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.
- Proposed and organized signature events, including an Engineering Formal, pitch competitions, and developing a community hub website to connect students and promote involvement.

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

- 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* — Aug 2024 – July 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.

Monte Carlo Option Pricing on FPGA | *Finance, Verilog, Hardware Acceleration* — July 2025 – Aug 2025

- Implemented a Monte Carlo simulation for European option pricing using Geometric Brownian Motion in SystemVerilog on a Xilinx Spartan-7 FPGA
- Meshed principles of stochastic modeling, pipelining, and parallel programming to optimize random number generation and maximize throughput
- Wrote statistical convergence checks to ensure accuracy of pricing under varying volatility and drift conditions

Technical Skills

Languages: Java, Python, C/C++, PostgreSQL, JavaScript, HTML/CSS, MATLAB
Frameworks: React.js, Node.js, MongoDB, Git, Excel, CUDA, AWS, PyTorch, FastAPI, Valgrind
Hardware: FPGA Design, ARM Assembly, SystemVerilog, Linux