

# **IS&T International Symposium on Electronic Imaging Science and Technology 2016**

Visualization and Data Analysis 2016

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## Visualization and Data Analysis 2016

### Tuesday, February 16, 2016

#### Flow Visualization

Session Chair: Thomas Wischgoll, Wright State University (USA)

**8:40 – 10:10 am**

Golden Gate 3

8:40

#### Opening Remarks

8:50

VDA-476

**FlowVisual: A visualization app for teaching and understanding 3D flow field concepts**, Man Wang<sup>1</sup>, Jun Tao<sup>1</sup>, Jun Ma<sup>1</sup>, Yang Shen<sup>2</sup>, and Chaoli Wang<sup>2</sup>; <sup>1</sup>Michigan Technological University and <sup>2</sup>University of Notre Dame (USA)

9:15

VDA-477

**Morse decomposition of 3D piecewise linear vector fields**, Marzieh Berenjkoub and Guoning Chen, University of Houston (USA)

9:40

VDA-478

**Flow visualization based on a derived rotation field**, Lei Zhang<sup>1</sup>, Robert S. Laramée<sup>2</sup>, David Thompson<sup>3</sup>, Adrian Sescu<sup>3</sup>, and Guoning Chen<sup>1</sup>; <sup>1</sup>University of Houston (USA), <sup>2</sup>Swansea University (United Kingdom), and <sup>3</sup>Mississippi State University (USA)

10:10 – 10:40 am Coffee Break

#### Keynote: Visualization for the Masses, Redux

Session Chair: David Kao, NASA Ames Research Ctr. (USA)

**10:40 – 11:40 am**

Golden Gate 3

VDA-479

**Visualization for the masses, redux**, Alex Pang, University of California at Santa Cruz (USA)

#### Biomedical Visualization

Session Chair: Thomas Wischgoll, Wright State University (USA)

**11:40 am – 12:30 pm**

Golden Gate 3

11:40

VDA-480

**Segmentation of zebrafish larva inhomogeneous 3D images using the level-set method**, Zhan Xiong and Fons Verbeek, LIACS (Netherlands)

12:05

VDA-481

**Visualizing the intrinsic geometry of the human brain connectome**, Giorgio Conte, Alex Leow, and Angus Forbes, University of Illinois at Chicago (USA)

12:30 – 2:00 pm Lunch Break

#### EI 2016 Tuesday Plenary and Symposium Awards

Session Chair: Nitin Sampat (Rochester Institute of Technology)

**2:00 – 3:00 PM**

Continental Ballroom 5

**Pushing computational photography deeper into imaging system design**, Ren Ng, University of California, Berkeley (USA)

3:00 – 3:30 pm Coffee Break

#### Usability

Session Chair: Alex Pang, University of California at Santa Cruz (USA)

**3:30 – 4:50 pm**

Golden Gate 3

3:30

VDA-482

**Towards the involvement of end-user developers in visualization development (JIST-first)**, Kostas Pantazos and Soren Lauesen, IT University of Copenhagen (Denmark)

3:55

VDA-483

**Multiple independent highlighting techniques**, Colin Ware<sup>1</sup> and Nicholas Pioch<sup>2</sup>; <sup>1</sup>University of New Hampshire and <sup>2</sup>Systems Technology Research (USA)

4:20

VDA-484

**JASPER: Just A new Space-filling and Pixel-oriented layout for large graph overVIEW**, Jason Vallet, Guy Melancon, and Bruno Pinaud, Univ. Bordeaux (France)

#### Visualization and Data Analysis 2016 Interactive Papers Oral Previews I

Session Chair: Angus Forbes, University of Illinois at Chicago (USA)

**4:50 – 5:40 pm**

Golden Gate 3

In this session interactive poster authors will each provide a brief oral preview of their poster presentation, which will be presented fully in the Visualization and Data Analysis 2016 Interactive Papers Session at 5:30 pm on Wednesday.

4:50

VDA-485

**Weatherbin: Visually exploring similar days in air traffic weather**, Christopher Skeels and Kyle Murray, RAND Corporation (USA)

5:00

VDA-486

**Enhancing parallel coordinates: Statistical visualizations for analyzing soccer data**, Halldor Janetzko<sup>1</sup>, Manuel Stein<sup>1</sup>, Dominik Sacha<sup>1</sup>, and Tobias Schreck<sup>2</sup>; <sup>1</sup>University of Konstanz (Germany) and <sup>2</sup>Graz University of Technology (Austria)

5:10

VDA-487

**Tagpu: Automatic source transformation from C++ to CUDA using Clang/LLVM**, Matthew Marangoni and Thomas Wischgoll, Wright State University (USA)

5:20 VDA-488  
**An effective visualization technique for determining co-relations in high-dimensional medieval manuscripts data**, Swati Chandna<sup>1</sup>, Danah Tonne<sup>1</sup>, Rainer Stotzka<sup>1</sup>, Philipp Vanschiedt<sup>2</sup>, Celia Krause<sup>2</sup>, and Hanah Busch<sup>3</sup>; <sup>1</sup>Karlsruhe Institute of Technology, <sup>2</sup>Technical University of Darmstadt, and <sup>3</sup>Universität Trier (Germany)

5:30 VDA-489  
**Visualization tools for network security**, Antoinette Attipoe and Jie Yan, Bowie State University (USA)

**EI 2016 Symposium Demonstration Session and Exhibit Hall Happy Hour**  
**5:30 – 7:00 PM**  
Continental Ballroom Foyer

## Wednesday, February 17, 2016

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### High-dimensional and Big Data

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Session Chair: Song Zhang, Mississippi State University (USA)

**8:50 – 10:10 am**  
Golden Gate 3

8:50 VDA-490  
**Parameter space visualization for large-scale datasets using parallel coordinate plots (JIST-first)**, Kurtis Glendenning<sup>1</sup>, Thomas Wischgoll<sup>1</sup>, Jack Harris<sup>2</sup>, Rhonda Vickery<sup>3</sup>, and Leslie Blaha<sup>2</sup>; <sup>1</sup>Wright State University, <sup>2</sup>Wright Patterson Air Force Base, and <sup>3</sup>Engility Corporation (USA)

9:15 VDA-491  
**Interactive visualization for interdisciplinary research**, Naomi Keena and Mohamed Aly, RPI (USA)

9:40 VDA-492  
**Interactive high-dimensional data analysis using the “Three Experts”**, Georg Albrecht and Alex Pang, University of California, Santa Cruz (USA)

10:10 – 10:40 am Coffee Break

### Visual Analytics

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Session Chair: Guoning Chen, University of Houston (USA)

**10:40 am – 12:00 pm**  
Golden Gate 3

10:40 VDA-493  
**MaVis: Machine learning aided multi-model framework for time series visual analytics**, Kaiyu Zhao, Worcester Polytechnic Institute (USA)

11:05 VDA-494  
**TRI-DIRECT: Interactive visual analysis of TRI data**, David Burlinson, Kalpathi Subramanian, and Aidong Lu, The University of North Carolina at Charlotte (USA)

11:30 VDA-495  
**Interactive visual analytics in support of image-encoded LIDAR analysis**, Todd Eaglin, Xiaoyu Wang, and William Ribarsky, The University of North Carolina at Charlotte (USA)

### Comparison

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Session Chair: David Kao, NASA Ames Research Ctr. (USA)

**12:00 – 12:30 pm**  
Golden Gate 3

VDA-496  
**Spherical similarity explorer for comparative case analysis**, Leishi Zhang<sup>1</sup>, Chris Rooney<sup>1</sup>, Lev Nachmanson<sup>2</sup>, William Wong<sup>1</sup>, Bum Chul Kwon<sup>3</sup>, Florian Stoffel<sup>3</sup>, Michael Hund<sup>3</sup>, Nadeem Qazi<sup>1</sup>, Uchit Singh<sup>1</sup>, and Daniel Keim<sup>3</sup>; <sup>1</sup>Middlesex University (United Kingdom), <sup>2</sup>Microsoft Research (USA), and <sup>3</sup>University of Konstanz (Germany)

12:30 – 2:00 pm Lunch Break

### EI 2016 Wednesday Plenary and Symposium Awards

Session Chair: Choon-Woo Kim (Inha University)

**2:00 – 3:00 PM**  
Continental Ballroom 5

**Intel® RealSense Technology: Adding human-like sensing and interactions to computing devices**, Achin Bhowmik, Intel Corporation (USA)

3:00 – 3:30 pm Coffee Break

### Visualization Tool and Techniques

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Session Chair: Song Zhang, Mississippi State University (USA)

**3:30 – 4:00 pm**  
Golden Gate 3

VDA-497  
**Twitter: A visualization tool displaying correlation of weather to tweets**, Shruti Daggumati, Igor Soares de Oliveira, JiETING Wu, Hongfeng Yu, and Jun Wang, University of Nebraska-Lincoln (USA)

### Visualization and Data Analysis 2016 Interactive Papers Oral Previews II

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Session Chair: Kalpathi Subramanian, The University of North Carolina at Charlotte (USA)

**4:00 – 5:10 pm**  
Golden Gate 3

In this session interactive poster authors will each provide a brief oral preview of their poster presentation, which will be presented fully in the Visualization and Data Analysis 2016 Interactive Papers Session at 5:30 pm on Wednesday.

4:00 VDA-498  
**Metrics visualization templates case study in aerospace product development**, Kathy Sonderer and Kevin Lynch, Raytheon Company (USA)

4:10 VDA-499  
**The Aleph data relation in structured data, a tree within the tree structure**, H. Paul Zellweger, ArborWay Labs (USA)

4:20 VDA-500  
**Exploiting regions of influence to visualize class boundaries**, Pallav Tinna<sup>1</sup> and Kamalakar Karlapalem<sup>2</sup>; <sup>1</sup>International Institute of Information Technology, Hyderabad and <sup>2</sup>Indian Institute of Technology, Gandhinagar (India)

4:30 VDA-501  
**Exploring VR displays for malware analysis**, Myles Black, Swastik Singh, Song Zhang, Jean Mohammadi-Aragh, and Derek Irby, Mississippi State University (USA)

4:40 VDA-502  
**Supporting hypotheses management during asynchronous collaboration for visual analytics for text analysis**, Ankit Gupta and Chris Shaw, Simon Fraser University (Canada)

4:50 VDA-503  
**Visual data mining in closed contour coordinates**, Boris Kovalerchuk<sup>1</sup> and Vladimir Grishin<sup>2</sup>; <sup>1</sup>Central Washington University and <sup>2</sup>View Trends, Ltd. (USA)

5:00 VDA-504  
**TennisMatchViz: A tennis match visualization**, Xi He and Ying Zhu, Georgia State University (USA)

**EI 2016 Symposium Interactive Papers Session**  
**5:30 – 7:00 PM**  
Continental Ballroom 6

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### Visualization and Data Analysis 2016 Interactive Papers Session

**5:30 – 7:00 pm**  
Continental Ballroom 6

The VDA interactive papers will be presented in the EI 2016 Symposium Interactive Papers Session.

**Thursday, February 18, 2016**

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### Multivariate Visualization

Session Chair: Thomas Wischgoll, Wright State University (USA)

**8:50 – 10:10 am**  
Golden Gate 3

8:50 VDA-505  
**Ensemble traces: Interactive visualization of ensemble multivariate time series data**, Swastik Singh<sup>1</sup>, Song Zhang<sup>1</sup>, William Pruett<sup>2</sup>, and Robert Hester<sup>2</sup>; <sup>1</sup>Mississippi State University and <sup>2</sup>University of Mississippi Medical Center (USA)

9:15 VDA-506  
**Star glyph insets for overview preservation of multivariate data**, Dominik Jäckle, Johannes Fuchs, and Daniel Keim, University of Konstanz (Germany)

9:40 VDA-507  
**Visual descriptors for dense tensor fields in computational turbulent combustion: A case study (JIST-first)**, G. Elisabeta Marai<sup>1</sup>, Timothy Luciani<sup>1</sup>, Adrian Maries<sup>2</sup>, S. Levent Yilmaz<sup>3</sup>, and Mehdi Nik<sup>4</sup>; <sup>1</sup>University of Illinois at Chicago, <sup>2</sup>UPMC, <sup>3</sup>Mathworks, and <sup>4</sup>Stanford University (USA)

10:10 – 10:40 am Coffee Break

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### Exploratory Data Visualization

Session Chair: David Kao, NASA Ames Research Ctr. (USA)

**10:40 am – 12:10 pm**  
Golden Gate 3

10:40 VDA-508  
**Visual analysis of transport similarity in 2D CFD ensembles**, Brad Hollister and Alex Pang, University of California (USA)

11:05 VDA-509  
**Visualizing ensembles for effective shape and data comparison**, Lihua Hao<sup>1</sup>, Christopher Healey<sup>1</sup>, Steffen Bass<sup>2</sup>, and Hsuan-Ya Yu<sup>1</sup>; <sup>1</sup>North Carolina State University and <sup>2</sup>Duke University (USA)

11:30 VDA-510  
**Visual-interactive search for soccer trajectories to identify interesting game situations**, Lin Shao<sup>1</sup>, Dominik Sacha<sup>1</sup>, Benjamin Neldner<sup>1</sup>, Manuel Stein<sup>1</sup>, and Tobias Schreck<sup>2</sup>; <sup>1</sup>Univ. of Konstanz (Germany) and <sup>2</sup>Graz University of Technology (Austria)

11:55  
Chair Remarks