

## Scripting Objects for the Web

Bachelor Project Proposal, WS 2010/2011 – SS 2011  
Software Architecture Group, Prof. Dr. Robert Hirschfeld

### Objectives

Only with a few exceptions, most of today's Web applications are written in at least two programming languages with one of which used for the client-resident and the other for the server-resident part of it. The need to use multiple languages which are defined through adhoc implementations significantly increases the accidental complexity of Web application development.

The goal of the project is to design and implement an object-based *programming model* which uses a *single* scripting language to write both the client and server portions of the application. Programmers will develop using *one* dynamic object-oriented programming language such as *Smalltalk* or *Newspeak* for both sides of the application. The program will be compiled into a directly interpreted server side component and a client side *JavaScript/DHTML component which runs in the browser*. The client server HTTP communications will also be provided by the system.

Appropriate language extensions, libraries, and infrastructure support are to be implemented. Unlike traditional Smalltalk applications, which are hostage to their development image, Web applications need a thin client and server runtime which is competitive to PHP, Python etc.

### Selected topics

The following topics need to be addressed in the project

- Extension of Smalltalk to support Client-side Scripting
- Smalltalk to JavaScript/DHTML compilation
- Client-side JavaScript-based execution environment
- Server-side lean and headless Smalltalk image environment
- Application and deployment model
- Web Communication and distribution infrastructure
- Example Web applications typical of those developed using separate client and server approaches
- Ability to run standalone by deploying a client side Web server

## Organization

A group of six to eight (6-8) students may participate in the project. Organization and tasks will be determined by the project participants in close cooperation with Bedarra Research Labs, following an Agile development process. The project will be carried out at the Hasso Plattner Institute in Potsdam. In WS 2010/2011, participants will work on initial design sketches and prototypes. Main steps in design and implementation are to be executed in SS 2011.

## Bedarra Research Labs

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