

CGV - An Interactive Graph Visualization System

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Abstract

Previous work on graph visualization has yielded a wealth of efficient graph analysis algorithms and expressive visual mappings. To support the visual exploration of graph structures, a high degree of interactivity is required as well.

We present a fully implemented graph visualization system, called CGV (Coordinated Graph Visualization), whose particular emphasis is on interaction. The system incorporates several interactive views to address different visualization tasks. Special attention has been paid to provide a clean design to support coordination among the views. A docking framework allows for assembling different view arrangements. In addition to standard interactions, several novel techniques, including graph lenses, enhanced dynamic filtering, and navigational aids such as edge-based traveling are offered. We augment interaction with several visual cues, among which the infinite grid and the radar view are novel.

Since CGV is implemented in Java, it can operate as a stand alone desktop system across multiple platforms or as a visualization client. It can also be run as a Java applet from a web browser.

CGV is a general system with potential application in many scenarios. CGV is currently being used to evaluate graph clustering results, to navigate topological structures of rat brains, and to perform analysis of some time-varying graphs associated with health data.

Key words: Graph visualization, interaction, multiple coordinated views

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