

in Erlang for Erlang



RefactorErl research group

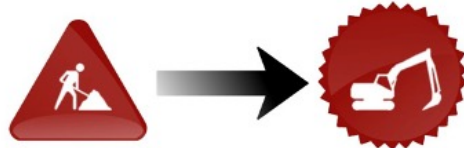
The importance of tools supporting software development has been growing rapidly in recent decades. The source codes are so large that it is almost impossible to fully comprehend them, but at least it is a difficult and time-consuming process. Thus, the tools that support code understanding, maintenance, debugging or even provide the opportunity to transform the source code according to various aspects are becoming more and more widespread. This support can be done dynamically, i.e., at runtime, or statically without running the program.

In our research, we deal with the static analysis of Erlang programs. Erlang is a highly concurrent programming language designed for analysing distributed software. Its importance is also shown by the fact that every year Cisco sells 2 million devices on the market that run Erlang codes. Therefore, 90% of Internet traffic passes through nodes controlled by Erlang.

Results

- Support for understanding source code
- Code transformations
- Checking code quality
- Detecting vulnerabilities
- Information extraction with query language support
- Discovery of relationships/dependencies of software components
- Analysis of concurrent/distributed software
- Automatic parallelization
- Software visualisation
- Support for green computing

Effective software maintenance



Why it is useful?

- Shorten learning terms of a newcomer
- Shorten bug report solution time
- Make the possibility of a better teamwork
- Support software delivery product line
- Increase code quality by reducing faults
- Shorten time-consuming daily jobs
- Helps to detect vulnerabilities and undesired software properties



What are the next steps?

- Extend and improve
- New features vs. core features
- Make a tool that is used by the industry:
 - Detect the main problems of the developers we can solve
 - Find the balance between time and accuracy
 - UI improvements, UE analysis
- Multi-layer analysis
- Combine static and dynamic analysis results



Knowledge sharing

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