Vanessa Ching

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Education

Johns Hopkins University, Whiting School of Engineering Baltimore, MD
B.S. in Computer Science, Minor in Film and Media Studies Aug 2024 – May 2028
Relevant Coursework: Computer Systems Fundamentals, Intermediate Programming, Gateway Computing: Python, Data Structures (Spring 2026)
Other Activities: Matriculate Advising Fellow, Pi Beta Phi Fraternity for Women

Experience

Social Cognitive AI Lab, Johns Hopkins University Baltimore, MD
Research Assistant Aug 2025 – Present

- Used Python scripting and Jupyter notebooks with SimWorld (Unreal Engine 5) to generate large-scale city environments for embodied AI navigation experiments
- Constructed urban simulation scenarios with dynamic human obstacles, environmental variation, and audio cues
- Supported embodied AI research using Unreal Engine workflows, simulation assets, and multimodal experiment design

Frenalytics Remote
Software Engineering Intern May 2025 – Aug 2025

- Built an AI-powered reading assistant WordPress plugin for 1500+ children with literacy challenges
- Designed backend REST APIs in PHP for avatar customization, session management, and AI interaction storage
- Modeled and managed MySQL database to enable personalization, analytics, and educator feedback; integrated frontend JavaScript with WordPress backend for CRUD operations and smooth UX

Projects

AI Readezzy Reading Assistant | PHP, SQL, JavaScript, CSS

- Architected a full-stack WordPress plugin with REST APIs and persistent session management to support AI-assisted reading
- Designed relational MySQL schemas to track user state, avatar configuration, and AI interaction logs
- Implemented dynamic avatar customization and session tracking for personalized learning experiences

Multi-Client Chat Server | C++

- Implemented a multithreaded TCP/IP chat server with room-based publish/subscribe messaging
- Ensured thread-safe shared state using mutexes, semaphores, RAII guards, and per-client message queues

Parallel Quicksort | C++

- Implemented a fork-join parallel quicksort using POSIX processes and shared memory (mmap)
- Evaluated execution time across varying parallelism thresholds and analyzed scalability tradeoffs

Leadership & Community Involvement

Hopkins Student Organization for Programming (HOP) Baltimore, MD
Fine Arts Committee Member

- Plans and organizes campus-wide fine arts events for 5600+, including catering and supplies

Student Government Association (SGA) Programming Council Baltimore, MD
Sophomore Representative

- Executes large-scale initiatives for a class cohort of 1,000+ students, coordinating logistics and outreach

Skills

Programming Languages: Python, C++, C, Java, JavaScript/TypeScript,SQL, PHP
Systems & Concurrency: Multithreading, TCP/IP, POSIX APIs, Shared Memory, Synchronization
Web & Backend: React, HTML/CSS/Tailwind, WordPress, REST APIs, MySQL, GitHub Pages, Vite
AI & Simulation: PyTorch, TensorFlow, Unreal Engine 5
Tools: Git, GitHub, Linux, VS Code, Jupyter Notebooks, XAMPP