

VACCINE

Visual Analytics for Command, Control, and Interoperability Environments
A U.S. Department of Homeland Security Center of Excellence

MetricsVis: A Visual Analytics Framework for Evaluating Individual, Team, and Organization Performance

Benefit: MetricsVis supports a rich set of interactions, including selection, filtering, ranking, and correlation, to allow end-users to supervise and refine the performance evaluation process. With our system, end-users can explore the activity patterns and performance trends for either a large group or an individual, and identify critical factors that help to improve the operational decision making process.

Mission Need

Limited resources and increasing costs require law enforcement agencies to develop effective methods for measuring and evaluating officer performance, which should enable law enforcement to be more effective in their event planning, resource allocation, decision-making, and community policing efforts. MetricsVis allows users to measure, evaluate, and compare officer performance through interactive and coordinated visual dialogs, presented in a comparison and evaluation environment using a holistic matrix view. The system supports multiple sorting interactions, allowing users to run comparisons between a given group of officers and specific categories of offense. This was developed through working closely with law enforcement agencies to identify attributes that contributed to placing offenses in specific categories, as well as how much weight each one should be given for analysis purposes. End-users can also develop a set of customized weights in order to adapt their analysis based on domain knowledge, or recent events in a particular region. Through interactive exploration of actual crime events handled by law enforcement agencies, end-users can identify activity patterns, performance trends, and other critical factors that influence operational decision-making.

Data Layers:

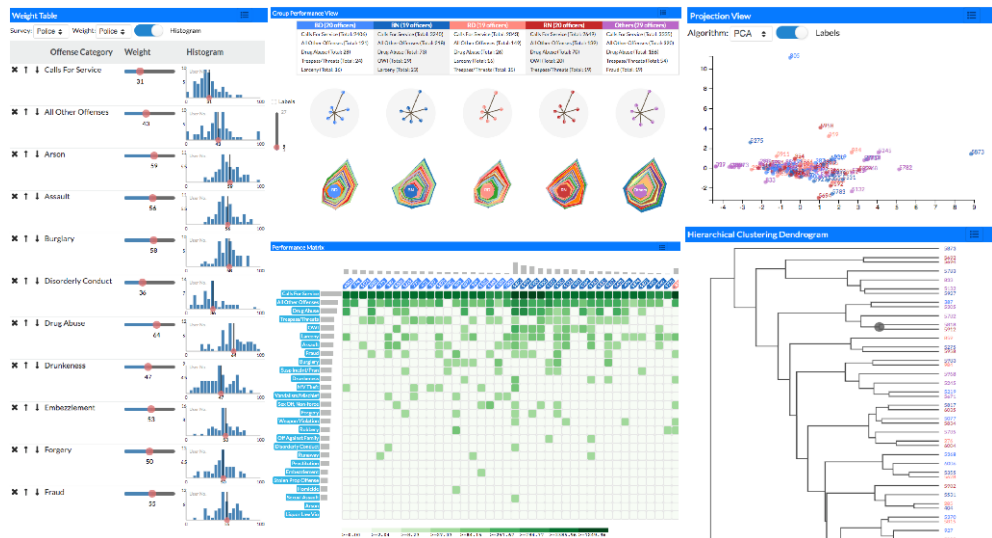
- Calls for Services
- Responses for Services

Collaborators:

- Lafayette Police Department
- Purdue University Police Department

Funded by:

Purdue Visual Analytics for Command, Control, and Interoperability Environments (VACCINE) Center, a U.S. Department of Homeland Security Emeritus Center of Excellence



MetricsVis interface overview, showing 1) the surveyed ratings of offense categories on the left, 2) the performance of five team using radial axes plots in the top center, 3) the individual performance using a holistic colored table in the bottom center, 4) the dimensionality reduction results in the top right, and 5) the hierarchical clustering view in the bottom right.

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