

High-level synchronization mechanisms for programming multithreaded software

Short Description

Creating multithreaded concurrent software without introducing concurrency bugs is a challenging task. One approach to this problem is to encode concurrency intentions using high level descriptive language and have a mechanism that translate those intentions into low level code.

The goal of this project is to extend existing work in this direction:

While the existing work demonstrates the concept, it still lacks the ability to:

- Encode complex synchronization intentions.
- Perform optimisation of the generated synchronisation mechanisms
- Be applied outside of C language (e.g., C++ or Java)

The topic would develop along one of the points above.