Immersive Data Visualization with Virtual Reality
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Problem

- Overcome the limitations of traditional 2D displays by using a head mounted display
- Explore methods for interacting with data in virtual reality

Motivation

- 2D displays have limited screen real estate and usually require panning and zooming to display large datasets
- 3D visualizations displayed on a 2D screen loses vital cues of depth and parallax
- Head mounted displays are beginning to appear in the consumer market and relatively little research has been conducted to explore and evaluate data visualization in VR

Approach

Stereoscopy and Head Tracking

- Two virtual cameras.
- Apply world scale
- Remove lens distortion
- Libraries: Oculus SDK & vr.js [3]

Brushing and Linking with Ray Casting

Selection
Use external device to indicate the beginning & end of selection. Gaze at objects to select.

Corresponding data points in other projections highlighted

Results

- Perform more formal tests to determine cognitive benefits (if any) of VR
- Explore more natural forms of interaction with 3D data such as using a Leap motion for finger tracking
- Evaluate equivalent of data-ink ratio in the context of VR