Andrew Alex

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Education

University of Washington
Doctor of Philosophy, Computer Science (In Progress)
Advisor: Prof. Gilbert Bernstein **Research Area:** Programming Languages and Computer Architecture

University of California, Santa Barbara
Master of Science, Computer Science, *2024*
Thesis Title: Matrix Multiplication is All You Need
Advisor: Prof. Jonathan Balkind **Research Area:** Programming Languages and Computer Architecture

University of California, Los Angeles
Bachelor of Science, Mathematics of Computation, *2018*

Research Experience and Publications

University of Washington, *From Sept 24*
Productive Programming of Multi-Threaded Hardware Accelerators *In Progress*
Summary: Designing a user-schedulable language capable of scheduling a sequential object program into a concurrent one on arbitrary hardware targets while preserving the semantics of the original program.

UCSB ArchLab, *Sept 22 to June 24*
Control Logic Synthesis: Drawing the Rest of the OWL *Published at ASPLOS '24*
Summary: Techniques for using program synthesis to automatically generate control logic signals for a processor given an ISA specification and a partial processor implementation (i.e., without the control logic)

AMD Research, *Sept 23 to Dec 23*
Future CPU Architectures
Summary: Investigated machine learning and other optimization techniques and developed a framework to apply these to multi-objective CPU microarchitectural design-space exploration problems on cycle-accurate simulators.

Professional Experience

Siemens EDA
R&D Intern on Veloce Prototyping System Team *Summer 2023*

Designed and developed algorithms to identify integrated clock gate and output data double rate structures in clock tree netlists resulting in more efficient mapping of prototyped hardware designs to FPGAs

Zillow Group
Associate Software Engineer, *Aug 18 to May 19*; **Software Engineer,** *Until Feb 21*; **Senior Software Engineer,** *Until Aug 22*

- Lead team of 3 other developers to build a new GIS matching system for property data using Spark and Kafka that reduced new data onboarding time in the AI organization from weeks to a day of developer time
- Optimized layout of Lucene search index used to store street segment data to allow for faster lookup times improving the end-to-end latency of our address-to-location web application by ~30%

Data Engineering Intern, *June 17 to Sept 17*

Miscellaneous

Qualcomm Innovation Fellowship 2025 Winner - For *Productive Programming of Multi-Threaded Hardware Accelerators*