CSC 805 – Spring 2023
Data Visualization:
Concepts, Tools, Techniques, and Paradigms

Exercise 9 - April 17, 2023
Coordinate Axis-based Approaches

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Visualization Libraries

- Tableau (https://www.tableau.com/)
- Infogram (https://infogram.com/)
- ChartBlocks (https://www.chartblocks.com/en)
- Datawrapper (https://www.datawrapper.de/)
- D3.js (https://d3js.org/)
- Google Charts (https://developers.google.com/chart)
- FusionCharts (https://www.fusioncharts.com/)
- Chart.js (chartjs.org)
- Grafana (https://grafana.com/)
- Sigmajs (http://sigmajs.org/)
- Polymaps (http://polymaps.org/)
- Jupyter (https://jupyter.org/)

Task 1

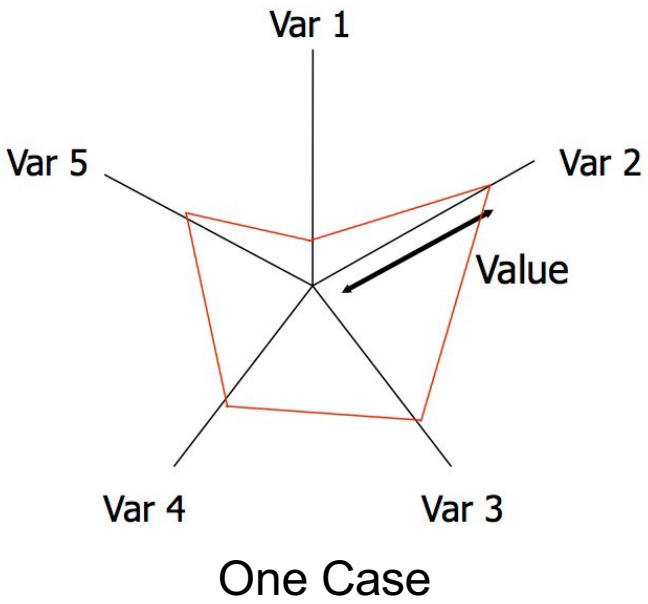
- Select any two libraries and look into what kind of visualizations are supported for Coordinate Axis-based Approaches
  - start plots, parallel coordinates
- Find out what kind on interactions are supported for the underlying visualization and the what kind of filtering options can be offered

Task 2

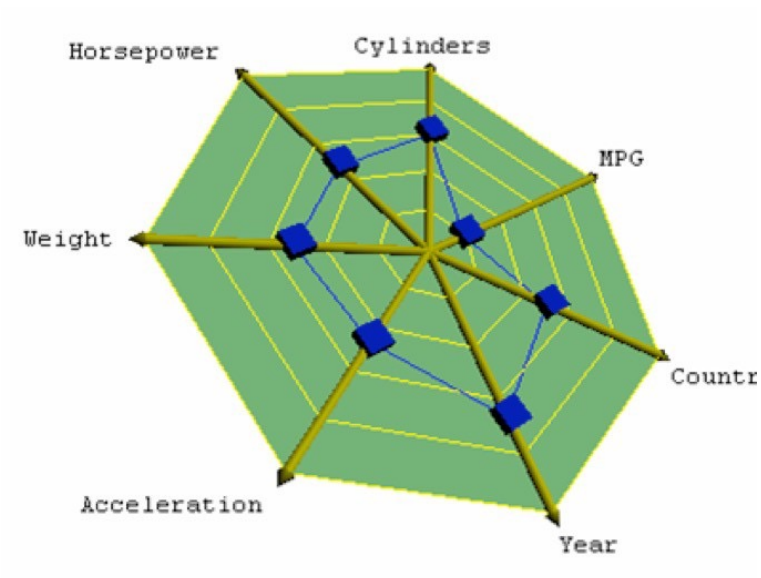
- Assume you need to extend “HiPlot (Facebook API for parallel coordinates)” library (see last slide).
- What kind of new interactions would you support?
- How you will highlight data features/patterns in the extended version?

Axis-based Approaches

- **Star Plots**
  - Space out the **n-variables** at equal angles around a circle
  - Each “spoke” encodes a variable’s value (can map nominal to value)
  - Generate single stars for each dataset Map all datasets overlapping on one star

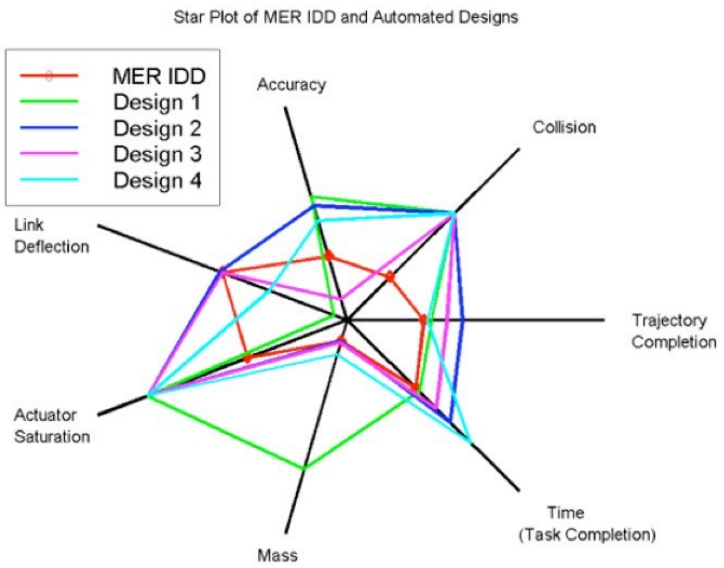


One Case

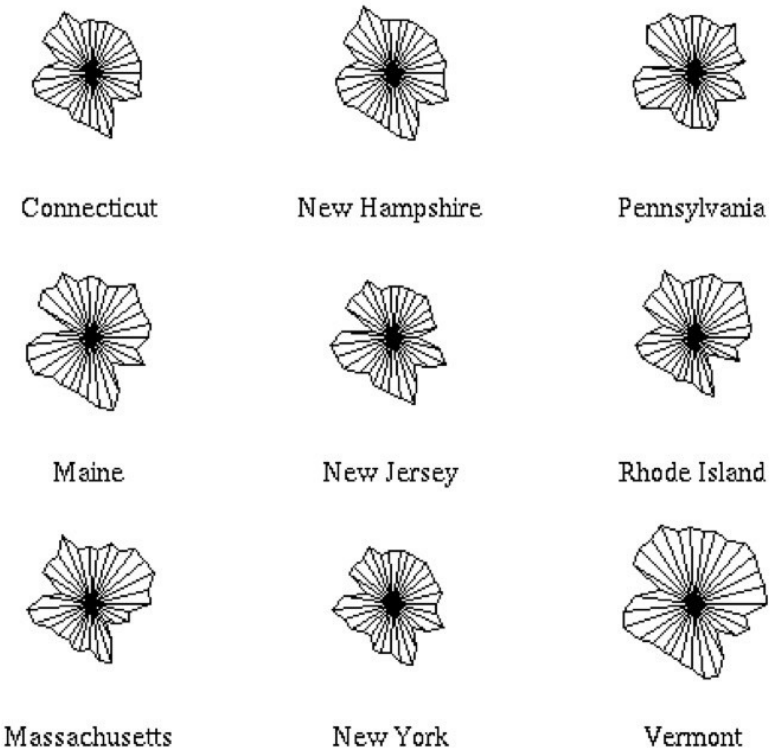


Axis-based Approaches

- Star Plot Examples

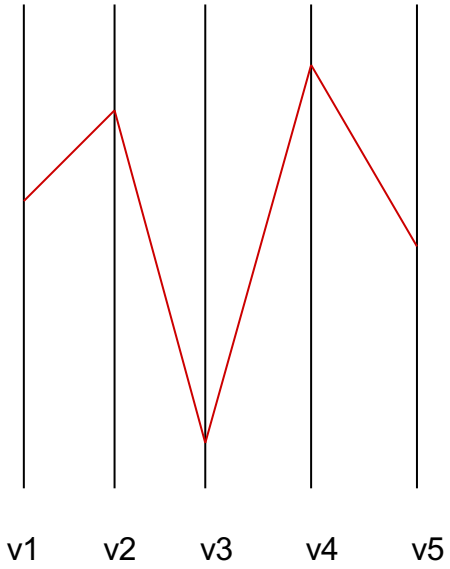


manipulator arm designs (Instrument Deployment Device)



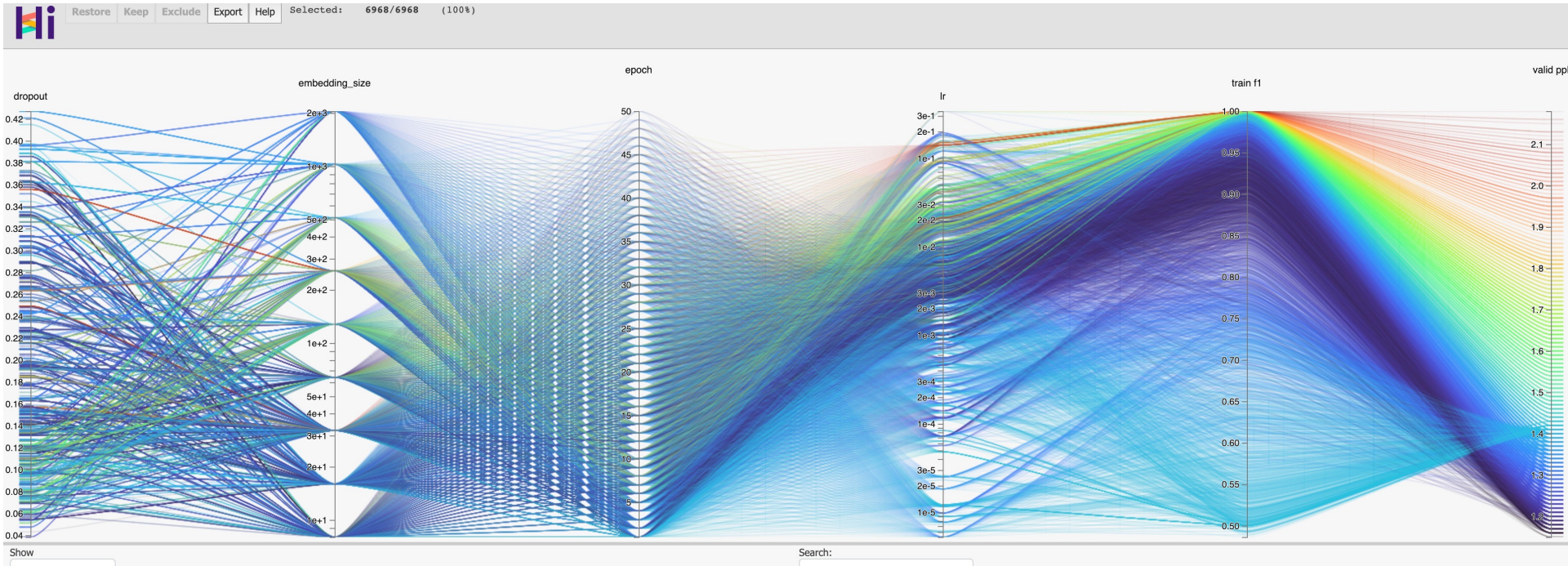
Axis-based Approaches

- **Parallel Coordinates**
  - Encode variables (dimensions) along a horizontal row
  - Vertical line segments specifies values
  - Polyline (red here) is a single data point (case) in n-dimensions (here 5).



Axis-based Approaches

- HiPlot (Facebook API for parallel coordinates)



https://tinyurl.com/xdjy2has