Bachelor Thesis Topic

Survey on Runtime Verification Approaches

Motivation and Background
Runtime Verification (RV) describes a prominent technique that can be used to verify if a running program satisfies its requirements.
Multiple approaches exist that implement RV into tools to be used in various applications, e.g., for Scala-, Java- or C-programs.

Goals
The goal of this project is to generate a survey on existing approaches (both theoretical ideas and practical solutions) of RV.

Description of the Task
The student is supposed to read literature on RV and find out which other surveys exist on the topic. On that basis, existing surveys should be extended to incorporate novel approaches published after the surveys were concluded.
The student should try to apply existing approaches, analyze them theoretically and may even provide ideas on how to improve these approaches with concepts introduced in other studies.

Research Type
Theoretical Aspects:  ****
Industrial Relevance:  *****
Implementation:  *****

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

Skills required
Understanding of, or willingness to learn, the basic concepts of model checking, including temporal logics. Good skills of the English language, especially to review existing literature.

References


Contacts
Marc Carwehl, Humboldt-Universität zu Berlin, Institut für Informatik, Lehrstuhl Software Engineering, Unter den Linden 6, 10099 Berlin, Germany

Application
Please contact me during my office hours or write an email with the title: “[MC]Runtime Verification Survey” to se-career@informatik.hu-berlin.de