



## JavaScript AST Interpreter in Java

Master thesis for Andreas Wöß

Matr.-Nr.: 0555951

Email: woess@ssw.jku.at

The goal of this thesis is to write an abstract syntax tree (AST) interpreter for the JavaScript language in Java. All elements of the interpreter (e.g., stack, values) should be modeled in Java such that it can run on any Java virtual machine. The interpreter should use the parser of the Rhino scripting engine (<http://www.mozilla.org/rhino/>), but then translate the Rhino intermediate representation to its own AST representation.

Specific sub-goals are:

- Applying object-oriented design techniques when modeling the interpreter.
- Exploring which Java language constructs are convenient for implementing a scripting language interpreter.
- Identifying possibilities for gathering runtime feedback during interpreter execution.
- Implementing a subset of JavaScript such that the interpreter can be tested on established JavaScript benchmarks.

Explicit non-goals are:

- Completeness with respect to the JavaScript specification.
- Peak performance in comparison with existing JavaScript engines.

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.

Supervisor: Dipl.-Ing. Thomas Würthinger