Two Novel Techniques for Interactive Navigation of Graph Layouts

Visual Exploration of Graphs
- Essential task: navigation of data space and view space
- Standard approaches (e.g., zooming via mouse wheel or panning via drag’n’drop) are intuitive, but costly in terms of mouse mileage

Data Space Navigation
Edge-Based Travelling
- Utilize structure inherent in graphs
- Edges being incident to a “focus” node can be clicked
- Two modes of operation (each just a single click):
  - Preview: center view port to show both nodes incident to selected edge
  - Travel: navigate via edge and make opposite node the new “focus” node
- Smooth view port animations help users maintain the “mental map”

View Space Navigation
Pan-Wheel Navigation with Radar View
- Pan-wheel:
  - Travel freely when no particular graph region needs to be reached
  - Opens up possibility of spotting “interesting” areas
  - Weak spot: users unaware of what might be discovered in travel direction
- Radar view:
  - Novel interactive look-ahead guide
  - Off-screen data items projected to viewport borders
  - Semi-transparent circular sector indicates scope

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