Hao Wu

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Education

- **The university of Texas at Austin** — Austin, TX
  Ph.D — *Current*
  - **Computer Science**: GPA 3.86
- **Tsinghua University** — Beijing China
  B.S. — *Jul 2010*
  - **Computer Science and Technology**: GPA 90.6/100

Publications

- **Temporal Prefetching without the off-chip metadata** — MICRO
  Hao Wu, Krishnendra Nathella, Joseph Pusderis, Dam Sunwoo, Akanksha Jain, Calvin Lin — *Oct 2019*
  - 52nd International Symposium on Microarchitecture(MICRO), Columbus, OH
- **Efficient Meta-Data Management for Irregular Data Prefetching** — ISCA
  Hao Wu, Krishnendra Nathella, Dam Sunwoo, Akanksha Jain, Calvin Lin — *Jun 2019*
  - 46th International Symposium on Computer Architecture(ISCA), Pheonix, AZ
- **Detecting failures in distributed systems with the FALCON spy network** — SOSP
  Joshua B. Leners, Hao Wu, Wei-Lun Hung, Marcos K. Aguilera, and Michael Walfish — *Oct 2011*
  - 23rd ACM Symposium on Operating Systems Principles(SOSP), Cascais, Portugal

Experience

- **Arm Inc** — Austin, TX
  Research Intern — *Jan-Nov 2018*
  - I Worked in the microarchitecture team in Arm research
  - My primary focus is using prefetching techniques to improve memory system performance
- **Google Inc** — Beijing, China
  Research Intern — *Sep-Dec 2009*
  - The work there is to conduct research on visualization techniques for Google search results
  - They visualize related text, which can be related search results, related tags, and categories of tags

Projects

- **PhD Thesis: Pracitcal Irregular Prefetching**
  - We propose several methods for irregular data prefetching for improving performance and reducing hardware overhead, making irregular prefetching practical.
- **Scalable Aggressiveness Control For Many-Core Systems**
  - We built a system to dynamically determine a proper aggerssiveness for hardware prefetching
  - The purpose of the system is to solve the resource competition problem for hardware prefetching in a many-core environment
- **LAP: Linear Algebra Processor**
  - LAP is a linear algebra processor/accelerator based on Marss86
  - Build a cycle-accurate simulation of the processor and a device driver for the processor and OS support for memory management of the processor
- **File version management system**
  - Provide a similar service of source code versioning system (e.g. Git and SVN) in a general file system
  - The system tries to address security and access control issues by using encryption.
- **Rebasing Virtual machines after concurrent modification**

- We built a system tries to solve the divergence problem after concurrent modification of a virtual machine
- The system addresses the issue by replaying all the actions of one branch onto the other branch

- **Detecting failures using FALCON spy network**
  - We integrated the system with Zookeeper replica service and conduct experiments on the system
  - The system is used to detect failures quickly inside a distributed system
- **A Cross-Compiler System Based on GCC (Bachelor's Thesis)**
  - We modified gcc for compiling programs in C languages to target assembly languages of a certain MIPS like ISA for educational purpose
  - The system is used by Tsinghua University for educational purposes

Programming Skills

- C++, Python, Java, SQL, C#, Scala

Graduate Classes

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  - **System**: Distributed Systems, Operating Systems, Compilers, Advanced Network Protocols, Prediction Mechanisms on Computer Architecture
  - **Theory**: Randomized Algorithms, Formal Verification and Semantics, Numerical Analysis, Game Theory
  - **Application**: Machine Learning