

Visual Analysis and Processing of Diverse Data

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Associate Editor-in-Chief Richard Zhang outlines published articles in this regular queue issue.

The current issue features six articles from our regular queue that cover a range of topics related to visual analysis and processing of diverse data including news articles, surnames, graphs, faces, and sketches.

IN THIS ISSUE

Two of the articles in this issue develop visualization tools for textual data that are different in nature, but both with ties to geography. In “Bulsarapp: Interactive Visual Analysis for Surname Trend Exploration,” the authors propose a visual analytics tool that summarizes the heterogeneous surnames and geographics information collected in Argentina, aiming to characterize geographically the ethnicity of populations and understand the complex relations between identity, migration, social connections, and public health. The article “News Globe: Visualization of Geolocalized News Articles” presents an interactive 3-D globe visualization based on agglomerative hierarchical clustering to support news readers in the exploration and research of large volumes of news articles, providing them with geolocalized spatial contexts and the history of the covered topics.

Another article also employing clustering analysis operates over the space of human faces as they are related to emotion styles. In “Investigating Emotion Style in Human Faces Using Clustering Methods,” the authors extract the style of human facial movements that express emotions via clustering based on the similarity of individuals’ facial expressions, where K-Means and Gaussian mixture models were applied to group emotion styles. As an application, the extracted facial

emotion styles have been utilized to generate facial expressions in virtual humans.

In “Data-Driven Sketch Beautification With Neural Feature Representation,” a single-author article, a data-driven approach is presented to beautify free-hand sketches. The key premise of this work is to resort to machine learning to produce visually appealing sketches across object categories. The author develops a neural network to represent local and global merits across different object categories to design the sketch beautification method.

To address the various challenges of studying multifield spatial-temporal data and their uncertainties in oceanography, the authors of the article “Multifaceted Visual Analysis of Oceanographic Simulation Ensemble Data” develop an interactive visual analysis tool that employs multiple coordinated views of different facets of the data at different levels of aggregation. Finally in this issue, we present the winning article of the VAST 2020 Contest Challenge, “Graph-MatchMaker—Visual Analytics for Graph Comparison and Matching.” This work addressed the IEEE VAST 2020 Mini-Challenge 1 to identify a group of people that accidentally caused an Internet outage, given a network profile and a large multivariate social network to engage the search. The authors developed an approach based on statistical and graphical analysis as well as the design of three custom visual analytics tools.

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