InfoVis Group Research

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HCI@UBC 2013 Kickoff
11 Sep 2013

http://www.cs.ubc.ca/~tmm/talks.html#hci13

People

- on sabbatical, small group!

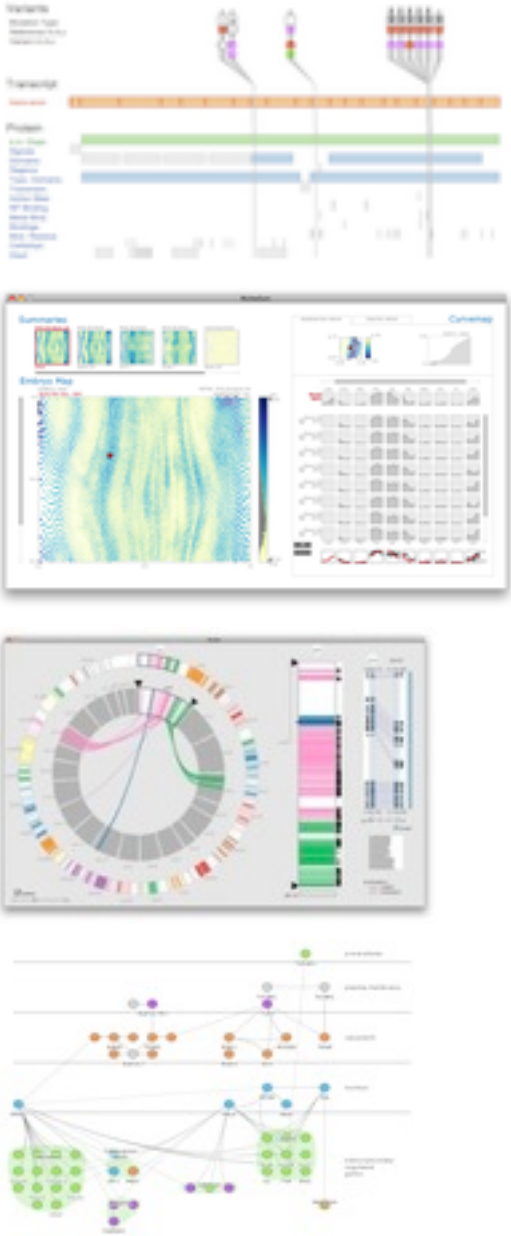
- Matt Brehmer
  - continues PhD
- Jessica Dawson
  - defends MSc end of Oct
- Stephen Ingram
  - defends PhD Friday
  - then postdoc

Many Flavors of Work

- Problem-driven work
  - design studies
- Technique-driven work
  - algorithms, systems
- Evaluation
  - lab/field/data studies
- Theoretical foundations
  - models

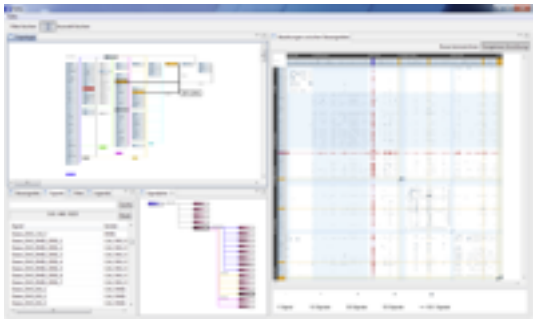
Design Studies: Biology Domain

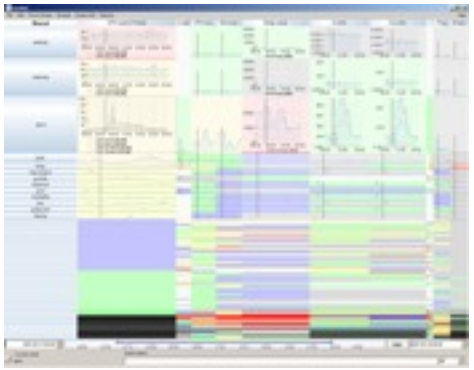
- Variant View: gene sequence variants
- MulteeSum, Pathline: comparative functional genomics
- MizBee: comparative genomics (synteny)
- Cerebral: gene expression + interaction network

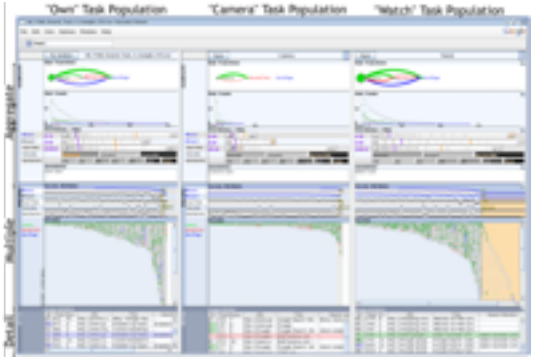


Design Studies: Other Domains

- RelEx: automative networks
- Vismon: fisheries simulation/mgmt
- LiveRAC: large-scale system monitoring
- SessionViewer: web logs

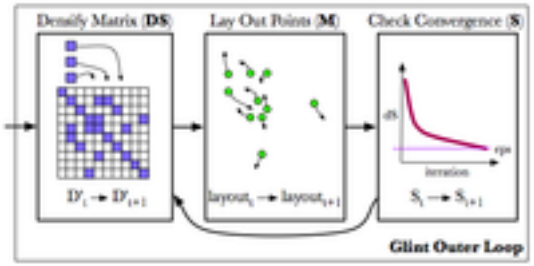






Techniques: Dimensionality Reduction

- Glint: costly distance functions

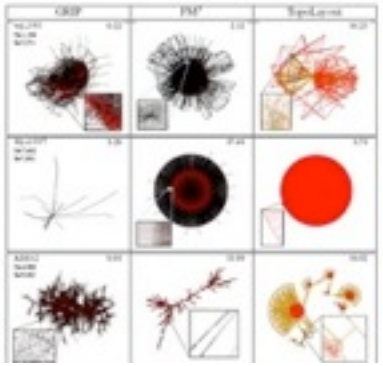


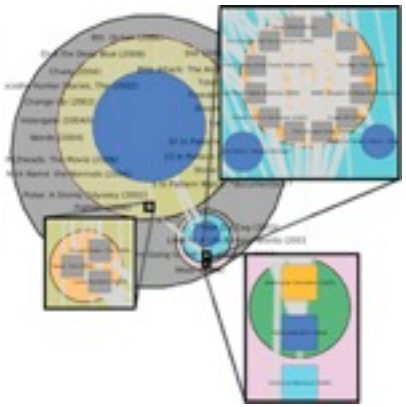
- DimStiller: visual dimensional analysis and reduction toolkit

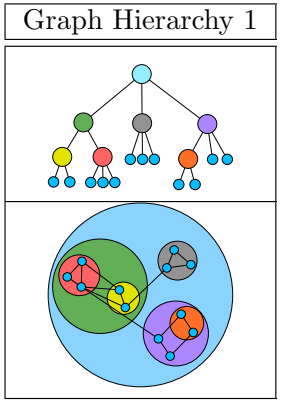
- Glimmer: GPU accelerated MDS

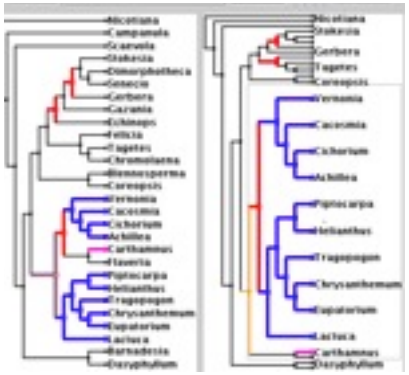
Techniques: Graphs/Trees

- general multilevel/compound graphs
  - layout
    - TopoLayout
  - interaction
    - Grouse
    - GrouseFlocks
    - TugGraph
- evolutionary tree comparison
  - TreeJuxtaposer



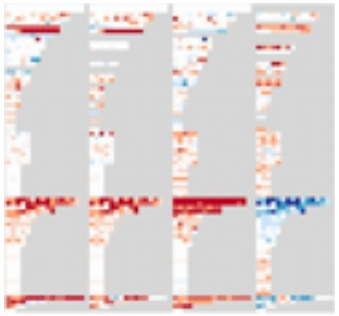




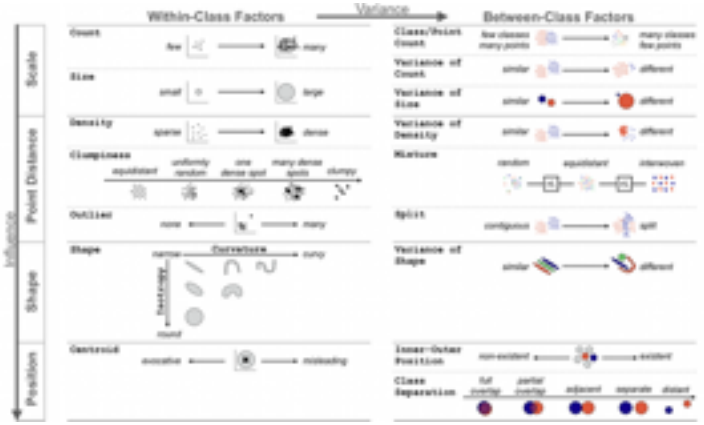


Evaluation: Dimensionality Reduction

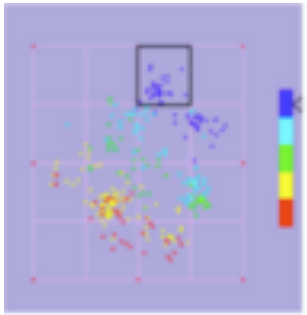
- guidance on scatterplot/DR choices

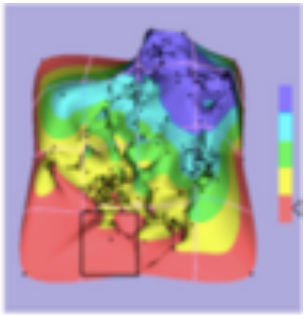


- taxonomy of cluster separation factors



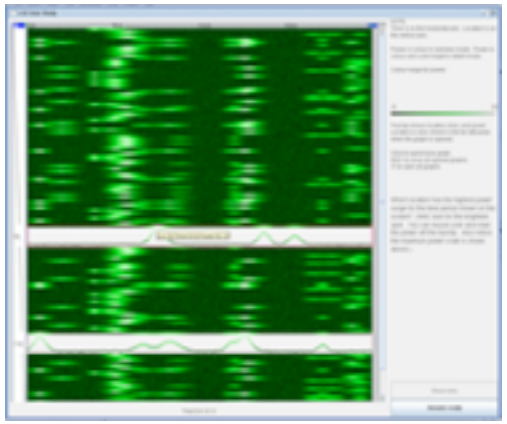
- 2D points vs 3D landscapes





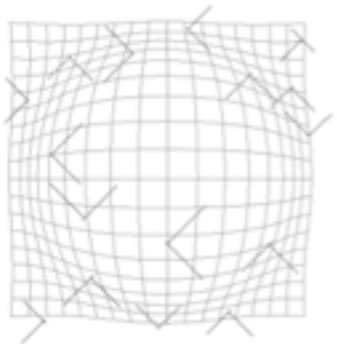
Evaluation: Focus+Context

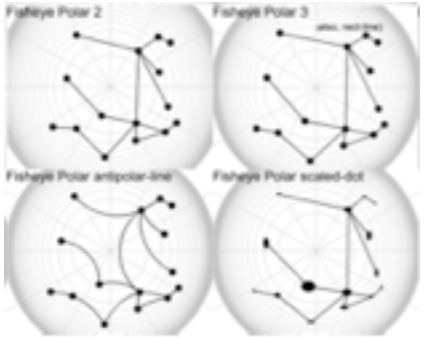
- overviews: separate vs. integrated views



- navigation: stretch and squish vs. pan/zoom navigation

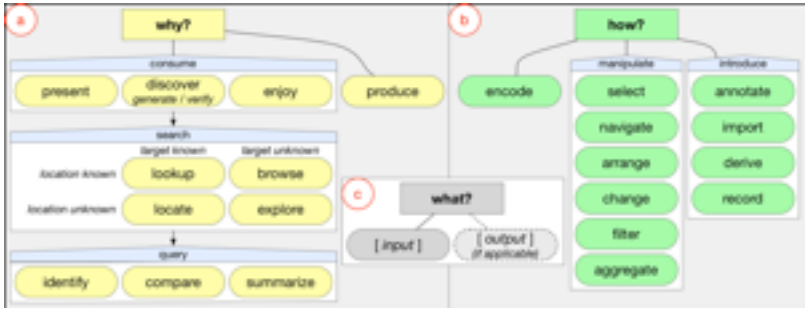
- impact of distortion on visual search, visual memory



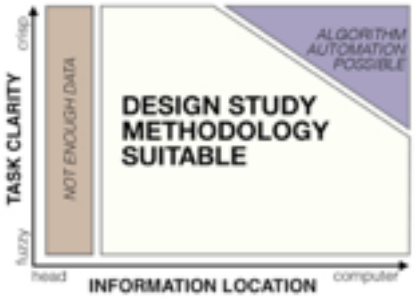


Theory/Models

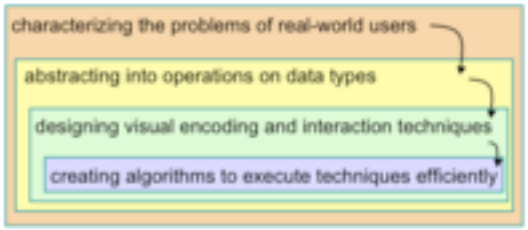
- multi-level typology of abstract visualization tasks

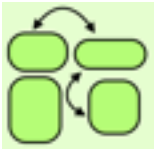


- design study methodology



- nested model for vis design and validation
  - revisited: blocks and guidelines





- papers process and pitfalls