



## Java in the Web Browser

Bachelor/Master thesis for ...

Matr.-Nr.: ...

Email: ...

For scripting, web browsers generally only support the JavaScript language. Despite its name, JavaScript is not comparable to Java in terms of safety, peak performance and developer productivity.

Some browsers also support additional languages, such as VBScript or Dart, which provide essentially the same level of functionality as JavaScript, only with a different syntax and/or language paradigm.

Given that web applications incorporate more and more executable code, it might be beneficial to include direct support for executing Java class files within the browser.

The goal of this project is to determine if and how it might be possible to implement such support for Java class files in a state-of-the-art web browser. The target is to be able to call a static Java method from within a handler (e.g. "onclick") and to be able to modify the document tree from within the Java code:

- Look at the most popular open-source web browsers, determine how they interface the web browser itself with the JavaScript engine and write documentation on this.
- Choose the browser which seems the easiest target for this work.
- Add a Java Virtual Machine instance to each browser process.
- Add interface code that allows event handlers to call into Java code.
- Develop Java APIs for simple modifications to the DOM tree.

The end result should be a prototype that can be used to evaluate the benefits and problems of this approach, but it is not necessary to think about security aspects, etc.

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. Lukas Stadler