Martin Chan

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Education

Massachusetts Institute of Technology (MIT) — **Cambridge, MA**
M.Eng in Computer Systems *(In progress)* GPA: 5.0/5.0 — 01/2024 – expected 06/2025

Thesis Project: Language Server for Bluespec
Advised by Arvind (Spring 2024) and Silvina Hanono Wachman (Fall 2024 – Present)

Massachusetts Institute of Technology (MIT) — **Cambridge, MA**
B.S. in Computer Science and Engineering · GPA: 4.6/5.0 — 09/2019 – 06/2023

Work Experience

Bluespec Inc, *Software Engineering Intern* — Jun 2024 – Aug 2024

- Performance optimization and other enhancements on RISC-V instruction set simulator written in C.
- Profile and optimize simulator performance by implementing translation lookaside buffers and instruction buffers, achieving 4x speedup on Linux boot benchmark with L1 caches simulated and 2.6x without.
- Implement RISC-V features such as Physical Memory Protection (PMP) and its enhancements (ePMP).
- Instrument simulator to conform to the RISC-V Architectural Test ecosystem and fix exposed bugs.

MIT EECS, *Head Teaching Assistant* — Jan 2024 – May 2024

- Head TA for 6.192: Constructive Computer Architecture, an advanced undergraduate class on processor design and implementation with Prof. Arvind.
- Design and teach weekly recitation for 30 students. Occasionally teach lectures.
- Generally ensure the class runs smoothly: coordinate the undergraduate teaching assistants, manage assignments, etc.

MIT East Campus Dormitory, *Mail Room and Front Desk Staff* — Sep 2021 – May 2023

MIT SHASS, *Undergraduate Researcher* — Summers 2020 and 2021

Selected Projects

Language Server for Bluespec *(In Early Stages)* (`https://www.martinchan.org/blog/early-literature/`)

- Adapt the Rust Analyzer project to support modern editor features (semantic highlighting, autocomplete, go-to-definition, hover for documentation, etc.) for writing Bluespec SystemVerilog HDL.
- Tool to be integrated into Visual Studio Code and other code editors through the Language Server Protocol.

Bluespec SystemVerilog Extension for VS Code (`https://martinchan.org/projects/vscode-bsv/`)

- Wrote the only high-quality syntax highlighter for Bluespec available on Visual Studio Code. I published it on the VS Code extensions Marketplace for other Bluespec developers to use.
- I also wrote a separate high-quality lexer for syntax highlighting excerpts of Bluespec SystemVerilog on my website. I built the lexer using the open-source Rouge syntax highlighting engine.
- Tools used: Bluespec SystemVerilog, C preprocessor, TextMate grammar, Ruby Rouge, regular expressions.

RISC-V Superscalar Processor (`https://martinchan.org/projects/processor/`)

Selected Coursework

- Distributed Computer Systems Engineering
- Software Performance Engineering
- Accelerator Programming (ongoing, using CUDA)

Leadership

East Campus Dormitory — **MIT**
Fifth East Hall Chair — Sep 2019 – Feb 2022

- Lead in dorm government and work with students, administrators, and faculty to address Institute policy, community issues, and the 2023-2025 building renovation. Three one-year terms.

Institute Committee on Undergraduate Admissions and Financial Aid — **MIT**
Committee Member — Sep 2021 – May 2023

- Serve as one of three undergrad representatives on faculty committee. Two one-year terms.

Skills

- **Programming languages:** *Proficient:* Rust, Go, Python, C, Java, Bluespec SystemVerilog, CUDA
- Fluent in English (speak, read, write) and Cantonese (speak)

Hobbies

Writing, cooking, woodworking, cycling