

Taming Graph Hairballs



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Project Overview



- ▶ Deals with graph visualization
- ▶ Can be difficult to extract and display meaningful features of really large graphs
- ▶ This difficulty is compounded with the streaming model
- ▶ Previous work has proposed ways of addressing these issues (see [5] or Section 12.3 of [2])
- ▶ Another common issue is the presence of graph “hairballs”
 - ▶ These are especially prevalent in social graphs

Graph Hairballs

- ▶ Large scale social graphs often resemble giant hairballs
- ▶ Multiple properties contribute:
 - ▶ Small diameter, high clustering, lack of center
- ▶ Related work has addressed this via high dimensional projections [5]
- ▶ One goal of this project is to address this challenge to ease user interaction

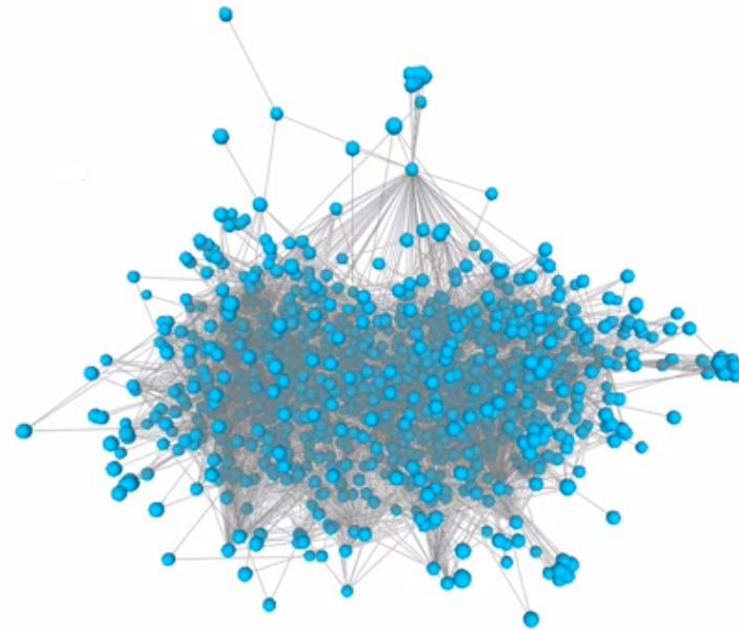


Photo from Wakita et al. [5]



Project Timeline



- ▶ Stage 1: Algorithmic Foundations and Implementations
- ▶ Stage 2: Data Set Acquisition
- ▶ Stage 3: Applying Algorithms to Data
- ▶ Stage 4: Visualizing the Results

“Taming” Hairballs



- ▶ Use core decomposition of [1] or [4] to find representative vertices in the network, as detailed in [3]
- ▶ These landmark vertices can then be displayed to represent key features in the network
- ▶ Users can view the local network around these vertices
- ▶ The union of these local networks covers the majority of the graph
- ▶ Ultimate goal: transform graph hair balls into data stories

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