Preface

Message from the Paper Chairs

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The IEEE Visual Analytics Science and Technology (VAST) Conference is now in its eleventh year, and its seventh year as an IEEE Conference. It remains the primary venue for the rapidly growing field of visual analytics. Visual analytics is the science of analytical reasoning supported by highly interactive visual interfaces, and seeks to integrate computational analytics with human cognitive processes. Visual analytics requires interdisciplinary science, going beyond traditional visualization to include statistics, mathematics, knowledge representation, management and discovery technologies, cognitive and perceptual sciences, decision sciences, and more.

IEEE VAST 2016 offers an exciting papers program. Its featured themes include education and games; textual data; exploratory analysis; managing the visual analytics process; machine learning; traffic and urban planning; biomedical visualization; social media data and events; visual knowledge discovery and sensemaking; time series data; user behaviors; and complementing visual and algorithmic analysis. Following the same format in the previous year, IEEE VAST 2016 presents accepted papers in two categories.

(a) TVCG-Track. Papers that exhibit the highest quality in terms of originality, rigor and significance will appear in a special issue of the IEEE Transactions on Visualization and Computer Graphics (TVCG), together with the papers from the IEEE Information Visualization and Scientific Visualization Conferences. IEEE VAST 2016 received 165 paper submissions. Following the initial processing by the paper chairs, 157 papers entered the review process. After two review cycles, 33 papers were finally accepted into the TVCG track, for an acceptance rate of 21%.

(b) Conference-only Track. In order to increase the exposure of visual analytics applications, and participation of interdisciplinary researchers, this additional track features innovative advances and applications in visual analytics that may have foci beyond the scope of TVCG. 15 papers were finally accepted into the Conference-only track.

Papers in both tracks will be presented in the conference, be included in the IEEE VAST USB, and appear in the IEEE Digital Library.

The VAST 2016 best paper was chosen by a best paper award committee consisting of Daniel Keim, William Ribarsky, and Daniel Weiskopf. The best paper committee carefully considered five top papers and their reviews. We congratulate Gary K. L. Tam, Vivek Kothari, and Min Chen for their paper “An Analysis of Machine- and Human-Analytics in Classification.” As the award committee acknowledged, “The paper provides a quantitative study comparing machine-centric with human centric solutions to classification problems. In addition to solid case studies, it develops a novel information-theoretic approach to assessing the value of the human in the process. Use of this approach permits the paper to make a strong case for how and why insertion of human “soft knowledge” at the right points produces results superior to solely machine learning results. The approach should be generalizable beyond the classification problems presented. It should provide a basis for further research in an important direction.” The committee also selected two honorable mention papers. The first one is “A Visual Analytics Approach for Categorical Joint Distribution Reconstruction from Marginal Projections” from Cong Xie, Wen Zhong, and Klaus Mueller. This paper presents an interactive technique for generating a categorical joint probability distribution from marginal distributions. An extended parallel-coordinates visualization guides the user in interactively selecting a good solution. This is a strong visual analytics paper that shows the value of both a powerful analytics approach and interactive visualization that puts the user in the loop. The paper shows how powerful analytics methods can be obtained from different areas (in this case 3D reconstruction from 2D projections) and then modified and extended for another purpose. One can see many applications. The second one is “ViDX: Visual Diagnostics of Assembly Line Performance in Smart Factories” from Panpan Xu, Honghui Mei, Liu Ren, and Wei Chen. This paper addresses the problem of assembly line performance in smart factories. It is a nice example of how visual analytics can be successful in a complex and timely application setting. The topic has been underexplored in the visual analytics community, but it is of broad interest in the practice of industry 4.0. The paper takes a systematic approach of careful data abstraction, description of the design process, and requirements analysis in order to arrive at a useful visual analytics system. It also comes with technical innovations such as outlier-preservation for Marey’s graphs and special brushes.