Project Proposal for Distributed Computing over the Internet

Background

Rayon [1] is an open-source data parallelism library for the programming language Rust. It supports parallel iterators, which execute iterator-like chains in parallel. And also supports join method that takes two closures and runs them in parallel. Rayon uses work stealing [2] technique to distribute work to workers.

Motivation

Besides the original work stealing technique, there are complementary algorithms to coordinate thread tempo: workpath-sensitive tempo control, workload-sensitive tempo control, and other optimizations of working stealing scheduling [3].

Expected Result

--- Studying the concurrent model of Rust.
--- Optimizing work scheduling method of Rayon.
--- Analyzing fairness of different scheduling methods.

References

[1] https://github.com/nikomatsakis/rayon