Vanessa Ching

U.S. Citizen (678) 779-0547 vanessazqching@gmail.com Vanessa Ching

Education

Johns Hopkins University, Whiting School of Engineering **Baltimore, MD**

B.S. in Computer Science, Minor in Film and Media Studies *August 2024 — May 2028*

- **Relevant Coursework:** Computer Systems Fundamentals, Intermediate Programming, Gateway Computing: Python
- **Other Activities:** Matriculate Advising Fellow, Pi Beta Phi Fraternity for Women

Experience

SCAI Lab **Baltimore, MD**

Research Assistant *August 2025 — Present*

- Extended an Unreal Engine 5–based embodied AI simulator with Python APIs for procedural environment generation, agent control, and multimodal experimentation in social cognition and human–AI interaction
- Scaled the platform into a multimodal, multi-agent system integrating vision, audio, language, physics, VR support, and a web interface to enable city-scale simulations and study emergent social behavior and coordination

Frenalytics **Remote**

Readezzy Software Intern *May 2025 — August 2025*

- Designed an accessibility-focused reading assistant to support users with cognitive disabilities
- Built a custom REST API and backend infrastructure using PHP and JavaScript within a WordPress/XAMPP environment to handle user responses, server-side logic, and database interactions

Projects

AI Readezzy Reading Assistant | PHP, SQL, JavaScript, CSS **August 2025**

- Architected a full-stack AI reading assistant as a WordPress plugin using REST APIs, persistent session management, and real-time text/voice interaction
- Implemented backend services in PHP with MySQL relational modeling to support user state, avatar customization, and AI interaction logging for downstream analytics

Multi-Client Chat Server | C++ **December 2025**

- Developed a multithreaded TCP/IP chat server implementing a custom application-layer protocol with room-based publish/subscribe messaging semantics
- Ensured thread safety and linearizability of shared state using mutexes, semaphores, RAII guards, and per-client message queues under high concurrency

Parallel Quicksort | C++ **November 2025**

- Implemented a fork-join parallel quicksort using POSIX processes and shared memory (mmap) to exploit data parallelism across CPU cores
- Analyzed performance scalability by tuning parallel thresholds and benchmarking speedup, overhead, and diminishing returns on large datasets

Leadership & Community Involvement

The Hopkins Student Organization for Programming (HOP) **Baltimore, MD**

Fine Arts Committee *August 2024 | Present*

- Plans and organizes fine arts programs on campus, including Candle Making, Resin Keychain, and Zine Workshops
- Coordinates event logistics, materials, and student participation to ensure smooth execution

SGA Programming Council **Baltimore, MD**

Sophomore Representative *November 2025 | Present*

- Executes large-scale initiatives for a class cohort of 1,000+ students
- Oversees logistics, budgeting, and outreach to maximize student engagement

Skills

Programming & Scripting: Python, C, C++, Java, PHP, SQL, HTML, CSS, x86-64
Libraries & Frameworks: NumPy, Matplotlib, Pygame, PyTorch, TensorFlow, Unreal Engine 5
Development Tools & Software: WordPress, Git, GitHub, VS Code, MySQL, XAMPP, Linux, REST APIs, multithreading