Andrew Cheung

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Education

University of Washington — Seattle, WA
B.S. in Computer Science (GPA: 3.84) — *Aug. 2018 – Dec. 2022*
M.S. in Computer Science (GPA: 4.00) — *Jan. 2023 – Expected Mar. 2024*

Experience

UW Programming Languages & Software Engineering Lab — Dec. 2021 – Present
Research Assistant — *Seattle, WA*

- Develop and extend programming languages to solve problems in the hardware/architecture space
- Collaborate with researchers, graduate students, and faculty to author/submit papers to conferences and journals
- Helped with Lakeroad, 3LA, and Glenside; see Projects
- Advised by Zach Tatlock (link) and Gus Smith (link)

Paul G. Allen School of Computer Science & Engineering — Sep. 2019 – Present
Section Lead Teaching Assistant — *Seattle, WA*

- Teach a weekly class of 25 students in introductory Java and object-oriented design principles
- Lead weekly meetings with course faculty on teaching strategies to prepare staff for their sections
- Create assignments for students aimed at isolating and testing data structure applications
- Collaborate with a team of 30+ TAs to compose teaching resources, ensuring consistent instruction standards

Amazon — Jun. 2022 – Sep. 2022
Software Development Engineer Intern — *Bellevue, WA + Remote*

- Led development of skill tree training service for Amazon associates in fulfillment centers
- Designed project infrastructure to scalably support over 300,000+ users while minimizing cost
- Implemented TypeScript frontend/backend using AWS Lambda, DynamoDB, React
- Presented and demoed project to 20 team members

Projects

Lakeroad | Team Member — Jan. 2022 – Present

- Apply program synthesis to compile portions of FPGA designs to complex programmable units
- Add support for solver constraints into Lakeroad-specific DSL, resulting in faster synthesis runtime
- Develop internal representation of DSPs (digital signal processors) and conduct testing to verify accuracy of synthesized DSP designs

3LA | Team Member — Jan. 2021 – Present

- Create flow for easier accelerator development and end-to-end application-level testing
- Convert TVM Relay ML models so that offloaded accelerator operations are made transparent, paving the way for future formal verification
- Extend capability of Glenside, an IR used in 3LA, allowing for future experiments to be run on additional machine learning kernels

CSE 142 Grading Assistant | Lead Developer — Jan. 2022 – Jun. 2022

- Led development of autograder in Python which analyzed/graded 210 homework assignments a week
- Delegated and communicated AST queries and other static analysis tasks to team members
- Collect and implement weekly feedback on tool's effectiveness from faculty and TAs
- Set and maintain high standards for tool's performance through reinforcing code quality/testing principles

Technical Skills

Languages/Frameworks: Java, TypeScript, Node.js, Python, React, C/C++, OCaml, Rust, etc.
Formal Methods: Program Synthesis, Formal Verification, SMT Solvers
Developer Tools: Git, Docker, JUnit, gdb, Pytest, Linux