

GMine: A System for Scalable, Interactive Graph Visualization and Mining

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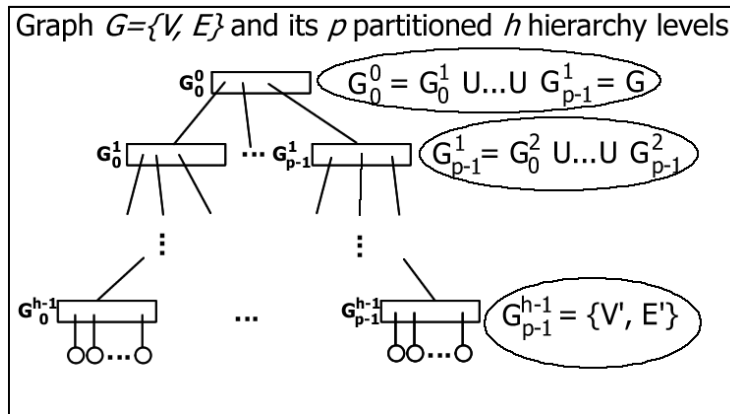
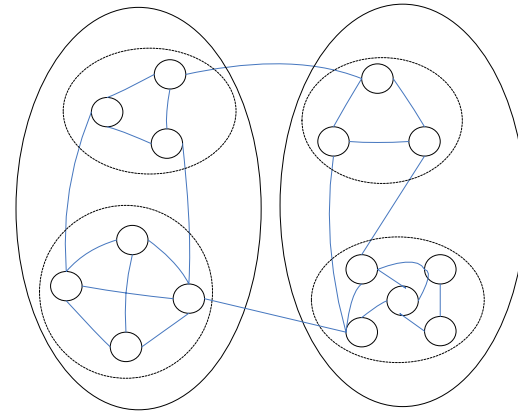


Introduction

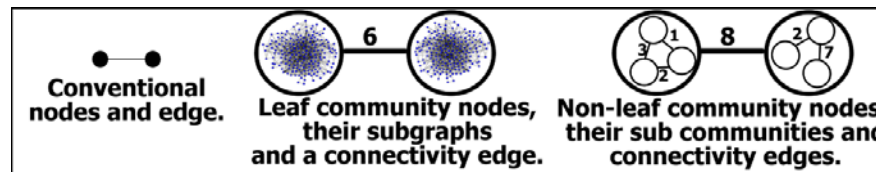
- Motivation:
 - Interactive Visualization of **LARGE** Graphs
- Challenges
 - Fast Interactive Manipulation
 - Avoid Sensory Overload
- Basic Ideas
 - Multi-Resolution: G-Tree
 - Summarization: Center-Piece Subgraph

Interactive Manipulation

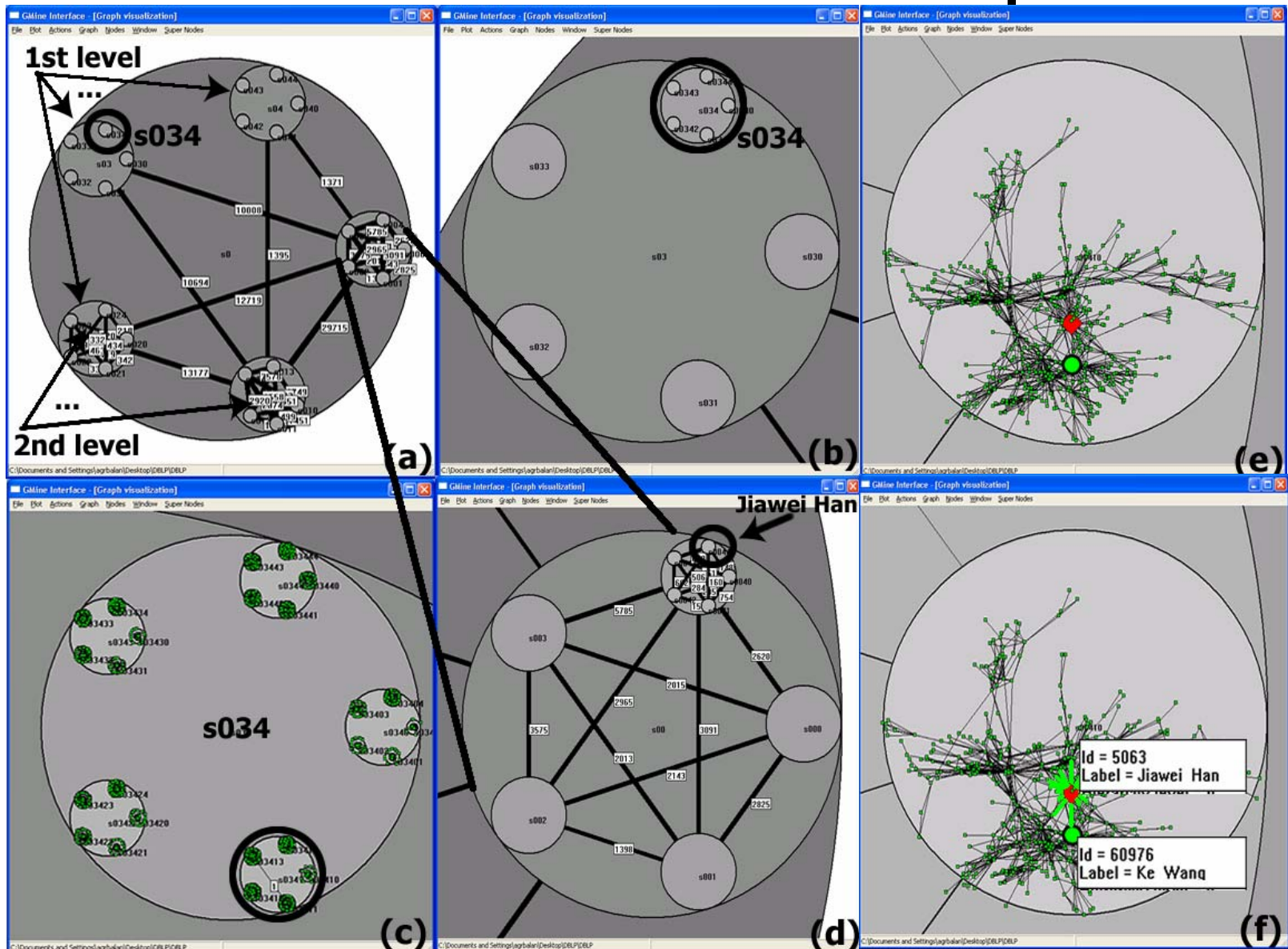
- Hierarchical Partition
- Data Structure: G-Tree



- Display Unit

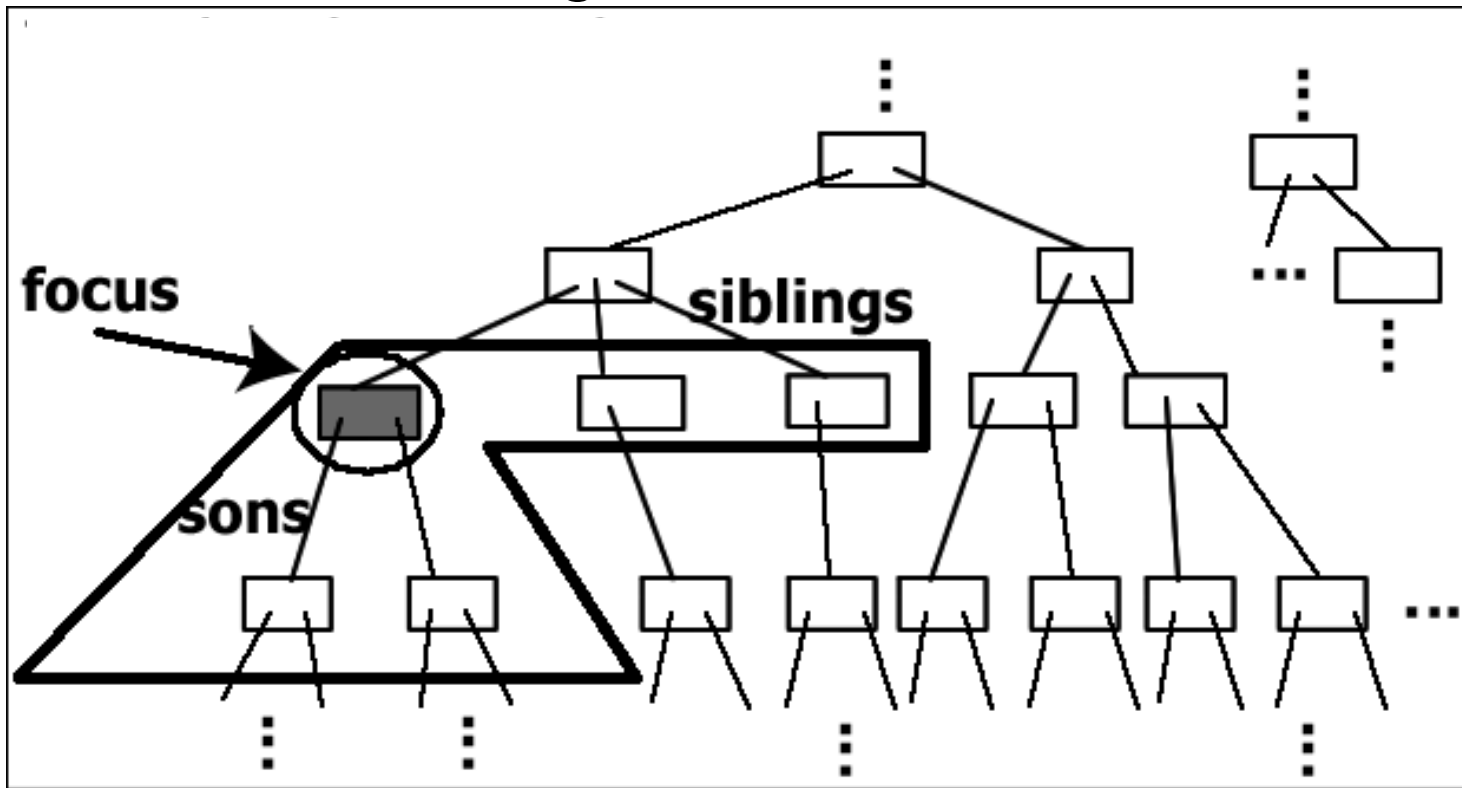


An Illustrative Example



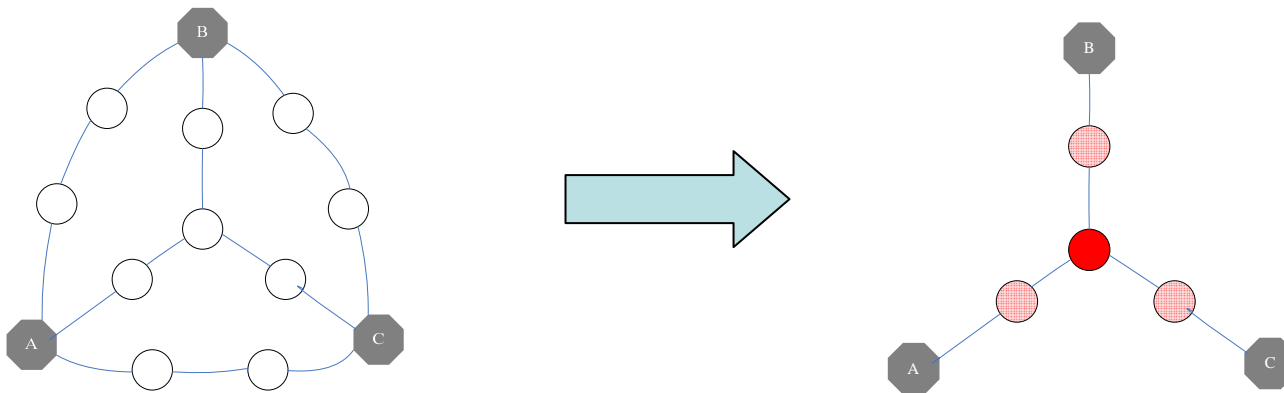
Sensory Overload: “Tomahawk” Principle

- Decide what to show
 - Sons and Siblings



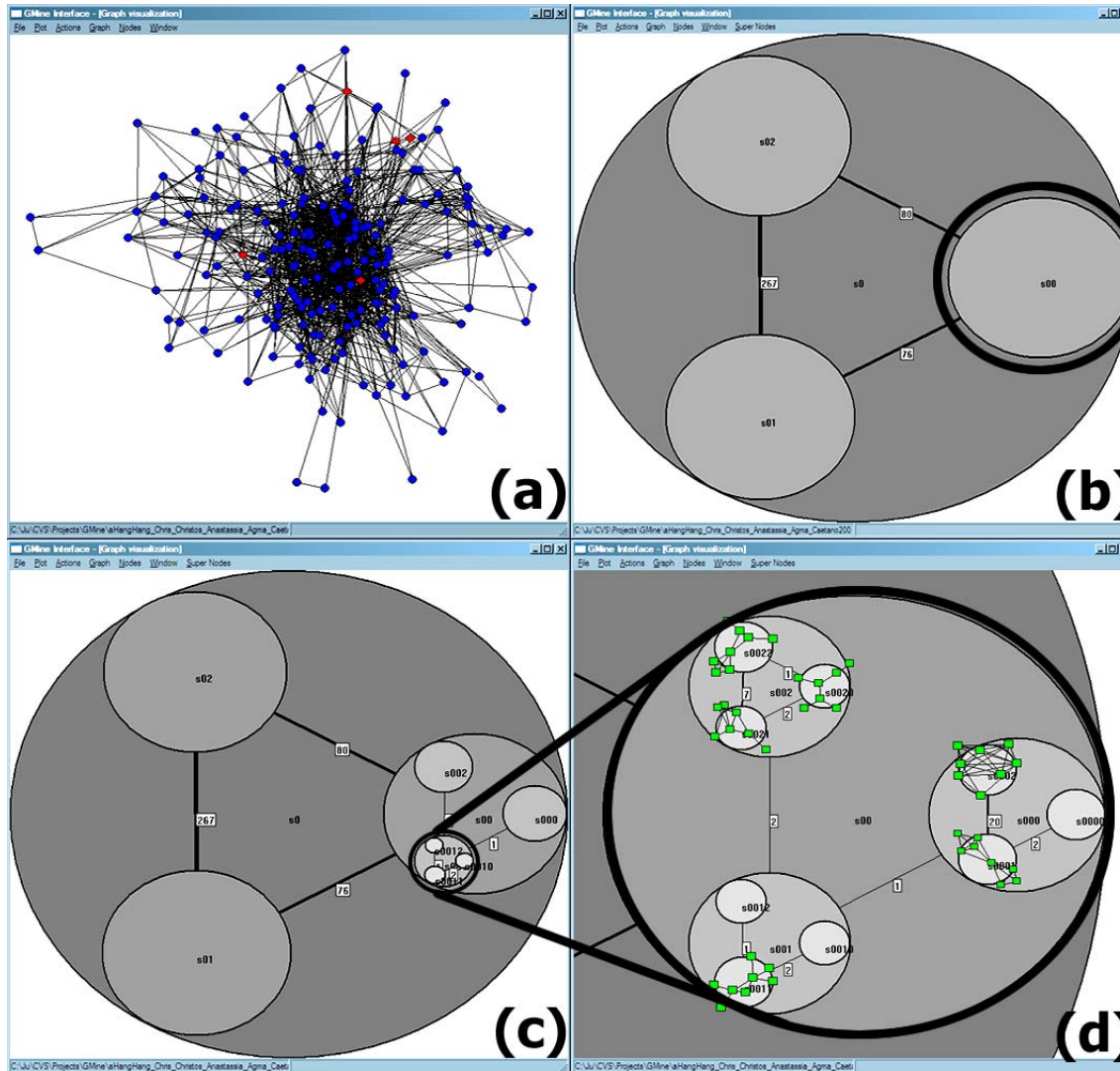
Summarization: CePS

- Motivation
 - Find a small but representative connection subgraph for the given queries
- How to...
 - Center-Piece subgraph





Summarization + Multi-Resolution



Other functionalities of GMine

- PageRank
- Simulation of Virus Propagation
- Degree Distribution
- # of Hop-Plot
- # of Weakly Connected Components
- # of Strongly Connected Components



Finding More about GMine

- Contact
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 - Hanghang Tong (for CePS): htong@cs.cmu.edu
 - Jure Leskovec (for GraphGarden- the foundation of GMine): jure@cs.cmu.edu
- Download GMine:
 - www.cs.cmu.edu/~junio
- CePS paper:
 - Center-piece subgraphs: problem definition and fast solutions