TourViz is an interactive system that reveals and visualizes connections among nodes of interest.

The Problem
How to make sense of marked nodes in a large graph (e.g., anomalies)? How are they connected? Are they close by or far apart? Are there simple paths that connect them? Can we group them?

Algorithm
Our algorithm finds simple paths between marked nodes, and group them, based on the Minimum Description Length principle, so that each path needs few bits to describe, e.g., avoid high-degree nodes, unless need to visit many of its spokes.

This is an NP-hard problem. Our fast algorithm is described in [1].

Interactive Visualization

1. Search. Select. Find nodes and drag them into the view.
2. Mark nodes. Go. Turn your nodes of interest into squares. TourViz will find simple paths among them.
   You can also group nodes visually.
   You can interact with them: add or delete nodes, mark or unmark them, see their neighbors, and more.

TourViz showing connection pathways among authors from DBLP coauthorship graph (300K nodes, 1M edges).
- Blue square: nodes of interest
- Orange circle: connectors
- Thick orange edge: simple path found by TourViz


Visualization implemented in Java, using the JUNG library.
Algorithm written in Matlab 7.10.

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