

EuroVis 2020
Eurographics / IEEE VGTC Conference on Visualization 2020

Norrköping, Sweden
May 25 – 29, 2020

Organized by



EUROGRAPHICS
THE EUROPEAN ASSOCIATION
FOR COMPUTER GRAPHICS



IEEE Visualization and Graphics Technical
Committee

Short Papers

Short Papers Co-Chairs

Andreas Kerren, Linnaeus University, Sweden
Christoph Garth, University of Kaiserslautern, Germany
G. Elisabeta Marai, University of Illinois at Chicago, USA

Published by
The Eurographics Association
ISBN 978-3-03868-106-9

Table of Contents

Analytics and Evaluation

The Effect of Graph Layout on the Perception of Graph Properties	1
<i>Elektra Kypridemou, Michele Zito, and Marco Bertamini</i>	
Exploring Time Series Segmentations Using Uncertainty and Focus+Context Techniques	7
<i>Christian Bors, Christian Eichner, Silvia Miksch, Christian Tominski, Heidrun Schumann, and Theresia Gschwandtner</i>	
SAMBAVis: Design Study of a Visual Analytics Tool for the Music Industry Powered by YouTube Comments	13
<i>Victor Adriel de Jesus Oliveira, Christina Stoiber, Johanna Grüblbauer, Christoph Musik, Alexis Ringot, and Andreas Gebesmair</i>	
Configuration Finder: A Tidy Visual Interface for Effective Faceted Search	19
<i>Patrick Riehmman, Andreas Schädler, Jannis Harder, Jakob Herpel, and Bernd Froehlich</i>	
ARGUS: Interactive Visual Analytics Framework for the Discovery of Disruptions in Bio-Behavioral Rhythms	25
<i>Hamid Mansoor, Walter Gerych, Luke Buquicchio, Abdulaziz Alajaji, Kavin Chandrasekaran, Emmanuel Agu, and Elke Rundensteiner</i>	
Design of a Real Time Visual Analytics Support Tool for Conflict Detection and Resolution in Air Traffic Control	31
<i>Elmira Zohrevandi, Carl A. L. Westin, Jonas Lundberg, and Anders Ynnerman</i>	
Dissecting Visual Analytics: Comparing Frameworks for Interpreting and Modelling Observed Visual Analytics Behavior	37
<i>Vanessa Brown, Cagatay Turkay, and Radu Jianu</i>	
Examining Design-Centric Test Participants in Graphical Perception Experiments	43
<i>Grace Guo, Bianchi Dy, Nazim Ibrahim, Sam Conrad Joyce, and Ate Poorthuis</i>	
Mix: Color, Design, etc.	
Designing Pairs of Colormaps for Visualizing Bivariate Scalar Fields	49
<i>Colin Ware, Francesca Samsel, David H. Rogers, Paul Navratil, and Ayat Mohammed</i>	
Interactive Creation of Perceptually Uniform Color Maps	55
<i>Martin Lambers</i>	
Task-based Colormap Design Supporting Visual Comprehension in Process Tomography	61
<i>Yuchong Zhang, Morten Fjeld, Alan Said, and Marco Fratarcangeli</i>	
Investigating the Role of Locus of Control in Moderating Complex Analytic Workflows	67
<i>R. Jordan Crouser, Alviitta Ottley, Kendra Swanson, and Ananda Montoly</i>	

Table of Contents

Exploring Design Opportunities for Visually Congruent Proxemics in Information Visualization: A Design Space	73
<i>Neil Chulpongsatorn, Jackie Yu, and Søren Knudsen</i>	
Characterizing Exploratory Behaviors on a Personal Visualization Interface Using Interaction Logs	79
<i>Poorna Talkad Sukumar, Gonzalo J. Martinez, Ted Grover, Gloria Mark, Sidney K. D'Mello, Nitesh V. Chawla, Stephen M. Mattingly, and Aaron D. Striegel</i>	
TopoLines: Topological Smoothing for Line Charts	85
<i>Paul Rosen, Ashley Suh, Christopher Salgado, and Mustafa Hajij</i>	
Evaluating Strategies of Exploratory Visual Data Analysis in Multi Device Environments	91
<i>Abeer Alsaiani, Jillian Aurisano, and Andrew E. Johnson</i>	
Representation, Perception, and ML	
Influence of Container Resolutions on the Layout Stability of Squarified and Slice-And-Dice Treemaps	97
<i>Volker Knauth, Kathrin Ballweg, Marcel Wunderlich, Tatiana von Landesberger, and Stefan Guthe</i>	
Width-Scale Bar Charts for Data with Large Value Range	103
<i>Markus Höhn, Marcel Wunderlich, Kathrin Ballweg, and Tatiana von Landesberger</i>	
A Force-Directed Power Diagram Approach for Interactive Voronoi Treemaps	109
<i>Ala Abuthawabeh and Michaël Aupetit</i>	
Fast Design Space Rendering of Scatterplots	115
<i>Simo Santala, Antti Oulasvirta, and Tino Weinkauff</i>	
Glyph-Based Visualization of Affective States	121
<i>Nikola Kovačević, Rafael Wampfler, Barbara Solenthaler, Markus Gross, and Tobias Günther</i>	
GaCoVi: a Correlation Visualization to Support Interpretability-Aware Feature Selection for Regression Models	127
<i>Diego Rojo, Nyi Nyi Htun, and Katrien Verbert</i>	
Progressive Uniform Manifold Approximation and Projection	133
<i>Hyung-Kwon Ko, Jaemin Jo, and Jinwook Seo</i>	
Rendering, Images, and Applications	
Sketchy Rendering to Aid the Recollection of Regular Visualizations	139
<i>Michael Reidun Engelbrecht Larsen, Wenkai Han, and Hans-Jörg Schulz</i>	
Progressive Rendering of Transparent Integral Surfaces	145
<i>Xingze Tian and Tobias Günther</i>	
Effective Visualization of Sparse Image-to-Image Correspondences	151
<i>Carlos Andujar, Antonio Chica, and Marc Comino</i>	

Table of Contents

Joint-Sphere: Intuitive and Detailed Human Joint Motion Representation	157
<i>Seonghun Kim, Adithya Balasubramanyam, Dubeom Kim, Young Ho Chai, and Ashok Kumar Patil</i>	
MODELAR: A MODular and EvaLuative framework to improve surgical Augmented Reality visualization	163
<i>Georges Hattab, Felix Meyer, Remke Dirk Albrecht, and Stefanie Speidel</i>	
Comprehensive Visualization of Longitudinal Patient Data for the Dermatological Oncological Tumor Board	169
<i>Nastasja Steinhauer, Marc Hörbrugger, Andreas Dominik Braun, Thomas Tüting, Steffen Oeltze-Jafra, and Juliane Müller</i>	
RankBooster: Visual Analysis of Ranking Predictions	175
<i>Abishek Puri, Bon Kyung Ku, Yong Wang, and Huamin Qu</i>	
Visualising Collocation for Close Writing	181
<i>Jonathan C. Roberts, Peter W. S. Butcher, Robert Lew, Geraint Paul Rees, Nirwan Sharma, and Ana Frankenberg-Garcia</i>	

International Programme Committee

Jürgen Bernard – University of British Columbia, Canada
Lonni Besançon – Linköping University, Sweden and Université Paris Saclay, France
Johanna Beyer – Harvard University, USA
Eli T Brown – DePaul University, USA
Matthew Cooper – Linköpings Universitet, Sweden
Aritra Dasgupta – Pacific Northwest National Lab, USA
Alexandra Diehl – University of Zurich, Switzerland
Stephan Diehl – Trier University, Germany
Achim Ebert – University of Kaiserslautern, Germany
Ronak Etemadpour – The City College of New York, USA
Steffen Frey – University of Stuttgart, Germany
Enrico Gobetti – CRS4, Italy
Martin Graham – University of Edinburgh, UK
Eduard Gröller – Institute of Visual Computing & Human-Centered Technology, Austria
Florian Heimerl – University of Wisconsin-Madison, USA
Mario Hlawitschka – Leipzig University of Applied Sciences, Germany
Won Ki Jeong – UNIST, Republic of Korea
Radu Jianu – City, University of London, UK
Jimmy Johansson – Linköping University, Sweden
Stephen Kobourov – University of Arizona, USA
Jörn Kohlhammer – Fraunhofer IGD, Germany
Barbora Kozlikova – Masaryk University, Czech Republic
Jens Krueger – University of Duisburg-Essen, Germany and University of Utah, USA
Lars Linsen – Westfälische Wilhelms-Universität Münster, Germany
Rafael M Martins – Linnaeus University, Sweden
John M Patchett – Los Alamos National Laboratory, USA
Renata Georgia Raidou – TU Wien, Austria
Guido Reina – University of Stuttgart, Germany
Peter Rodgers – University of Kent, UK
Paul Rosen – University of South Florida, USA
Filip Sadlo – Heidelberg University, Germany
Tobias Schreck – Graz University of Technology, Austria
Thomas Schultz – University of Bonn, Germany
Jaya Sreevalsan Nair – IIIT Bangalore, India
Chaoli Wang – University of Notre Dame, USA
Tino Weinkauff – KTH Royal Institute of Technology, Sweden
Alexander Wiebel – Hochschule Worms, Germany
Tom Vierjahn – Westphalian University of Applied Sciences, Germany
Hsiang Yun Wu – TU Wien, Austria
Kai Xu – Middlesex University, UK

Author Index

Abuthawabeh, Ala	109	Herpel, Jakob	19
Agu, Emmanuel	25	Hörbrugger, Marc	169
Alajaji, Abdulaziz	25	Höhn, Markus	103
Albrecht, Remke Dirk	163	Htun, Nyi Nyi	127
Alsaiani, Abeer	91	Ibrahim, Nazim	43
Andujar, Carlos	151	Jianu, Radu	37
Aupetit, Michaël	109	Jo, Jaemin	133
Aurisano, Jillian	91	Johnson, Andrew E.	91
Balasubramanyam, Adithya	157	Joyce, Sam Conrad	43
Ballweg, Kathrin	97, 103	Kim, Dubeom	157
Bertamini, Marco	1	Kim, Seonghun	157
Bors, Christian	7	Knauth, Volker	97
Braun, Andreas Dominik	169	Knudsen, Søren	73
Brown, Vanessa	37	Ko, Hyung-Kwon	133
Buquicchio, Luke	25	Kovačević, Nikola	121
Butcher, Peter W. S.	181	Ku, Bon Kyung	175
Chai, Young Ho	157	Kypridemou, Elektra	1
Chandrasekaran, Kavin	25	Lambers, Martin	55
Chawla, Nitesh V.	79	Landesberger, Tatiana von	97, 103
Chica, Antonio	151	Larsen, Michael Reidun Engelbrecht	139
Chulpongsatorn, Neil	73	Lew, Robert	181
Comino, Marc	151	Lundberg, Jonas	31
Crouser, R. Jordan	67	Mansoor, Hamid	25
D'Mello, Sidney K.	79	Mark, Gloria	79
Dy, Bianchi	43	Martinez, Gonzalo J.	79
Eichner, Christian	7	Mattingly, Stephen M.	79
Fjeld, Morten	61	Meyer, Felix	163
Frankenberg-Garcia, Ana	181	Miksch, Silvia	7
Fratarcangeli, Marco	61	Mohammed, Ayat	49
Froehlich, Bernd	19	Montoly, Ananda	67
Gebesmair, Andreas	13	Müller, Juliane	169
Gerych, Walter	25	Musik, Christoph	13
Gross, Markus	121	Navratil, Paul	49
Grover, Ted	79	Oeltze-Jafra, Steffen	169
Grüblbauer, Johanna	13	Oliveira, Victor Adriel de Jesus	13
Gschwandtner, Theresia	7	Ottley, Alvitta	67
Günther, Tobias	121, 145	Oulasvirta, Antti	115
Guo, Grace	43	Patil, Ashok Kumar	157
Guthe, Stefan	97	Poorthuis, Ate	43
Hajij, Mustafa	85	Puri, Abishek	175
Han, Wenkai	139	Qu, Huamin	175
Harder, Jannis	19	Rees, Geraint Paul	181
Hattab, Georges	163	Riehmman, Patrick	19

Author Index

Ringot, Alexis	13	Suh, Ashley	85
Roberts, Jonathan C.	181	Sukumar, Poorna Talkad	79
Rogers, David H.	49	Swanson, Kendra	67
Rojo, Diego	127	Tian, Xingze	145
Rosen, Paul	85	Tominski, Christian	7
Rundensteiner, Elke	25	Turkay, Cagatay	37
Said, Alan	61	Tüting, Thomas	169
Salgado, Christopher	85	Verbert, Katrien	127
Samsel, Francesca	49	Wampfler, Rafael	121
Santala, Simo	115	Wang, Yong	175
Schädler, Andreas	19	Ware, Colin	49
Schulz, Hans-Jörg	139	Weinkauff, Tino	115
Schumann, Heidrun	7	Westin, Carl A. L.	31
Seo, Jinwook	133	Wunderlich, Marcel	97, 103
Sharma, Nirwan	181	Ynnerman, Anders	31
Solenthaler, Barbara	121	Yu, Jackie	73
Speidel, Stefanie	163	Zhang, Yuchong	61
Steinhauer, Nastasja	169	Zito, Michele	1
Stoiber, Christina	13	Zohrevandi, Elmira	31
Striegel, Aaron D.	79		