

Xin Hung Chan

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EDUCATION

University of Massachusetts, Amherst

Amherst, MA

Computer Engineering (BS), Mathematics (BS)

Sept. 2023 – May 2027

- **GPA:** 3.9/4.0
- **Dean's List:** Fall 2023 – Present
- **Computer Engineering Coursework:** Data Structures, Hardware Organization, Computer Networks, Embedded Systems, Signal Processing, Artificial Intelligence, VLSI, Systems Programming, Hardware Design for Machine Learning
- **Mathematics Coursework:** Statistics, Linear Algebra (Graduate), Discrete Math, Multivariable Calculus, Mathematical Modeling

EXPERIENCE

Vice-Chair, Dean's Advisory Board

Sept 2024 – Present

College of Engineering

Amherst, MA

- Co-led monthly meetings with the Dean to develop and implement initiatives that fostered a stronger sense of community within the College of Engineering.
- Organized guest speaker events to inspire students and provide insights into diverse engineering career paths.
- Led workshops and networking events to connect students with peers, faculty, and professionals, enhancing their academic and professional growth.

Private Tutor

June 2024 – Aug 2024

MindFlex Education

Singapore

- Provided one-on-one tutoring in Calculus, Physics, Biology, and English to high school and college students.
- Customized lesson plans to meet individual student needs, and improved students' average grades from a C- to a B in 6 weeks.

PROJECTS

LC-3 Virtual Machine | *C, Assembly, Systems Programming*

June 2025 – July 2025

- Designed and implemented a virtual machine for the LC-3 architecture from scratch in C, including instruction decoding, memory management, register simulation, and I/O trap handling.
- Built an interactive debugging interface with support for step execution, breakpoints, and real-time register/memory inspection.
- Developed a custom assembler to convert LC-3 assembly code into executable machine code.

Network Traffic Anomaly Detection | *Python, Machine Learning, Networks*

July 2024 – Aug 2025

- Developed and compared supervised (Random Forest, XGBoost) and unsupervised (Isolation Forest, Autoencoder) models to detect anomalies in network traffic using the CICIDS2017 dataset
- Achieved 96.69% AUC with XGBoost and 92.82% accuracy using Random Forests by engineering flow-based network features and performing time-series traffic analysis.
- Visualized model performance using ROC curves, confusion matrices, and t-SNE clustering.

Retro SPI Interface | *Assembly, Embedded Systems, SPI Protocol*

Sept 2023 – Dec 2023

- Designed a custom peripheral expansion card for synchronous serial communication (SPI), enhancing data transfer capabilities for retro computing systems like the Apple II and KIM-1 clones
- Programmed the KIM-1 microprocessor in 6502 assembly to implement efficient low-level control and communication
- Integrated SPI protocol to enable high-speed communication with modern hardware, including address decoding, bus interfacing, and timing synchronization in a legacy system environment

TECHNICAL SKILLS

Languages: Java, Python, C/C++, PostgreSQL, JavaScript, HTML/CSS, MATLAB

Frameworks: React.js, Node.js, MongoDB, Git, Excel, CUDA, AWS, PyTorch, FastAPI

Hardware: FPGA Design, ARM Assembly, SystemVerilog