

MARTIN CHAN

martinch@mit.edu · <https://martinchan.org/>

EDUCATION

Massachusetts Institute of Technology (MIT)

M.Eng in Computer Systems (*In progress*)

Cambridge, MA

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)

B.S. in Computer Science and Engineering · GPA: 4.6/5.0

Cambridge, MA

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, 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/>)

- Design and implement a language server in Rust 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)

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:* Go, Python, C, Java, Bluespec SystemVerilog; *Intermediate:* Rust, SystemVerilog, Verilog, C++
- Fluent in English (speak, read, write) and Cantonese (speak)

HOBBIES

Writing, cooking, woodworking, cycling