SORS: Compiler-Assisted Out of Order Execution for Memory Operations

Abstract

As out of order techniques in modern processors become harder to scale, one place to look for improved performance is the compiler and its large scope of analysis. This talk presents recent work leveraging LLVM's dependency analysis for use in conjunction with Gem5's memory dependence predictor, leading to performance gains. Future work in integrating this work with the PHAST predictor (Kim and Ros 2024) is also explored, as well as overviewing ongoing work in labelling stack operations for memory renaming.

Short Bio

Luke Panayi is a PhD student at Imperial College London, working with Paul Kelly and Martin Berger with Huawei Research UK on compiler techniques for improving out of order execution in modern microarchitecture.

Speakers

Speaker: Luke Panayi. PhD candidate at Imperial College London, UK.

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