Xin Hung Chan

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EDUCATION

University of Massachusetts, Amherst Sept 2023 – May 2027
Computer Engineering (BS), Mathematics (BS) *Amherst, MA*

- **GPA: 3.89 / 4.0**
- **Dean's List:** Fall 2023 – Present
- **Computer Engineering Coursework**: Data Structures and Algorithms, Hardware Organization, Computer Networking*, Embedded Systems*, Artificial Intelligence* (* = currently taking)
- **Mathematics Coursework**: Statistics, Linear Algebra, Discrete Math, Multivariable Calculus, Mathematical Modeling

WORK & LEADERSHIP 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 featuring industry leaders and alumni 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.

MindFlex Education June 2024 – Aug 2024
Home Tutor *Singapore*

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

RELEVANT COURSEWORK

Design Project **ECE 287**

- Programming the 6502 microprocessor in assembly language on KIM-1 clones.
- Designed a new Apple2-compatible peripheral card for synchronous serial communication, specifically SPI (Serial Peripheral Interface).

PROJECTS

Physics Engine | *C++, Algorithms* May 2024 – Aug 2024

- Developed a 2D physics engine using C++ and implemented **spatial partitioning algorithms** (**quadtrees**) to optimize collision detection, resulting in **exponential** reduction in computational time.

Network Traffic Anomaly Detection using PCA | *Python, Networks* July 2024 – Sep 2024

- Developed a real-time network traffic monitoring and anomaly detection system.
- Applied Principal Component Analysis (PCA) to reduce dimensionality of network traffic features and identify anomalies based on reconstruction error.
- Detected and flagged potential network threats (malware, port scanning, data exfiltration) with a 96% success rate and a 0.7% false-positive rate

Mathematical Model of Market Dynamics | *Python, Machine Learning* Oct 2024 – Dec 2024

- Formulated mathematical models (Markov Chains, Lotka-Volterra) to study interactions between cryptocurrency markets and traditional financial markets.
- Proposed a Modified Lotka-Volterra model, achieving a 99.9% reduction in Mean Squared Error over traditional models.
- Utilized **machine learning** and optimization techniques (L-BFGS-B) for parameter fitting and validation of dynamic models.

SKILLS

Languages: Java, Python, C/C++, JavaScript, HTML/CSS, MATLAB, SystemVerilog
Frameworks & Tools: React.js, Node.js, MongoDB, MySQL, Git, Excel, CUDA, AWS
Hardware: FPGA Design, ARM Assembly