TimeSlice: Interactive Faceted Browsing of Timeline Data

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Napoleon’s Invasion of Russia (by Charles Joseph Minard)
Categorizing is Vital
Related Timeline Viewers

Continuum [Andre07]

Lifeflow [Wongsuphasawat11]
Current Faceted Data Browsers

FacetMap [Lee09]

Silverlight Pivot Viewer
TimeSlice Interface

• Name
• Birth and Death Dates
• Facets
  • Gender – Male, Female
  • Profession – Engineer, Scientist, Artist, Philosopher, Politician, Writer
  • Location – Europe, Asia, America, Europe, Australia
• Image
Dynamic Filtering Tree

- Root
  - Profession: Engineer & Scientist, Philosopher, Politician
  - Gender: Female, Male
Interactions with the Filtering Tree

Video Demo
Plot Settings and Other Interactions

Histogram View

Life Span View

Mini Life Span View

Video Demo
Light-weight Evaluation

- **2 datasets**
  - famous deceased people
  - US daily flight delays

- **8 participants**

- **Tasks and procedure**
  - **Structured time (with the flight delay dataset)**
    - 7 identification tasks
      - E.g., find the number of flight delays in *Feb, 1990* for flights that are *long elapsed time* and *early arrival delay*.
    - 6 comparison tasks
      - E.g., for the *east region* and *mid-west & west region flights* with either *short* or *long elapsed time*, which timeline has the *lowest* number of delays overall?

- **Unstructured time (with the people dataset)**
  - 10 min free-form exploration
  - Think aloud protocol
Initial Results and Feedbacks

+ “I really like to open up an attribute and you get all the related queries along the way of drilling down into the data.”

+ “You don’t need to make tons of similar queries and add the results one by one for comparison.”

+ the direct manipulations of the filtering tree makes the operations “obvious and simple”.

− once the timeline canvas was vertically zoomed, participants lost track of the associated queries.

− current side-by-side layout of timeline comparison was not adequate for detailed comparisons of values of data points.
Future Works

• More general datasets
  • Asymmetric or null facets
  • Large numbers of attributes and facets
  • Hierarchical events
  • Rich media data
• Multi-scale exploration techniques
• More user evaluation
• Iteratively improve the interface
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Questions?
Do not embarrass the presenter!
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