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Techniques: Networks
• TopoLayout
  – multi-level network layout
• Grouse
  – multi-level network browsing
• GrouseFlocks
  – browsing space of all possible compound network hierarchies
• TagGraph
  – arranging complex multi-level networks interactively

Connections Beyond Graphics
• many other application domains
  – biology only one of many
• machine learning
• computational geometry
• HCI
• cognitive psychology

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

Design Studies: Other Domains
• RelEc: automotive networks
• Vismon: fisheries simulation/rgmt
• LiveRAC: large-scale system monitoring
• Session/Viewer: web logs

Outline
• introduction
• Cerebral
• TreeJuxtaposer
• MizBee
• wrapup

Why?
How?
What?
Reduce
Filter

MizBee contributions
• first synteny browser with side-by-side linked views
  – across the range of scales
  – encoding all four conservation relationship types
  – proximity, size, orientation, semantic
• open source
  http://www.cs.utah.edu/~miriah/mizbee

Techniques: Dimensionality Reduction
• Glitter/GPU accelerated MDS
• DimSelect: visual dimensional analysis and reduction toolkit
• Glinc: costly distance functions

Theory/Models
• multi-level typology of abstract visualization tasks
• design study methodology
• nested model for vis design and validation
  – reviewed blocks and guidelines
• papers process and pitfalls

More information
• this talk
  http://www.cs.utah.edu/~miriah/mizbee-0314
• papers, videos, software, talks, courses
  http://www.cs.utah.edu/~miriah/
• book (in press 2014)
  http://www.cs.utah.edu/~miriah/feedback/
• acknowledgements
  – funding: Agilent, NSERC, NSF
  – talk feedback: Matt Brehmer

Evaluation: Focus+Context
• outer ring: summarize relationships with color
  – select one chromosome from set of source chromosomes
• inner ring:
  – destination chromosomes around copy of selected source chromosome
  – show relationship details with connection marks as well as color

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How: Idiom design choices
• axis orientation
  – radial: genome
  – rectilinear: chromosome, block
• aligned position more accurate than angle

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