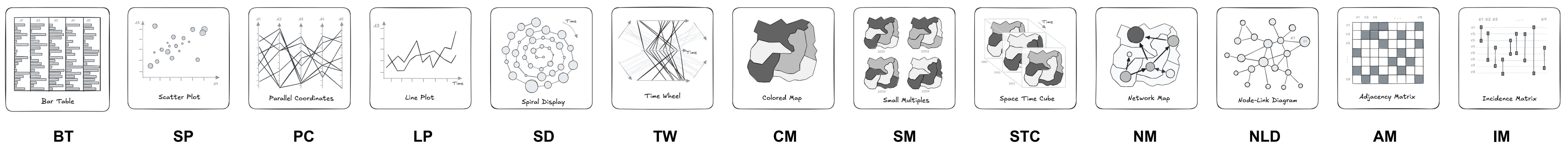


NAVIGATING THE ZOO OF VISUALIZATION TECHNIQUES

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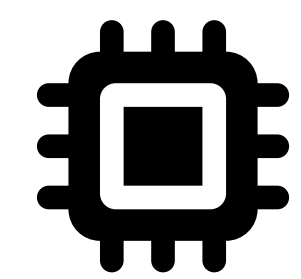


Why

- What are **pathways through the space** of visualization techniques?

How

- **Study similarity** of visualization techniques for different types of data (see [1] for more details)



Model-Driven Approach

- Categorize vis. techniques based on Munzner's scheme [2]
- Define vis. technique **signatures** based on categorization
- Define similarity based on Jaro-Winkler distance between signatures

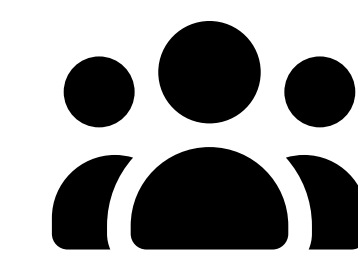
Marks: Points (P), Lines (L), Areas (A)
Channels: Position (P), Length size (L), Area size (A), Color (C), Shape (S)

DRDA MPML CpCACc RsOLLD

Example signature for Node-Link Diagram (NLD)

Data Facets: Attributes (A), Space (S), Time (T), Relationship (R)

- **Region:** Separate (S), Order (O), Align (A)
- **Axis Orientation:** Rectilinear (L), Parallel (P), Radial (R)
- **Layout:** Dense (D), Space-Filling (S)



Expert-Driven Approach

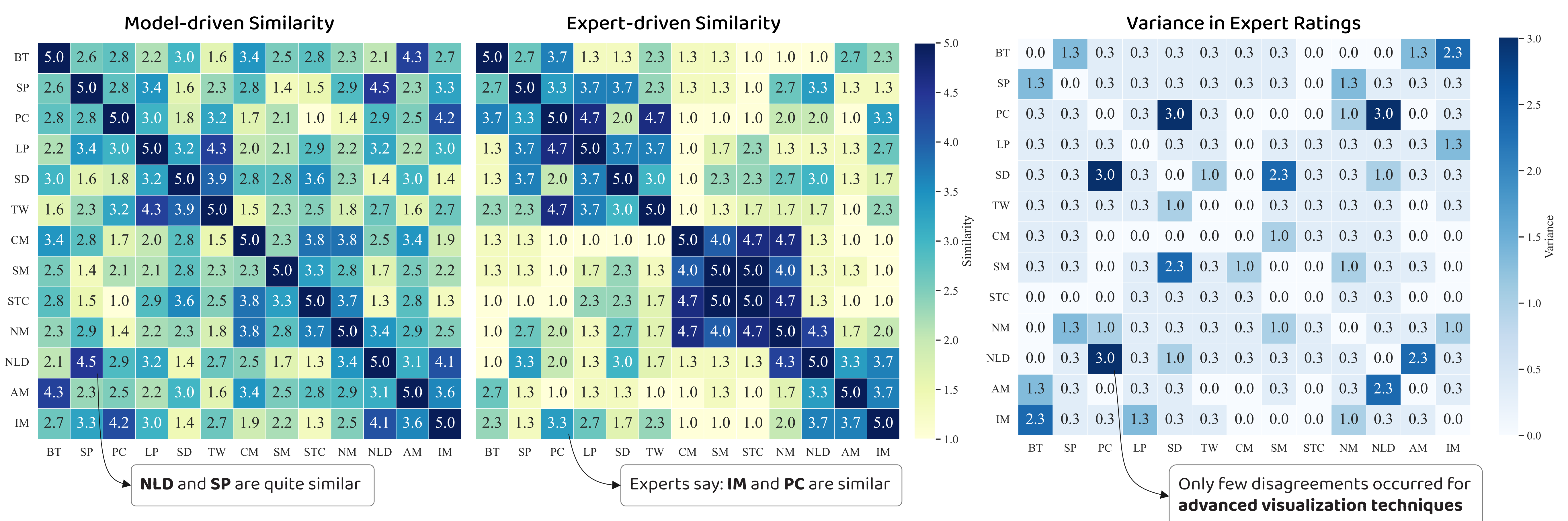
- Set up online study with sketchy style vis. techniques
- Ask three experts for intuitive assessment of similarity
- Experts rate similarity of **78 pairs** of vis. techniques

Try the study!

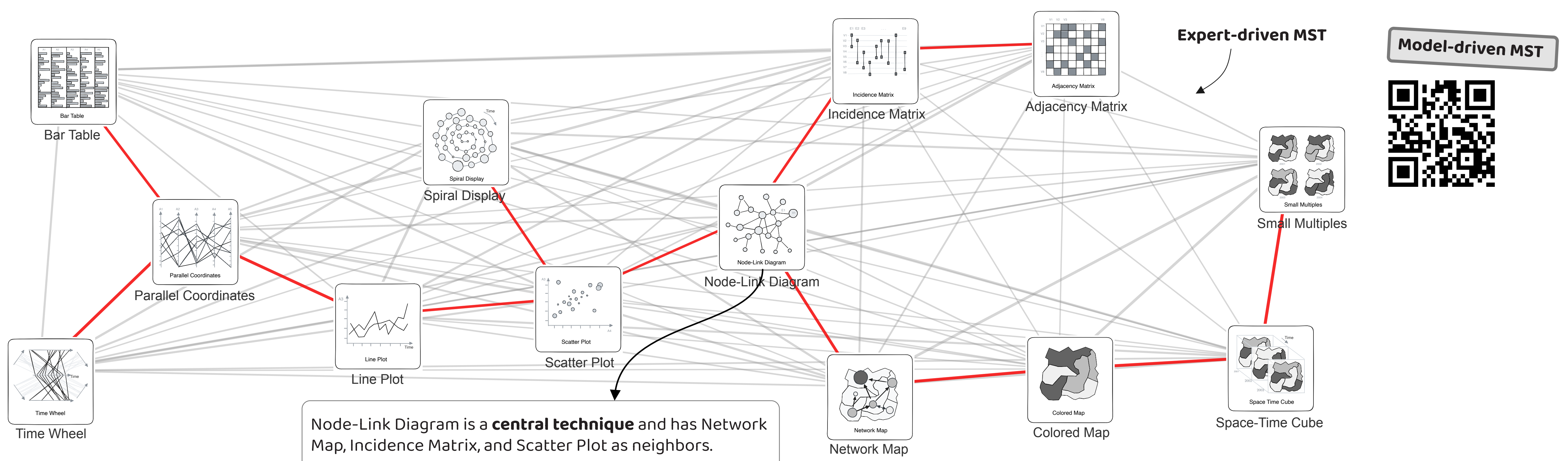


Results

- Heatmaps of model-driven and expert-driven **similarity of 13 visualization techniques**



- Similarity-based **minimum spanning tree (MST)** reveals relationships between vis. techniques



References

- [1] A. A. Salako and C. Tominski. Toward Understanding Similarity of Visualization Techniques. ArXiv, 2025. doi: 10.48550/arXiv.2506.17032
- [2] T. Munzner. Visualization Analysis and Design. A K Peters, 2014. doi: 10.1201/b17511