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The Role of Visual Analysis
Presentation’s map
Graphs: visualisation of ties | similarity
Everyone can graph

Measuring structure

- Graphs & clicks
- Modularity

\[ Q = \frac{1}{2m} \sum_{vw} \left[ A_{vw} \cdot \frac{k_v k_w}{2m} \right] \delta(c_v, c_w) \]

- adjacency matrix
- probability of an edge between two vertices is proportional to their degrees
- if vertices are in the same community
Tree’s hierarchy into map
Sphere surface (cartographic projection)
Timeline changes


0.6:0.4  0.5:0.5  0.7:03

Without class I  Random  Classes

Fractal dimension & lacunarity

- FD— complexity degree
- Lacunarity - the measure of gapiness

Spectral analysis

Clusters strong organization

1988

1998

2007
Images Analysis

L. Manovich. Data Science and Digital Art History
Medicians’s problems (brain stroke)

Brain Spirography (BS) – investigated activity of “natural neurons” on breath center in human brain.

Neural nets

Breath center in human brain stem

Total activity of neurons network as Time Series

Return Map Plot of activity

FD = 2.32
Focus+context

• Fisheye View -

“Provide[s] detailed views (focus) and overviews (context) without obscuring anything...The focus area (or areas) is magnified to show detail, while preserving the context, all in a single display.”

(Shneiderman, DTUI, 1998)
Density map for COST group

Some local team 2016
Prognosis 2020
Collaboration in pairs

Leader - performer

Performer - performer

Connector - performer
Reminding pioneers: John Tukey

• 1977 – **Exploratory** Data analysis
Reminding pioneers: Anscombe’s quartet
Summary

• We still need effective measures for evaluating visualization maps
• Visual analysis is important in knowledge mapping
• Cognitive science achievements are noticeable

Discussion

• Should we endeavor to search only quantitative relations and omit qualitative ones?
• Metrics -> visualisation -> metrics -> visualisation ....
  • Mapping science by whom?
Map of presentation again
Bibliography

Thank You!

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