

The Summer Undergraduate Research Fellowship (SURF) Symposium
3 August 2017
Purdue University, West Lafayette, Indiana, USA

MetricsVis: A Visual Analytics Tool for Evaluating Multidimensional Data

Ian J. Campbell
School of Science, Purdue University
Jieqiong Zhao
Electrical and Computer Engineering Department, Purdue University
David Ebert
VACCINE, Purdue University

ABSTRACT

Visualization for multidimensional data is a popular topic and many methods have been created to visualize this type of data. We developed a visual analytics tool to visualize multidimensional data for two distinct fields: resource allocation in law enforcement departments and phenotype traits of sorghum crops. For law enforcement departments, we designed a visualization tool to measure and compare police officer's experience in different types of crimes. Our tool supports the analysis of the amount of experience each officer has in each crime category. Meanwhile, the field crop modeling project requires the visualization of the measured value of multiple traits of each sorghum category. In general, our visualization tool is now able to represent these multidimensional data in multiple graphs and charts, with a rich interaction set of selecting, grouping, and filtering. MetricsVis has been expanded this summer with the addition of 6 new graphs, the ability to use the sorghum crops dataset, and more data manipulation features. By being able to explore the data through several graphs and charts at the same time, this allows the user to easily query the data or find peculiarities in the data that they would have otherwise missed. We describe several case studies to validate the importance of our tool in analyzing the data in both projects. In the future, we would like to expand our tool for other similar datasets.

KEYWORDS

Visual analytics, web based application, data trend and analysis