## **EuroVA 2021**

# EuroVis Workshop on Visual Analytics

Zurich, Switzerland (Virtual Conference)

June 14, 2021

### **Program Chairs**

Katerina Vrotsou, Linköping University, Sweden Jürgen Bernard, University of Zurich, Switzerland

### **Publicity Chair**

Michael Behrisch – Utrecht University, The Netherlands

### **EuroVA Steering Committee**

Daniel A. Keim – University of Konstanz, Germany Jörn Kohlhammer – Fraunhofer IGD, Germany

### **Proceedings Production Editor**

Dieter Fellner (TU Darmstadt & Fraunhofer IGD, Germany)

Sponsored by EUROGRAPHICS Association



DOI: 10.2312/eurova.20212012

This work is subject to copyright.

All rights reserved, whether the whole or part of the material is concerned, specifically those of translation, reprinting, re-use of illustrations, broadcasting, reproduction by photocopying machines or similar means, and storage in data banks.

Copyright ©2021 by the Eurographics Association Postfach 2926, 38629 Goslar, Germany

Published by the Eurographics Association

-Postfach 2926, 38629 Goslar, Germany—
in cooperation with
Institute of Computer Graphics & Knowledge Visualization at Graz University of Technology and
Fraunhofer IGD (Fraunhofer Institute for Computer Graphics Research), Darmstadt

ISBN 978-3-03868-150-2 ISSN 2664-4487

The electronic version of the proceedings is available from the Eurographics Digital Library at https://diglib.eg.org

## **Table of Contents**

Table of Contents
International Programme Committee
Author Index
Keynotevi
Immersive Analytics and Interaction
Talk2Hand: Knowledge Board Interaction in Augmented Reality Easing Analysis with Machine Learning Assistants
Yu-Lun Hong, Benjamin Watson, Kenneth Thompson, and Davis Paul
Immersive 3D Visualization of Multi-Modal Brain Connectivity
Immersive Analytics of Heterogeneous Biological Data Informed through Need-finding Interviews
VA Applications and Workflows
Lessons learned while supporting Cyber Situational Awareness
Customizable Coordination of Independent Visual Analytics Tools
A Taxonomy of Attribute Scoring Functions
Rumble Flow++ Interactive Visual Analysis of Dota2 Encounters
Temporal Data and Clustering
Towards the Detection and Visual Analysis of COVID-19 Infection Clusters
LFPeers: Temporal Similarity Search in Covid-19 Data
Multi-resolution Analysis for Vector Plots of Time Series Data

### **International Programme Committee**

Natalia Andrienko, Fraunhofer Institute IAIS

Marco Angelini, University of Rome "La Sapienza"

Peter Bak, IBM Haifa Research Lab

David Borland, UNC-Chapel Hill

Nadia Boukhelifa, INRAE

Jaegul Choo, KAIST

Matthew Cooper, Linköping University

Michael Correll, Tableau Software

R. Jordan Crouser, Smith College

Mennatallah El-Assady, University of Konstanz

Geoffrey Ellis, University of Konstanz

Florian Heimerl, University of Wisconsin-Madison

Christoph Heinzl, University of Applied Sciences Upper Austria

Petra Isenberg, Université Paris-Saclay, CNRS, Inria, LRI

Jimmy Johansson, Linköping University

Steffen Koch, University of Stuttgart

Robert Krüger, John A. Paulson School of Engineering and Applied Sciences at Harvard University

Martin Luboschik, University of Rostock

Ross Maciejewski, Arizona State University

G. Elisabeta Marai, University of Illinois at Chicago

Kresimir Matkovic, VRVis Research Center

Laura McNamara, Sandia National Laboratories

Tomasz Opach, Norwegian University of Science and Technology

Paul Parsons, Purdue University

Bernhard Preim, University of Magdeburg

Alexander Rind, St. Poelten University of Applied Sciences

Panagiotis Ritsos, Bangor University

Jonathan Roberts, Bangor University

Roy Ruddle, University of Leeds

Giuseppe Santucci, Sapienza University of Rome

Tobias Schreck, Graz University of Technology

Aidan Slingsby, City, University of London

Marc Streit, Johannes Kepler University Linz

Christian Tominski, University of Rostock

Thomas Torsney-Weir, Swansea University

Cagatay Turkay, University of Warwick

Xiaoru Yuan, Peking University

# **Author Index**

Antweiler, Dario	43	Paoli, Emiliano De	19
Bernard, Jürgen	. 31, 49	Paul, Davis	1
Blasilli, Graziano	19	Pester, Britta	
Burmeister, Jan	49	Picca, Sergio	19
Dachselt, Raimund	7	Ripken, Christine	13
Dang, Tommy	55	Schmid, Jenny	31
Ginzel, Sebastian	43	Schulz, Hans-Jörg	25
Gumhold, Stefan	7	Schumann, Heidrun	25
Hewett, Rattikorn	55	Sessler, David	43
Hogräfer, Marius	25	Thompson, Kenneth	1
Hong, Yu-Lun	1	Tominski, Christian	13
Kohlhammer, Jörn	. 43, 49	Tusk, Sebastian	13
Lenti, Simone	19	Urban, Bodo	25
Ligges, Carolin	7	Watson, Benjamin	1
Matković, Krešimir	37	Weixelbaum, Wilma	37
Nguyen, Bao	55	Winke, Oliver	7
Nonnemann, Lars	25		

### **Keynote**

A Tool is not Enough: Research Contributions Through Design Study

Miriah Meyer

#### **Abstract**

The most commonly reported research contribution of a design study is a new tool for a group of domain experts. In my own experiences, however, tools are often the least interesting outcome of design study. In this talk I'll argue that design study is a rich opportunity to question visualization dogma, to extend our research methods and approaches, and to probe into the relationship of people and data. These opportunities provide the possibility for a wealth of new visualization knowledge, grounded in the real needs of real people in the real world. Using design study as a method of inquiry, rather than as a process for developing a tool, however, requires us to rethink our methods, approaches, and values for conducting research. I'll discuss the ways that design study upends normative visualization research foundations and present views from other fields that offer insight into new ways forward.

### **Short Biography**

Miriah is an associate professor in the School of Computing at the University of Utah and a faculty member in the Scientific Computing and Imaging Institute. She co-directs the Visualization Design Lab, which focuses on the design of visualization systems for helping people make sense of complex data, and on the development of methods for helping visualization designers make sense of the world. She obtained her bachelors degree in astronomy and astrophysics at Penn State University, and earned a PhD in computer science from the University of Utah. Prior to joining the faculty at Utah Miriah was a postdoctoral research fellow at Harvard University and a visiting scientist at the Broad Institute of MIT and Harvard.

Miriah is the recipient of a NSF CAREER grant, a Microsoft Research Faculty Fellowship, and a NSF/CRA Computing Innovation Fellow award. She was named a University of Utah Distinguished Alumni, both a TED Fellow and a PopTech Science Fellow, and included on MIT Technology Review's TR35 list of the top young innovators. She was also awarded an AAAS Mass Media Fellowship that landed her a stint as a science writer for the Chicago Tribune.