Motivation

- enable 3D creation for non computer graphic experts
- ease sharing of interactive visualizations
- provide custom interaction techniques for domain experts
- extend visualizations by modular components

Case Studies

Case Study #1:
- simple example showing the system's general working
- writing an interactive visualization with a custom module
- extend module with custom inputs and interactions

Case Study #2:
- shows practicality of our system for large data
- volume visualization
- change shader parameters through DSL
- DSL variables (fields that are not defined by a module)

Case Study #3:
- dynamic encoding functions map data to a point cloud
- integration of Vega as a sub-DSL resulting in a linked view

Contribution

A declarative domain-specific language (DSL) for interactive 3D visualizations
- able to configure all stages of the visualization pipeline
- human readable format (JSON) as host language
- users can create and configure interactive 3D visualizations

Modular system for computing visualizations using the DSL
- declarative design principles with functional data structures
- interfacing with imperative web environment

Visualization-creation environment
- allows quick prototyping of visualization design
- live DSL shows internal state and enables parameter changes

Approach

- DSL parser
- modules
- render
- unparsable
- messages