Visualizing Network Relationships

Scott Murray
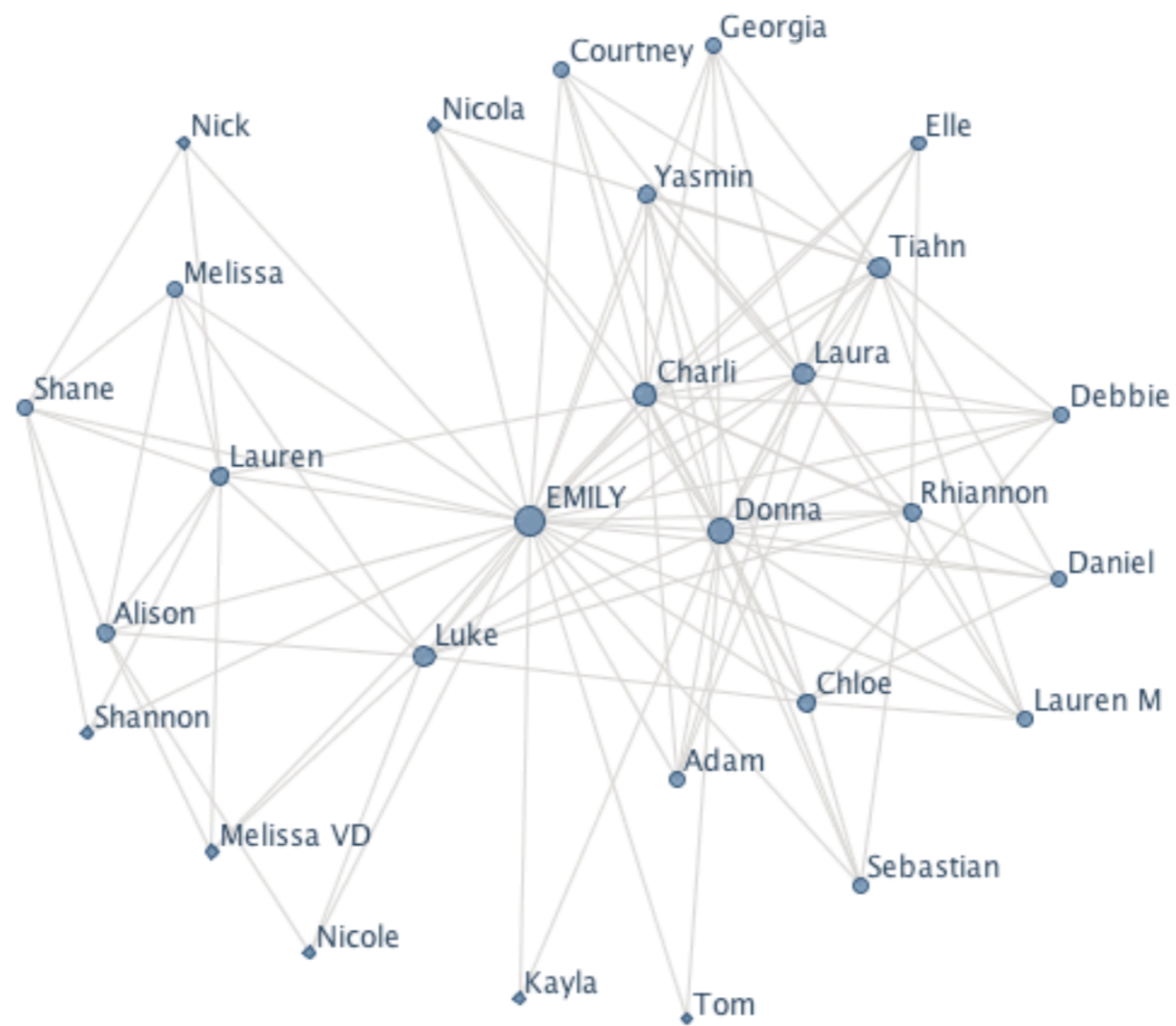
Final Project Mid-Point Presentation

The Problem

‣ Almost all graphs use edges that communicate only one binary value:

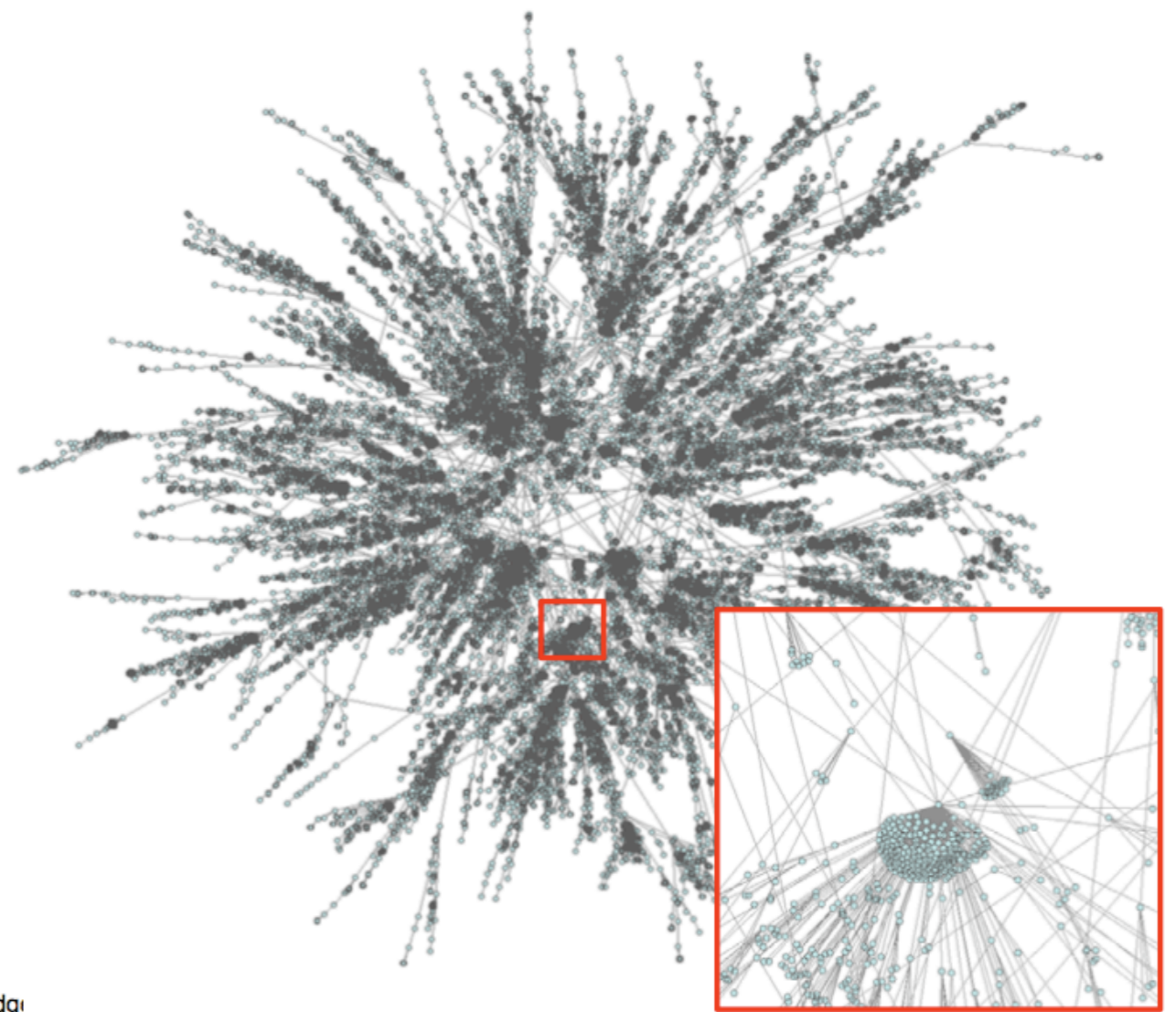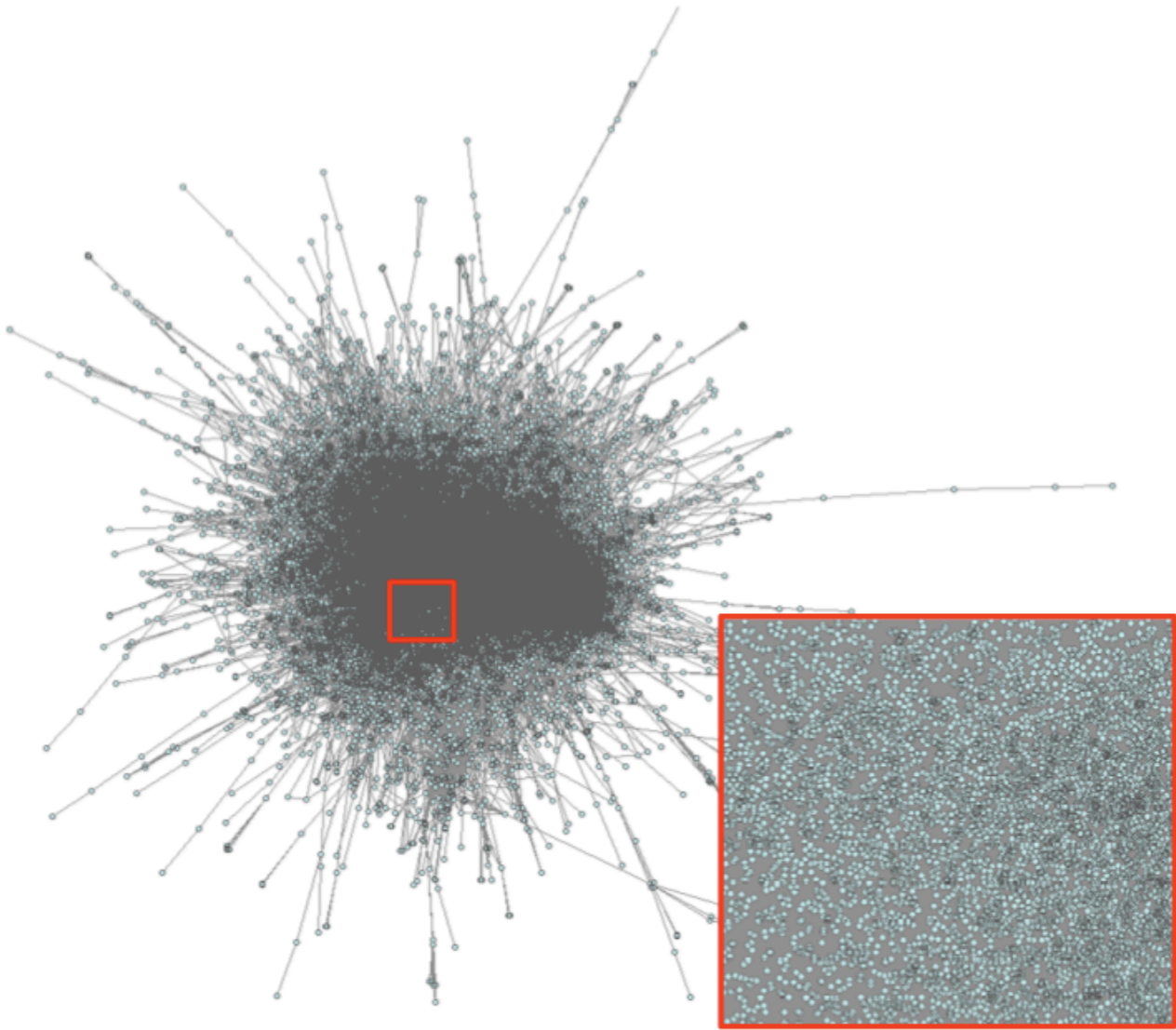either **connected** or **not connected**

‣ Result:
  ‣ Visual clutter
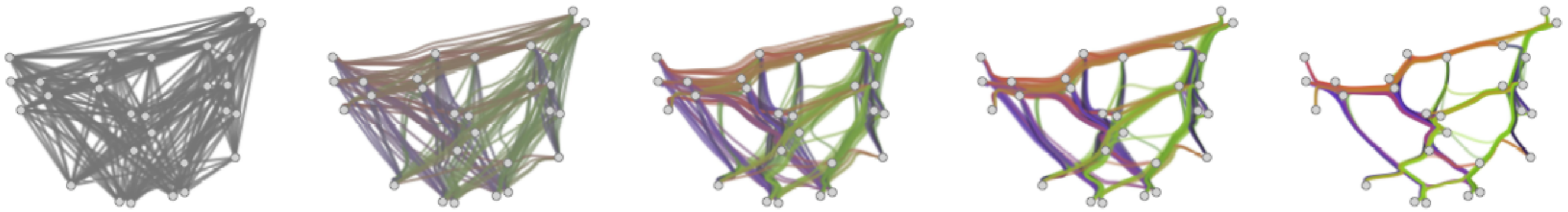 ‣ Little information
  ‣ Low data-ink ratio

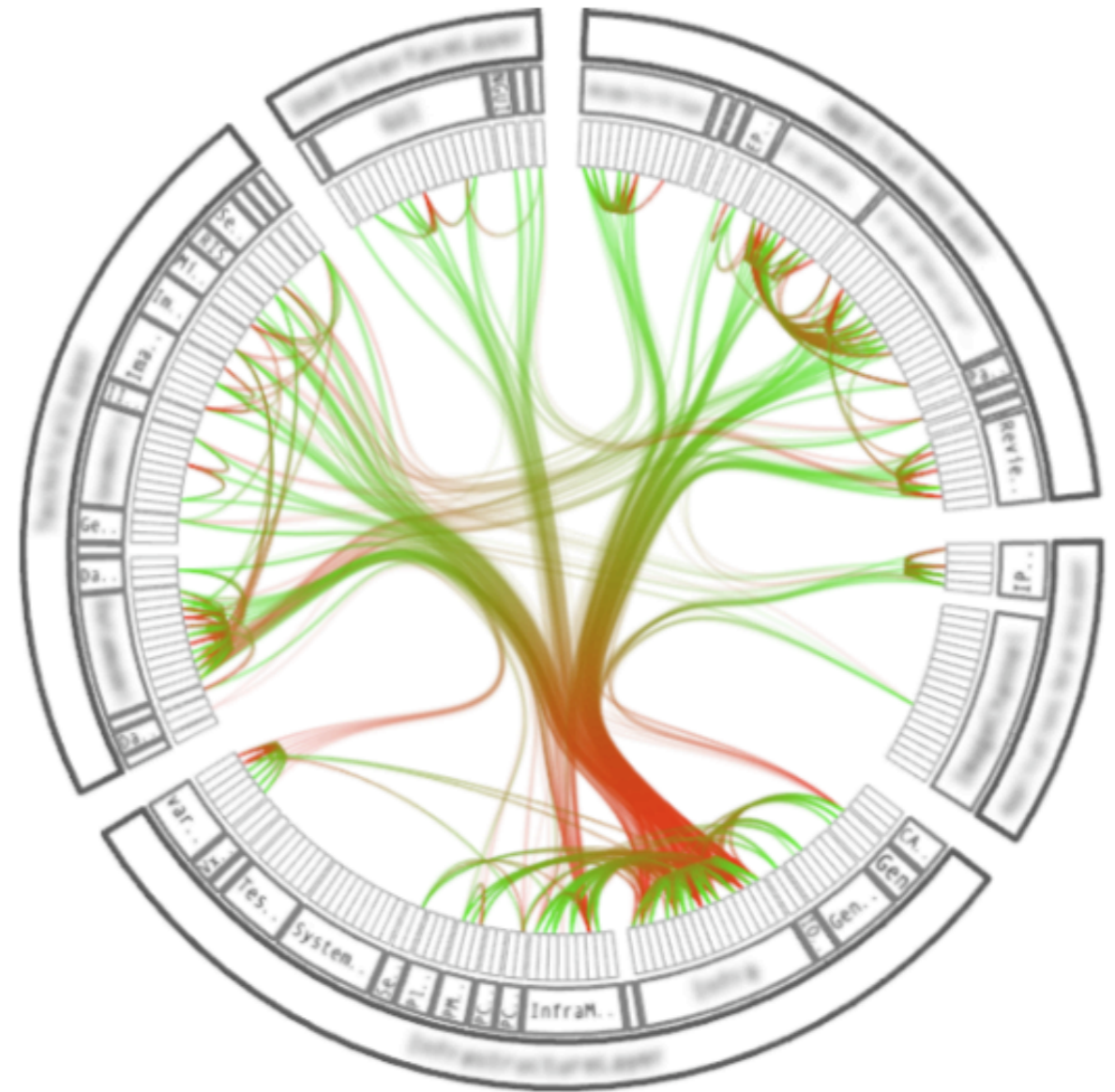Viégas, Wattenberg, van Ham, Kriss, and McKeon, *Many Eyes*: A Site for Visualization at Internet Scale"

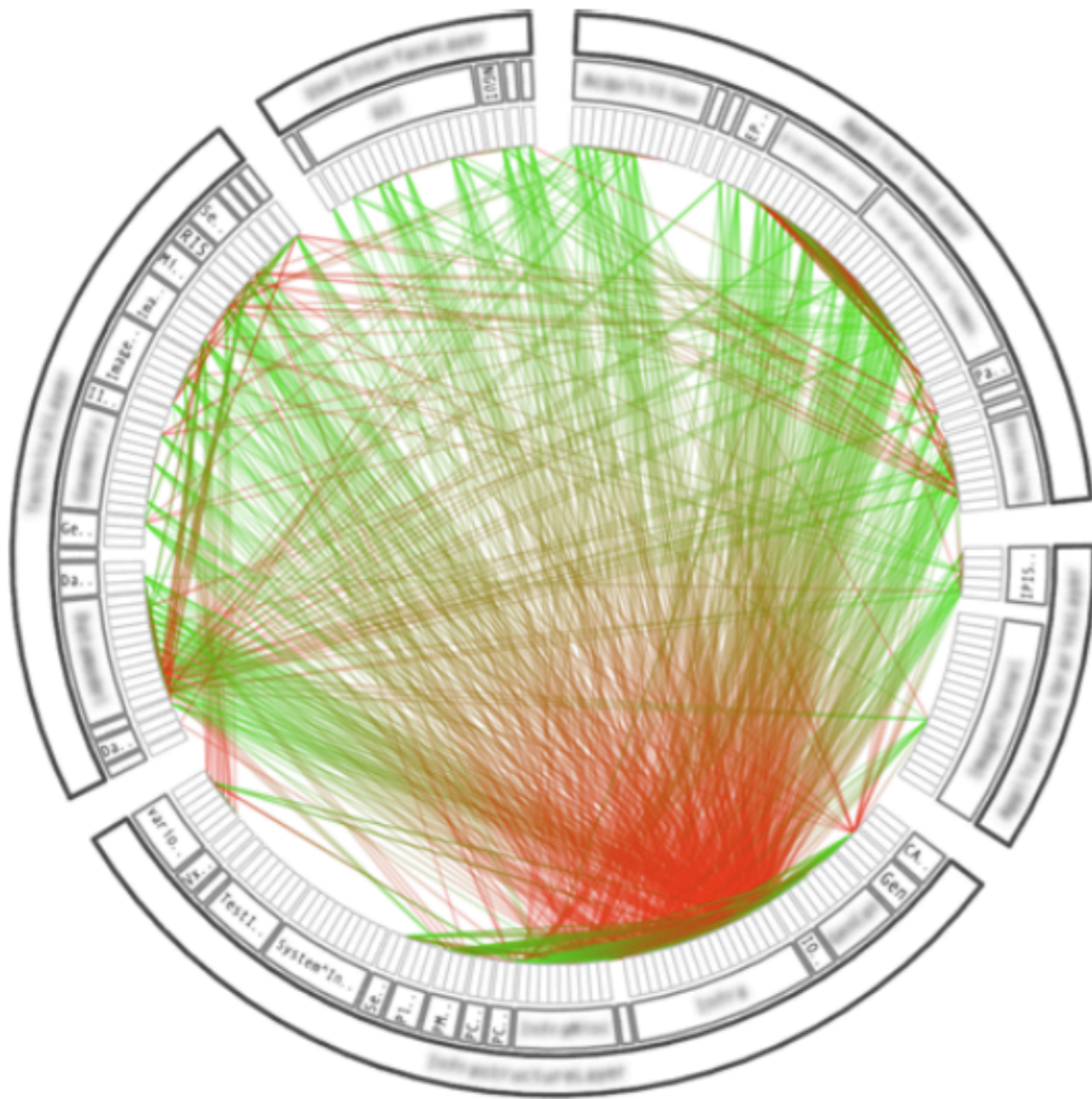**Research**

‣ Extensive literature on drawing graphs

 ‣ Drawing nodes and edges efficiently

 ‣ Clustering nodes to reveal trends

 ‣ Changing edge properties when overlapping

Jia, Hoberock, Garland, and Hart, "On the Visualization of Social and other Scale-Free Networks"

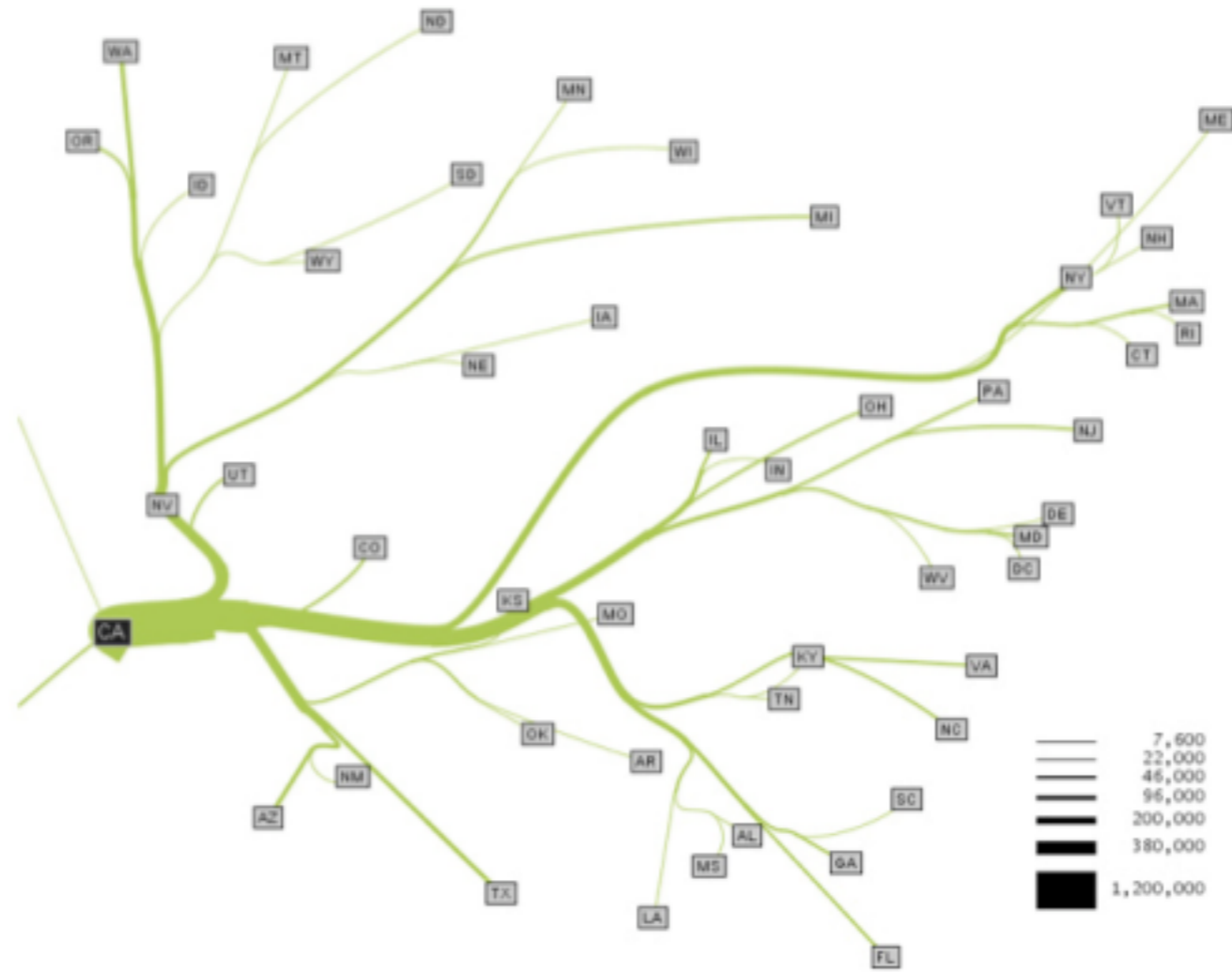Cui, Zhou, Qu, Wong, and Li, "Geometry-Based Edge Clustering for Graph Visualization"

Holten, "Hierarchical Edge Bundles: Visualization of Adjacency Relations in Hierarchical Data"

Phan, Xiao, Yeh, Hanrahan, and Winograd, "Flow Map Layout"

My Approach

‣ Work with more interesting *relationship* data (phone records, blog links, profile comments)

‣ Encode edges with quantitative values for each relationship

‣ Use motion to reveal more data

‣ Use interaction to enable filtering, focus

Next Steps

‣ Implement filtering to hide low-value nodes/edges

‣ Eliminate distracting "shakes"

‣ Try changing node colors to reflect edges' send/receive ratio (e.g. 1:1 ratio = purple)

Questions

‣ Is it readable?

‣ Is there too much motion?

‣ Which elements do you find most/least useful?

‣ What would you like to see?

‣ Other ideas?