

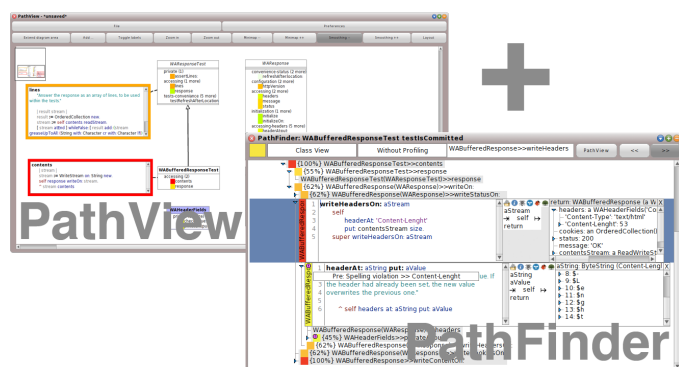
The Reflective Programmer Selective Views of Run-time Behavior

Background

Our research efforts are based on continuous reflection on our programming practices. Developing software is often complicated by the lack of appropriate abstractions or insufficient tool support for understanding the relevant details of large software systems. We approach these and related issues by advancing programming tools, devising new modularity abstractions, and providing run-time support. Consequently, our goal is to improve the comprehension and design of complex software systems.

Description

In this master's project, you will combine and advance our existing research prototypes PathView and PathFinder to render selective views of run-time behavior. PathView is a single-source, round-trip, and model-based source code editor for illustrating design decisions. It only considers source code and test cases to ensure an up-to-date view on system parts of interest. PathFinder is our lightweight back-in-time debugger for exploring specific test case executions in detail. However, for program comprehension these run-time views often include too much information and their representation is too technical. For that reason, the goal of this master's project is to provide a filter mechanism based on selected system parts and to create a compact and comprehensible visualization of run-time behavior. Project activities include:



- Studying related work (both literature and existing prototypes) and elaborate solutions to filter and visualize program behavior,
- Designing and implementing selective views of run-time behavior supported by PathView's and PathFinder's information,
- Identifying and summarizing behavior patterns in run-time traces,
- Conducting small usability studies to identify and resolve flaws in the programmers' experience using your solutions on a regular basis.

References

- <http://www.hpi.uni-potsdam.de/hirschfeld/publications>

Contact

Software Architecture Group

- Prof. Dr. Robert Hirschfeld
- Michael Perscheid