



## Profile-driven Source Code Highlighting

Master thesis for Thomas Feichtinger

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Truffle is a novel modeling language for implementing managed languages in Java. The language implementer writes an abstract syntax tree (AST) interpreter, which is integrated into the Truffle framework.

The goal of this thesis is to implement a HTML/CSS/JS based tool that visualizes information generated by a Truffle AST interpreter directly in the source code. This tool should provide both language implementers and language users with a deeper understanding of the way code is executed.

The main use case is:

- A user enters a code snippet
- The entered code will be sent to a JVM via an HTTP request
- The server returns a JSON string
- The JSON output will be rendered by the client

Specific sub-goals are:

- Two main components: the editor/visualization and generation of information
- Visualization needs to run in the browser (HTML/CSS/JS)
- Main focus on existing language implementations: JavaScript and Ruby
- Generic design to support future languages implemented with Truffle
- Extending AST nodes to output information to be visualized

Explicit non-goals are:

- Visualizing the AST as a graph
- Implementation of a source code editor (instead re-use of existing project is preferred)
- In-line visualization (i.e. using the same editor for entering and visualizing)

The work's progress should be discussed with the supervisor at least every 2 weeks. Please note the guidelines of the Institute for System Software when preparing the written thesis.

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