2001/cfp.html

The IEEE Symposium on Information Visualization is the premier meeting in the emerging field of information visualization, involving the visual presentation of and interaction with abstract information spaces and structures to facilitate their rapid assimilation and understanding. Original papers are solicited in all areas of information visualization, including but not limited to the following:

- · Browsing and navigation methods
- Data structures and models underlying information visualization
- Empirical studies of information visualization techniques
- Graph and network visualizations
- Information presentation
- Information visualization for heterogeneous audiences
- Multi-dimensional information visualization
- · Visualization of complex information
- · Visualizing the internet and the web
- Visualization algorithms
- Visualization of algorithms
- Visualization of textual information
- Visualization and knowledge discovery
- · Visualization of search results
- Visualization systems for collaborative workspaces
- Visualization perspectives from design, perception, and the arts

### Full Papers (due April 2, 2001)

Full papers should be at most 8 printed pages. Full papers present previously unpublished, original results. Papers submitted as full papers may, at the discretion of the program co-chairs, be invited for publication and presentation as short papers.

# Short Papers (due April 2, 2001)

Short papers should be at most 4 printed pages. The new short paper category is intended for two submission types: a) short case studies of how information visualization has contributed to working applications in real-life environments, and b) short technical notes which, though novel and of interest to the community, do not warrant a full paper submission. Clearly identify the type of your submission by including the prefix "Case Study:" or "Technical Note:" in the title of your short paper.

# **Late Breaking Hot Topics** (due June 26, 2001)

Late Breaking Hot Topics (LBHT) have a much later submission deadline and are an opportunity to present exciting new findings, preliminary results, and work in progress. LBHT submissions should be at most 4 printed pages and present original unpublished work. Accepted LBHT papers will be published and distributed at the symposium.

# **IMPORTANT DATES**

**April 2:** Full papers, short papers, and interactive posters due

May 28: Author notification for papers and posters
June 11: Revised papers and poster abstracts due
June 26: Late Breaking Hot Topics papers due

July 23: Author notification for Late Breaking Hot Topics papers

August 6: Revised Late Breaking Hot Topics papers due

October 22: Symposium commences

### **Interactive Posters** (due April 2, 2001)

The new interactive poster category includes both traditional posters and demos, either live on a laptop or through video. All authors of accepted interactive posters are required to bring a poster to and attend the scheduled poster session. Accepted authors who wish to show demos of their work are encouraged to also bring a laptop or a videotape to that session. All interactive poster authors must submit a 2 page extended abstract, and those who intend to show demos are highly encouraged to also submit an accompanying video. Clearly identify the type of your submission by including the prefix "Interactive Poster:" in the title of your extended abstract.

# INFOVIS 2001 (continued)

**Submissions:** Please prepare your submission according to the IEEE Press Author Guidelines at http://www.computer.org/cspress/instruct.htm. Authors are encouraged to include full colour illustrations on all pages. Papers should be submitted electronically in PDF. The details of the submission process will be posted at the InfoVis 2001 web site: http://www.infovis.org/infovis2001

Submissions to any of the InfoVis 2001 categories may be accompanied by supporting digital or NTSC VHS video material, to a maximum length of 5 minutes. Accompanying video will assist in the review process. Digital videos (MPEG or QuickTime) should be submitted electronically. For NTSC VHS video tapes, send 5 copies, through courier, by the appropriate submission date to Pak Chung Wong • Battelle Pacific NW Nat Lab • 3320 Q Street Richland, WA 99352, USA • 509·372·4764 • Fax: 509·375·3641 • Pak.Wong@pnl.gov

#### **General Symposium Chair**

Steven Feiner, Columbia University

#### **Program Co-Chairs**

Keith Andrews, Graz University of Technology Steven Roth, MAYA Viz. Pak Chung Wong, Pacific Northwest National Laboratory

# **Interactive Posters Chair**

Tamara Munzner, Compaq SRC

### **Late Breaking Hot Topics**

John Dill, Simon Fraser University Nahum Gershon, MITRE Corp.

#### **Program Committee**

Keith Andrews, Graz University of Technology Mark Apperly, University of Waikato Dan Bergeron, University of New Hampshire

Kenneth R. Boff, Air Force Research

Laboratory Stuart Card, Xerox PARC Matthew Chalmers, University of Glasgow Mei Chuah, Andersen Consulting Mark Derthick, Carnegie Mellon University John Dill, Simon Fraser University Stephan G. Eick, Visual Insights Robert Erbacher, SUNY Albany Steve Feiner, Columbia University

David Fracchia, Simon Fraser University

Nancy Grady, Dryken Technology Hans Hagen, University of Kaiserslautern Beth Hetzler, Pacific Northwest National Laboratory

Jim Hollan, University of California San Diego

Alfred Inselberg, Tel Aviv University Daniel Keim, University of Konstanz Stefan Kerpedjiev, MAYA Viz Jake Kolojejchick, MAYA Viz Sharon Laskowski, National Institute of Standards and Technology

Jock Mackinlay, University of Aarhus Tamara Munzner, Compaq Systems Research Center

Stephen C. North, AT&T Labs Harald Reiterer, University of Konstanz George Robertson, Microsoft Research Steven Roth, MAYA Viz Hikmet Senay, J. P. Morgan Robert Spence, Imperial College John Stasko, Georgia Tech James Thomas, Pacific Northwest National Laboratory Matthew Ward, Worcester Polytechnic

Institute Colin Ware, University of New Hampshire

Jarke J. van Wijk, Eindhoven University of Technology

Graham Wills, Lucent Technologies Bell Labs Jim Wise, Intergations

Pak Chung Wong, Pacific Northwest National Laboratory William Wright, Visual Insights

# IEEE SYMPOSIUM ON PARALLEL AND LARGE-DATA VISUALIZATION AND GRAPHICS (PVG 2001)

Sponsored by the IEEE Computer Society in cooperation with Eurographics and ACM SIGGRAPH

October 22-23, 2001 • San Diego Paradise Point Resort • San Diego California

PVG 2001, the IEEE Symposium on Parallel and Large-Data Visualization and Graphics, will be held on October 22-23, 2001 in conjunction with IEEE Visualization 2001. This is the 5th meeting in a series that began with the Parallel Rendering Symposium. The current title reflects an expanded emphasis on large data models, scientific visualization and graphics in addition to photorealistic rendering. This emphasis is intended to address subject areas outside the bounds of larger conferences, e.g. IEEE Visualization or ACM SIGGRAPH.

Papers are due March 31, 2001 and are expected to address issues of large data models, parallelism, or both as applied to problems in visualization and graphics. Although large data models and parallelism are often linked, submission of papers focusing on small-scale parallelism and non-parallel large data techniques is encouraged. We are also interested in hardware, survey papers and state-of-the-art case studies. Possible topics include:

- · Parallel algorithms, architectures and software
- · Load balancing, scalability, and performance
- Mesh/data simplification
- Feature extraction
- Multi-resolution and out-of-core techniques
- · Isocontouring and volume rendering
- · Vector/tensor field visualization
- · Parallel rendering, modeling and simulation
- · Displays and multi-modal interaction, virtual reality
- Graphics/network accelerators and systems

**Submissions:** The deadline for submissions is March 31, 2001. Final papers will be limited to 8 proceedings pages plus one page of color figures. Case studies are limited to four proceedings pages plus one page of color figures. Please e-mail your submission in either PDF or compressed Postscript to: pvg01@gg.caltech.edu.

# IMPORTANT DATES

March 31: Papers due

May 30: Papers selections announced October 22: Symposium commences

#### Symposium Co-Chairs

David Breen, California Institute of Technology Alan Heirich, Compaq Computer Corporation Anton Koning, SARA Computing and Networking Services

#### **Program Committee**

Chandrajit Bajaj, University of Texas, Austin

Dirk Bartz, University of Tübingen

Xavier Cavin, LORIA

Alan Chalmers, University of Bristol

Dianne Cook, Iowa State University

Patricia Crossno, Sandia National Laboratory

Tom Ferrin, University of California, San Francisco

Chuck Hansen, University of Utah

Lambertus Hesselink, Stanford University

Sorin Istrail, Celera Genomics

Ulrich Lang, University of Stuttgart

Peter Lindstrom, Lawrence Livermore National Laboratory

Kwan-Liu Ma, University of California, Davis

Raghu Machiraju, Ohio State University

Steve Molnar, nVidia

Erik Reinhard, University of Utah

Claudio Silva, AT&T Research

Sam Uselton, Lawrence Livermore National Laboratory

Please specify the type of submission in the subject line of your e-mail (PAPER or CASE STUDY). In addition, please send five copies of any accompanying NTSC video to the following postal address:

Alan Heirich/PVG2001 • 2024 Touraine Lane • Half Moon Bay, CA 94019

Electronic submission of video and animation in Quicktime, AVI or Shockwave formats will also be accepted.

For further information see http://www.gg.caltech.edu/PVG01/



Non-profit Org. U.S. Postage **PAID** Silver Spring, MD Permit No. 1398

#### IEEE Visualization 2001 Conference Committee

Conference Co-Chairs:

Mike Bailey, San Diego Supercomputer Center Charles Hansen, University of Utah

**Program Co-Chairs:** 

Hanspeter Pfister, Mitsubishi Electric Research Laboratory Edward Swan, The Naval Research Laboratory

Papers Co-Chairs:

Kenneth I. Joy, University of California, Davis Amitabh Varshney, University of Maryland, College Park Thomas Ertl, University of Stuttgart

**Case Studies Co-Chairs:** 

Pak Chung Wong, Pacific Northwest National Laboratory Rachael Brady, Duke University Robert van Liere, Center for Mathematics and Computer Science, Amsterdam

Panels Co-Chairs:

Val Watson, NASA Ames Research Center Michael E. Goss, Hewlett-Packard Laboratories

Work in Progress Co-Chairs:

Kwan Liu Ma, *University of Califormia, Davis* Kelly Gaither, *Mississippi State University* Georges-Pierre Bonneau, LMC-CNRS

**Tutorials Co-Chairs:** 

David Kenwright, Massachusetts Institute of Technology Penny Rheingans, University of Maryland Baltimore County

Birds-Of-a-Feather Co-Chairs:

Mike Pique, Scripps Research Institute Rob Erbacher, University of Albany

InfoVis 2001 Symposium Liaison:

Pak Chung Wong, Pacific Northwest National Laboratory

PVG 2001 Symposium Liaison:

David Breen, California Institute of Technology

**Publications Chair:** 

Torsten Möller, Simon Fraser University

Video Proceedings Chair:

Robert J. McDermott, University of Utah

Corporate Chair:

Theresa-Marie Rhyne, Consultant

**Exhibition Co-Chairs:** 

Chris Healey, North Carolina State University Eric Greenwade, Idaho National Engineering and Environmental Laboratory

**Publicity Co-Chairs:** 

Elizabeth Jurrus, Pacific Northwest National Laboratory Dirk Bartz, University of Tübingen

**Graphics Designer:** 

Holley Beeland, Mississippi State University

Andrew J. Hanson, Indiana University

Conference Webmaster:

Steve Lamont, National Center for Microscopy and Imaging Research

Networking and Security Chair:

Steve Lau, Lawrence Berkeley National Laboratory

**Registration Co-Chairs:** 

Nancy Grady, Oak Ridge National Laboratory Lucy Nowell, Pacific Northwest National Laboratory

Finance Co-Chairs:

Greg Johnson, San Diego Supercomputer Center Loretta Auvil, National Center for Supercomputing Applications

**Equipment Chair:** 

Hank Kaczmarski, Beckman Institute

Audio Visual Chair:

Sue Havre, Pacific Northwest National Laboratory

**Audio Visual Contractor:** 

Todd Szymanski, Munday and Collins

**Local Arrangements Chair:** 

Nancy Jensen, San Diego Supercomputer Center

**Student Volunteers Chair:** 

Vicki Interrante, University of Minnesota

**IEEE Computer Society Meeting Services Liaison:** Kristine Weiand, IEEE Computer Society

# IEEE Visualization 2001 Tentative Program Committee

Chandrajit Bajaj, University of Texas, Austin David Banks, Florida State University Stephen A. Benton, Massachusetts Institute of Technology R. Daniel Bergeron, University of New Hampshire George-Pierre Bonneau, LMC-CNRS Alan Chalmers, University of Bristol Daniel Cohen-Or, Tel-Aviv University Sabine Coquillart, INRIA Michael Cox, MRJ at NASA Ames Research Center Leila DeFloriani, Universita' di Genova Rae A. Earnshaw, University of Bradford David S. Ebert, Purdue University Steve Eick, Visual Insights/Lucent Technologies Steve Feiner, Columbia University James D. Foley, Georgia Institute of Technology A. Robin Forrest, University of East Anglia Sarah Frisken-Gibson, Mitsubishi Electric Research Labs Issei Fujishiro, Ochanomizu University Tom Funkhouser, Princeton University Markus Gross, ETH-Zurich Hans Hagen, University of Kaiserslautern Bob Haimes, Massachusetts Institute of Technology

Lambertus Hesselink, Stanford University William Hibbard, University of Wisconsin, Madison Karl Heinz Höhne, University of Hamburg Victoria Interrante, University of Minnesota Rob Jacob, Tufts University Daniel A. Keim, University of Halle David Kenwright, Massachusetts Institute of Technology Ron Kikinis, Brigham and Women's Hospital, Harvard Medical School

Stanislav Klimenko, Institute for High Energy Physics William E. Lorenson, GE Corporate R&D Center Kwan-Liu Ma, University of California, Davis Robert Moorhead, Mississippi State University Shigeru Muraki, Electrotechnical Laboratory, Tsukuba Art Olson, Research Institute of Scripps Clinic Hans-Georg Pagendarm, Deutsches Zentrum für Luft-und Raumfahrt (DLR)

James Painter, TurboLinux, Inc. Alex Pang, University of California, Santa Cruz Hanspeter Pfister, Mitsubishi Electric Research Labs Theresa-Marie Rhyne, Consultant

William Ribarsky, Georgia Institute of Technology Jarek Rossignac, Georgia Institute of Technology Holly Rushmeier, IBM Thomas J. Watson Research Center Claudio Silva, AT&T Labs Research Deborah Silver, Rutgers University Wolfgang Straßer, University of Tübingen Jim Thomas, Pacific Northwest National Laboratory Lloyd Treinish, IBM Thomas J. Watson Research Center Samuel P. Uselton, Lawrence Livermore National Laboratory Michael Vannier, University of Iowa Val Watson, NASA Ames Research Center Jarke J. van Wijk, Eindhoven University of Technology Craig M. Wittenbrink, Hewlett-Packard Laboratories William Wright, Visible Decisions, Inc.

#### Steering Committee

Arie Kaufman, State University of New York at Stony Brook Robert Moorhead, Mississippi State University Greg Nielson, Arizona State University Bill Ribarsky, Georgia Institute of Technology Larry Rosenblum, Naval Research Laboratory