Tony Lam

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EDUCATION

University of Virginia Charlottesville, VA

Bachelor of Arts in Computer Science *August 2025 – May 2029*

- **Relevant Coursework**: Data Structures & Algorithms, Software Development Essentials, Discrete Mathematics

PROJECTS

WallHax (Best AI & Data Science Hack) | *Swift, ARKit, Python, React, Three.js, Luma AI* March 2026

- Developed a real-time, multi-device AR collaboration iOS app and web dashboard for shared situational awareness, winning Best AI & Data Science Hack at HooHacks.
- Engineered a low-latency UDP heuristic engine to translate live ARKit SLAM and IMU data into accurate 3D character states (stance, distance, head tracking) for remote peers.
- Leveraged Luma AI to process live mission frames into photorealistic 3D Gaussian Splats, rendering the post-mission digital environment with a frame-by-frame mission timeline via a custom React and Three.js web server.

Evergreen | *React, Django, REST APIs, SQLite* November 2025 – February 2026

- Developing a full-stack web platform for sharing and discussing video essays, utilizing a decoupled architecture.
- Architected a Django backend to serve RESTful APIs, handling user authentication and content management.
- Building a responsive frontend with React and Vite, implementing component-based state management for a seamless user experience.
- Designed a relational database schema to efficiently store user profiles, media content, and comment threads.

Handwritten Digits Recognition | *Python, NumPy* July 2025 – August 2025

- Developed a neural network from scratch to classify handwritten digits using Python and NumPy.
- Implemented core machine learning algorithms including feedforward propagation, backpropagation, and gradient descent without external ML frameworks.
- Trained the model on the MNIST dataset, achieving over **95% accuracy** in digit recognition.

Planetary Simulation | *Python, Pygame* December 2024 – December 2024

- Created a physics-based simulation of the inner solar system, modeling orbital mechanics and gravitational attraction.
- Implemented Object-Oriented Programming (OOP) principles to design modular Planet and Moon classes with unique physical properties.
- Developed an interactive user experience with dynamic zooming, camera tracking, and orbital path visualization.

Mandelbrot Set Generator | *Python, NumPy, Pygame* August 2025

- Engineered real-time rendering using color-mapped iteration counts to provide visual depth in fractal explorations.
- Built support for dynamic recursive formulas, successfully handling complex non-integer and negative exponents.
- Optimized pixel-heavy mathematical calculations using NumPy to ensure smooth performance during high-resolution rendering.

EXPERIENCE

Stocker/Backroom Associate July 2023 – August 2025

Marshalls *Roanoke, VA*

- Managed backroom inventory logistics for a high-volume retail location, ensuring accurate stock levels and rapid floor replenishment.
- Collaborated within a 10+ person team to execute store reorganizations and shipment processing under tight deadlines.
- Resolved customer inquiries and issues effectively, maintaining high service standards during peak hours.

TECHNICAL SKILLS

Languages: Python, Java, JavaScript, HTML, CSS, SQL
Frameworks/Libraries: React, Django, Flask, Pygame, NumPy, Matplotlib, Three.js
Developer Tools: Git, GitHub, VS Code, Neovim, Unix Command Line, Bash/Zsh, Vite