Shinjo Satoh

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Education & Leadership

University of Melbourne Melbourne, VIC
Master of Electrical Engineering *July 2026 - Expected Dec 2028*

University of Michigan, Ann Arbor Ann Arbor, MI
Bachelor of Science in Computer Engineering *May 2025*

Co-founder & President, Burmese Student Association (BURSA) – University of Michigan (Jan 2025 – Oct 2025)

CEA – Certified Embedded Associate (Vector) (July 2025)

Relevant Coursework: Embedded Systems, Computer Architecture, Operating Systems, Machine Learning

Experience

Research Volunteer July 2025 – Oct 2025
University of Michigan - CSE Department

- Develop and test improvements for embedded systems course lab content, enhancing learning experiences for 200+ students in Introduction to Embedded Systems and Advanced Embedded Systems courses.
- Diagnose and repair lab equipment including STM32 microcontrollers and turtle robots, ensuring reliable operation for hands-on learning activities.
- Establish new makerspace for embedded system development, organizing tools and components to create an innovation hub for engineering students.

Frontend Engineer Intern July 2024 – Sep 2024
Spade AI

- Contributed to UX and UI improvements using Next.js, TypeScript, and Tailwind CSS, reducing page load time by 13%.
- Built an end-to-end authentication system with Next.js, PostgreSQL, and OAuth2.0, streamlining user access.
- Collaborated with cross-functional teams in Agile/Scrum environment using Jira and Git for code reviews and CI/CD.

Projects

N-way Superscalar R10K Processor | *SystemVerilog, C++, Bash* Jan 2025 – Apr 2025

- Designed and implemented a 3-way out-of-order R10K-style processor with GShare branch predictor, non-blocking banked instruction/data caches, and early branch resolution, achieving a CPI of 1.003 and 8.44ns clock period.
- Integrated advanced microarchitectural features including victim cache, prefetching, and byte-level store-to-load forwarding to optimize performance.
- Verified design with Synopsys VCS for cycle-accurate simulation

MITRE eCTF Cybersecurity Competition (3rd Place) Jan 2025 – Apr 2025

- Competed in the MITRE Embedded Capture The Flag, solving hardware/software challenges in secure protocol design, side-channel attacks, and firmware exploitation.
- Leveraged GDB for low-level firmware debugging and trace analysis, coordinating defense strategies and documenting technical findings in team debriefs and reports.

Active Aerodynamics Fin Controller for Solar Car | STM32, C++, Altium Sep 2024 – Dec 2024

- Designed and implemented a prototype real-time control system for an active fin mechanism, automating aerodynamic optimization with dual-axis servo and stepper motor control.
- Prototyped using Arduino Uno to characterize motor/encoder responses, then developed C++ firmware integrating dual-motor control, AMT22 encoder feedback, and limit-switch protection for precise 14-bit angular positioning.
- Contributed to PCB design in Altium Designer for motor drivers and power regulation.

Core Competencies

Embedded Systems: STM32, Arduino, I2C, SPI, UART, FreeRTOS, Soldering, PCB Assembly
Languages: C/C++, Python, JavaScript, Go, SQL, Julia
Tools: GDB, VCS, Git, Docker, VS Code, Wireshark, OpenCV
Web: React, Next.js, Node.js, Express
Additional: Trilingual (Japanese, English, Burmese), Technical Writing, Team Leadership