

Enhancement of Lockset Eraser algorithm for finding concurrency bugs

Short Description

Finding concurrency bugs is a hard task, because the problem itself is NP-hard and is conditioned by non-deterministic behavior of software. One approach for finding concurrency bugs is to execute a software under test, observe its execution trace, and then analyze it. For the analysis, there exist various algorithms. One of the most famous algorithms in the community is Eraser Lockset algorithm. However, this algorithm has several flaws.

This work will be focusing on summarizing existing extensions of Lockset Eraser algorithm and creating new extensions to especially handle the intentions related to initialization of shared variables and deciding which locks protect which shared variables. These challenges have negative effect on the precision of the Lockset algorithm, and this work aims to remove them.

For execution tracing, we will be using an existing tracing tool.