

EuroVis 2016
Eurographics / IEEE VGTC Conference on Visualization 2016

Groningen, The Netherlands
June 6 – 10, 2016

Organized by



**university of
groningen**



EUROGRAPHICS
THE EUROPEAN ASSOCIATION
FOR COMPUTER GRAPHICS



IEEE Visualization and Graphics Technical Committee

Short Papers

Short Papers Co-Chairs

Enrico Bertini, New York University, USA
Niklas Elmquist, University of Maryland, USA
Thomas Wischgoll, Wright University, USA

Published by
The Eurographics Association
ISBN 978-3-03868-014-7

Table of Contents

Flow Visualization

Analysis of Error in Interpolation-Based Pathline Tracing	1
<i>Jennifer Chandler, Roxana Bujack, and Kenneth I. Joy</i>	
Error Estimates for Lagrangian Flow Field Representations	7
<i>Mathias Hummel, Roxana Bujack, Kenneth I. Joy, and Christoph Garth</i>	
Crystal Glyph: Visualization of Directional Distributions Based on the Cube Map	13
<i>Xin Tong, Huijie Zhang, Chris Jacobsen, Han-Wei Shen, and Patrick McCormick</i>	
Detecting and Visualizing Rip Current Using Optical Flow	19
<i>Shweta Philip and Alex Pang</i>	
Visualizing Flow Fields Using Fractal Dimensions	25
<i>Han-Wei Shen, Ross Vasko, and Raphael Wenger</i>	

Medical Visualization

LMML: Initial Developments of an Integrated Environment for Forensic Data Visualization	31
<i>Malik Olivier Boussejra, Noboru Adachi, Hideki Shojo, Ryohei Takahashi, and Issei Fujishiro</i>	
Visualization for Understanding Uncertainty in Activation Volumes for Deep Brain Stimulation	37
<i>Brad E. Hollister, Gordon Duffley, Chris Butson, Chris Johnson, and Paul Rosen</i>	
Fast 3D Thinning of Medical Image Data based on Local Neighborhood Lookups	43
<i>Tobias Post, Christina Gillmann, Thomas Wischgoll, and Hans Hagen</i>	
VarVis: Visualizing Anatomical Variation in Branching Structures	49
<i>Noeska Smit, Annelot Kraima, Daniel Jansma, Marco deRuiter, Elmar Eisemann, and Anna Vilanova</i>	
Towards Visual Mega-Analysis of Voxel-based Measurement in Brain Cohorts	55
<i>Guohao Zhang, Peter Kochunov, Elliot Hong, Hamish Carr, and Jian Chen</i>	

Multidimensional and Geospatial Visualization

Space Bundling for Continuous Parallel Coordinates	61
<i>Gregorio Palmas and Tino Weinkauf</i>	
SpaceCuts: Making Room for Visualizations on Maps	67
<i>Juri Buchmüller, Dominik Jäckle, Florian Stoffel, and Daniel A. Keim</i>	
Visualizing Time-Dependent Data Using Dynamic t-SNE	73
<i>Paulo E. Rauber, Alexandre X. Falcão, and Alexandru C. Telea</i>	
Interactive Web-based Visualization for Accessibility Mapping of Transportation Networks	79
<i>Alexander Schoedon, Matthias Trapp, Henning Hollburg, and Jürgen Döllner</i>	
Manifold Visualization via Short Walks	85
<i>Yang Zhao, Sotirios Tasoulis, and Teemu Roos</i>	

Table of Contents

Design, Evaluation, and Applications

Judgment Error in Pie Chart Variations	91
<i>Robert Kosara and Drew Skau</i>	
Using Icicle Trees to Encode the Hierarchical Structure of Source Code	97
<i>Ivan Bacher, Brian Mac Namee, and John D. Kelleher</i>	
Visualization of Publication Impact	103
<i>Eamonn Maguire, Javier Martin Montull, and Gilles Louppe</i>	
Spiral Theme Plot	109
<i>Shenghui Jiang, Shiaofen Fang, and Shaun Grannis</i>	
Cavity and Pore Segmentation in 3D Images with Ambient Occlusion	113
<i>Daniel Baum and Jürgen Titschack</i>	

Human Computer Interaction

Classic Techniques in New Domains: An Alternative Recipe	119
<i>Megan Monroe</i>	
Clarifying Hypotheses by Sketching Data	125
<i>Mariana Mărăsoiu, Alan F. Blackwell, Advait Sarkar, and Martin Spott</i>	
IN2CO - A Visualization Framework for Intuitive Collaboration	131
<i>Franca-Alexandra Rupprecht, Bernd Hamann, Christian Weidig, Jan C. Aurich, and Achim Ebert</i>	
CompaRing: Reducing Costs of Visual Comparison	137
<i>Christian Tominski</i>	
Analytic Behavior and Trust Building in Visual Analytics	143
<i>Dominik Sacha, Ina Boesecke, Johannes Fuchs, and Daniel A. Keim</i>	

International Programme Committee

Daniel Archambault, Swansea University, United Kingdom
Peter Bak, IBM Research, Israel
William Bernstein, National Institute of Standards & Technology, USA
Jeremy Boy, New York University, USA
Timo Bremer, Lawrence Livermore National Laboratory, USA
Nan Cao, IBM Research, USA
Senthil Chandrasegaran, Purdue University, USA
Aritra Dasgupta, Pacific Northwest National Laboratory, USA
Nicholas Diakopoulos, University of Maryland, College Park, USA
Harish Doraiswamy, New York University, USA
Achim Ebert, University of Kaiserslautern, Germany
Angus Forbes, University of Illinois at Chicago, USA
Fabio Ganovelli, Italian National Research Council (CNR), Italy
Lane Harrison, Worcester Polytechnic Institute, USA
Hans-Christian Hege, Zuse Institute Berlin, Germany
Marcel Hlawatsch, Universität Stuttgart, Germany
Brad Hollister, University of Utah, USA
Jessica Hullman, University of Washington, USA
Federico Iuricich, University of Maryland, College Park, USA
T. J. Jankun-Kelly, Mississippi State University, USA
Alark Joshi, University of San Francisco, USA
Grzegorz Karch, Universität Stuttgart, Germany
Christopher Koehler, Wright State University, USA
Joern Kohlhammer, Fraunhofer IGD, Germany
Michael Krone, Universität Stuttgart, Germany
Jens Krueger, University of Duisburg-Essen, Germany
Bum Chul Kwon, IBM Research, USA
Heidi Lam, Tableau Research, USA
Robert S. Laramee, Swansea University, United Kingdom
Heike Leitte, TU Kaiserslautern, Germany
Alexander Lex, University of Utah, USA
Dan Lipsa, Kitware Inc, USA
Zhicheng Liu, Adobe Research, USA
Jun Ma, Michigan Technological University, USA
Sana Malik, University of Maryland, College Park, USA
Liz Marai, University of Illinois at Chicago, USA
Matkovic, Kresimir, VRVis Research Center, Austria
Silvia Miksch, Vienna University of Technology, Austria
Vijay Natarajan, Indian Institute of Science, Bangalore, India
Valerio Pascucci, University of Utah, USA

International Programme Committee

Charles Perin, University of Calgary, Canada
Paul Rosen, University of South Florida, USA
Paul Rosenthal, Chemnitz University of Technology, Germany
Gerik Scheuermann, Leipzig Universität, Germany
Tobias Schreck, Graz University of Technology, Austria
Michael Sedlmair, University of Vienna, Austria
Marc Streit, Johannes Kepler University Linz, Austria
Hendrik Strobelt, Harvard University, USA
Thomas Torsney-Weir, University of Vienna, Austria
Bei Wang, University of Utah, USA
Chaoli Wang, University of Notre Dame, USA
Gunther Weber, Lawrence Berkley National Laboratory, USA
Tino Weinkauf, KTH Royal Institute of Technology, Sweden
Kenneth Weiss, Lawrence Livermore National Laboratory, USA
Rüdiger Westermann, Technische Universität München, Germany
Wesley Willett, University of Calgary, Canada
Kai Xu, Middlesex University, United Kingdom
M. Adil Yalcin, University of Maryland, College Park, USA

Reviewers

Engle, Sophie, University of San Francisco, USA

Guthe, Michael, Universität Bayreuth, Germany

Liu, Xiaotong, The Ohio State University, USA

Mayerich, David, University of Houston, USA

Sreevalsan-Nair, Jaya, International Institute of Information Technology, Bangalore, India

Zeckzer, Dirk, Leipzig University, Germany

Author Index

Adachi, Noboru	31	Kraima, Annelot	49
Aurich, Jan C.	131	Louppe, Gilles	103
Bacher, Ivan	97	Maguire, Eamonn	103
Baum, Daniel	113	Mărăsoiu, Mariana	125
Blackwell, Alan F.	125	McCormick, Patrick	13
Boesecke, Ina	143	Monroe, Megan	119
Boussejra, Malik Olivier	31	Montull, Javier Martin	103
Buchmüller, Juri	67	Namee, Brian Mac	97
Bujack, Roxana	1, 7	Palmas, Gregorio	61
Butson, Chris	37	Pang, Alex	19
Carr, Hamish	55	Philip, Shweta	19
Chandler, Jennifer	1	Post, Tobias	43
Chen, Jian	55	Rauber, Paulo E.	73
deRuiter, Marco	49	Roos, Teemu	85
Döllner, Jürgen	79	Rosen, Paul	37
Duffley, Gordon	37	Rupprecht, Franca-Alexandra	131
Ebert, Achim	131	Sacha, Dominik	143
Eisemann, Elmar	49	Sarkar, Advait	125
Falcão, Alexandre X.	73	Schoedon, Alexander	79
Fang, Shiaofen	109	Shen, Han-Wei	13, 25
Fuchs, Johannes	143	Shojo, Hideki	31
Fujishiro, Issei	31	Skau, Drew	91
Garth, Christoph	7	Smit, Noeska	49
Gillmann, Christina	43	Spott, Martin	125
Grannis, Shaun	109	Stoffel, Florian	67
Hagen, Hans	43	Takahashi, Ryohei	31
Hamann, Bernd	131	Tasoulis, Sotirios	85
Hollburg, Henning	79	Telea, Alexandru C.	73
Hollister, Brad E.	37	Titschack, Jürgen	113
Hong, Elliot	55	Tominski, Christian	137
Hummel, Mathias	7	Tong, Xin	13
Jäckle, Dominik	67	Trapp, Matthias	79
Jacobsen, Chris	13	Vasko, Ross	25
Jansma, Daniel	49	Vilanova, Anna	49
Jiang, Shenghui	109	Weidig, Christian	131
Johnson, Chris	37	Weinkauf, Tino	61
Joy, Kenneth I.	1, 7	Wenger, Raphael	25
Keim, Daniel A.	67, 143	Wischgoll, Thomas	43
Kelleher, John D.	97	Zhang, Guohao	55
Kochunov, Peter	55	Zhang, Huijie	13
Kosara, Robert	91	Zhao, Yang	85