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, Security Engineering, Computer Networks, Embedded Systems, Signal Processing, Artificial Intelligence, VLSI, Systems Programming, Hardware Design for Machine Learning
- **Mathematics Coursework**: Statistics, Linear Algebra (Graduate), Discrete Math, Multivariate 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.

Undergraduate Teaching Assistant — Sept 2025 – Dec 2025
University of Massachusetts, College of Engineering — *Amherst, MA*

- Held office hours for students in ECE 201 (Analytical Tools for ECE) with complex numbers, linear algebra, and differential equations.
- Assisted students in ECE 202 (Computational Tools for ECE) with MATLAB, Excel, and Python.
- Collaborated with professors to develop supplemental materials and autograding tools.

Landscape Optimization Intern — May 2025 – Aug 2025
Private Client | On-Site (Backyard-Based) — *Amherst, MA*

- Applied **geometric pruning algorithms** to optimize shrub curvature, achieving consistent spherical symmetry across hedge clusters.
- Delivered **full-stack pool sanitation services**, including manual scrubbing, vacuuming, and algae mitigation, to ensure continuous availability of aquatic resources.

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 debugger** with support for step execution, breakpoints, and real-time 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** and **unsupervised models** to detect anomalies in network traffic using the CICIDS2017 dataset
- Achieved **96.7%** AUC with XGBoost through feature engineering and time-series 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, HSPICE