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Overview

- Background
  - Degrees in Math, Physics and Statistics
  - Areas of expertise: Volume Rendering, Signal Detection, Biomedical Image Processing, Virtual Reality, Time Series Analysis
  - Employment:
    - NCSA (UIUC) – Biomedical Imaging
    - Beckman Institute (UIUC) – Director of Integrated Systems Lab
    - Duke University – Director of Visualization Technology Group and Virtual Reality Facility
    - Cisco Systems – Responsible for imbedding analytics into automation testing systems and network applications

Overview

- Current use of visualization (Cisco centric)
  - Dashboards: Feedback for developers and release managers into software testing status which is highly focused on time series data analysis. Past, current, and predicted performance of software function, resource allocation, bottlenecks.
  - Development work: exploratory analysis of time series data models for informing methods that are appropriate for automation.
- What I am passionate about
  - Applications: Combining data analysis and visualization methods to solve problems.
  - Education: Probabilistic, data-driven decision methods are new to some members of Cisco. Effective visualizations of data models are a central component of successfully updating the workflow and culture.

Current (continuing) Challenges

- Visual literacy – learning how to visually convey information should receive as much attention as learning how to write. (Making multiple drafts, teaching the grammar of visuals)

- Measuring the effectiveness of a visual method

- Integrating interactive visual exploration tools with analysis libraries in a generalized framework (SCI tools and Tableau are on the right track)

- Showing large differences in scale, with and without interaction

- Data access and integration

Wish List

- The 'Duda and Hart' of visualization to help define the field
- More integration with cognitive scientists to understand the human factor of visualization effectiveness
- More integration with mathematicians and engineers to support analysis practices and work flows.
- Methods for data storage (caching) that self-configure, aggregate and optimize depending on the task
- Freedom from mouse/keyboard computer interfaces