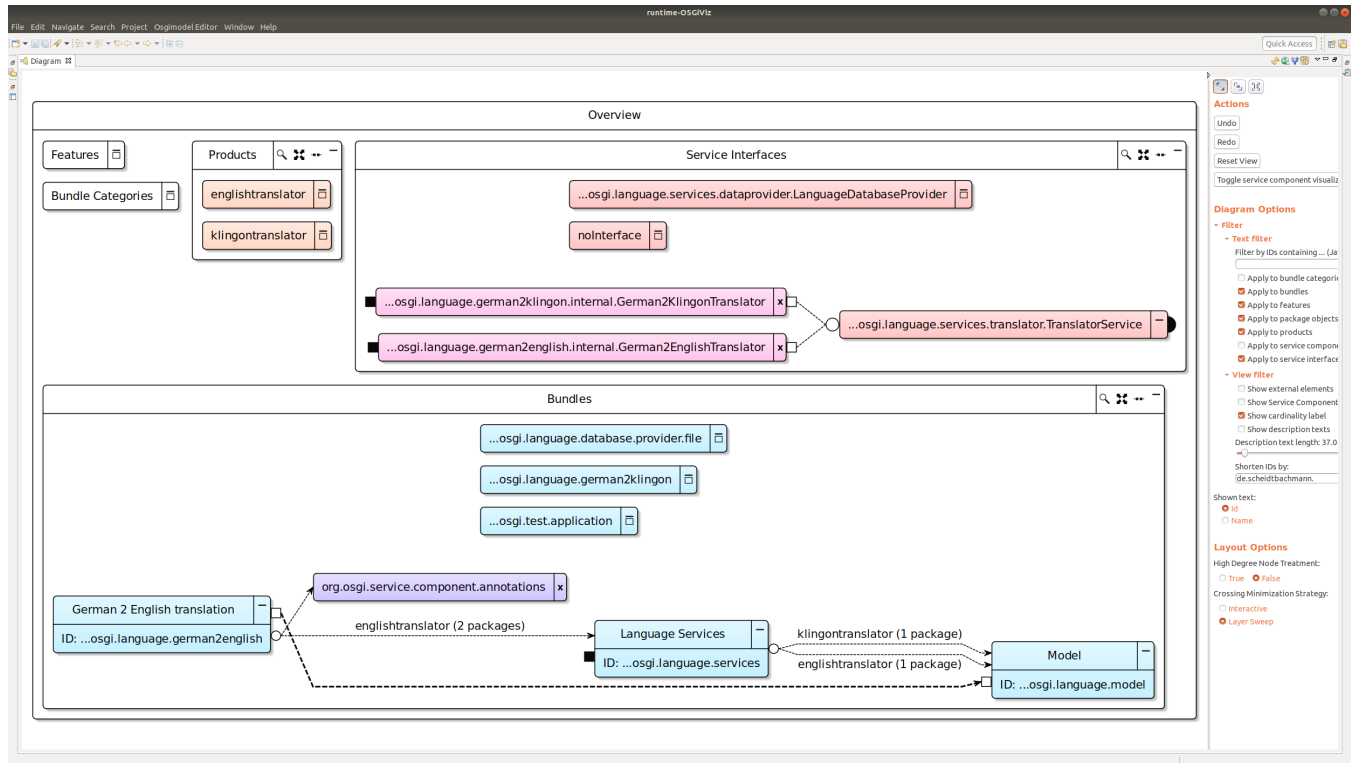


# Architecture Comparison Framework for Software Project Visualization



Visualization of parts of a project using the OSGi framework for their architecture

Big software projects almost exclusively use some architectural frameworks to structure and modularize their dependencies, services, and other aspects. Yet, many projects use special frameworks and individual configurations, for which not many tools to automatically document, visualize and compare such configurations exist.

The Software Project Visualization (SPViz) tool allows to describe the architecture of any project and generates an interactive visualization tool to navigate through and document their architecture.

The tool is inspired by [OSGiViz](#) and uses the [KLighD](#) framework for its visualization in Eclipse or web environments such as VS Code.

It was developed at the CAU to improve the tooling for real-world architectures of our funding industry partner [Scheidt & Bachmann System Technik GmbH](#) working in the railway domain.

The SPViz tool currently only supports visualizing existing architectures.

With this thesis proposal we suggest to extend that idea by allowing to describe architectures in a textual or visual editor and allow to compare architectures modeled that way to existing architectures, or architecture revisions against each other.

This will allow to verify architecture design to their implementation, the evolution of software.

## Goals

- Develop a visualization for differences between set architectures using SPViz and KLighD
- Allow to model (parts of) software architectures for SPViz to compare against existing project architectures
- (going further/optional) Develop a Domain-Specific Language (DSL) as a human-readable form of existing architecture descriptions
- (going further/optional) Allow to generate code (-snippets) from modeled architectures

## Scope

Master's (Bachelor's) Thesis

## Related Work/Literature

Niklas Rentz, Christian Dams, and Reinhard von Hanxleden. *Interactive Visualization for OSGi-based Projects*. 2020 Working Conference on Software Visualization (VISOFT). IEEE, 2020. [PDF](#)

Niklas Rentz, Reinhard von Hanxleden. *SPViz: A DSL-Driven Approach for Software Project Visualization Tooling*. To be published (ask us for a preliminary version)

## Involved Languages/Technologies

- Java/Xtend
- KLighD
- SPViz
- Eclipse and VS Code
- (Xtext/Langium)

## Supervised By

Niklas Rentz in cooperation with [Scheidt & Bachmann System Technik GmbH](#)

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