A Exploratory Approach to

Visualize the Evolution

of

Large Software Systems

with Three Different Concepts

First Prototype
- Realized as Eclipse Plugin
- Based on OpenGL
- Universal concept for arbitrary languages and model types
- Supports different analysis tasks
- User can choose between metrics to be visualized

Empirical Study
- The tool was well received
- Evolution View most helpful

Ongoing Work
- Integration with traceability approach
- Difference-based evolution analysis
- Evolution Analysis Workbench

3D evolution matrix
- X-axis: Classes of each version
- Z-axis: Versions of the system
- Y-axis: Encoded metric

Additional features:
- Spectrograph to analyse distribution and to locate outliers (see picture above)
- Relief extension to identify trends

Evolution View
- Animates change between different versions
- Classes are drawn as ellipses
- Visualization of selected relationships
- Ellipse can encode three metrics
  - Size of glyph
  - Distance to center
  - Direction of glyph

Animation View
- Visualizes structure of the software
- Changing relationships become clear
- Classes are shown as cubes
- Relationships are drawn as lines
- Can encode two metrics
  - Size of the cube
  - Color of the cube

Structural View
- Embedded into Eclipse IDE
- Based on OpenGL
- Universal concept for arbitrary languages and model types
- Supports different analysis tasks