Bachelor Thesis Topic
An Extension to CoWolf framework with Stochastic Regular Expressions

Motivation and Background

Model based quality evaluation techniques are commonly applied to analyze the non-functional requirements of the software systems. Stochastic regular expressions (SRE) are used to model stochastic discrete sequential events and expressive enough for the real-life applications. This formalism is also capable of representing the properties of the system such as performance and reliability [1].

Goals

The goal of this thesis is to support the evolution of SREs and implement a textual editor as a plug-in to CoWolf [2] co-evolution and analysis tool. CoWolf is an open source generic framework that can support evolutions of the models and analysis. The created technology can be applied for an industrial case study.

Description of the Task

The specific tasks are:
- Creating the metamodel for SRE
- Preparing the textual editor for SRE instances
- Integration to CoWolf framework
- Developing ideas to transform SREs to Discrete time markov chains to analyze
- Evaluation

Research Type

Theoretical Aspects:	★★★☆☆
Industrial Relevance:	★★★☆☆
Implementation	★★★★☆

Prerequisite

The student should be enrolled in the bachelor/master of software engineering or bachelor/master of computer science program, and has completed the required course modules to start a bachelor/master thesis.

Skills required

The student should have or be willing to acquire the following skills: programming and experience in java with modeling components of Eclipse platform.

References

[1] V.K. Garg, R. Kumar, and S.I. Marcus, "Probabilistic language framework for stochastic discrete event systems," Technical Report 96-18, Institute for Systems Research, April 1996. http://www.isr.umc.edu/
[2] http://cowolf.github.io/

Contacts

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Application

Please contact me during my office hours or send me an email with the title: "[ThesisProject]-SREinCowolf" to se-career@informatik.hu-berlin.de