

Vincent Chau

vkchau@cs.uw.edu

Web: vincentczhou.github.io | LinkedIn: vincentkchau | GitHub: vincentczhou

EDUCATION

University of Washington

B.S., Computer Science

Expected Dec. 2026 | Seattle, WA | GPA: 4.0

Coursework: Machine Learning, Deep Learning, Artificial Intelligence, Statistical Analysis, Data Structures, Algorithms, Systems Programming, HW/SW Interface, Computer Security

EXPERIENCE

University of Washington | Undergraduate Researcher

Jul. 2023 – Present | Seattle, WA | Advisor: Prof. Brian J. Beliveau

- Built a scalable **Python** pipeline using **Pandas** and **NumPy** to process **hundreds of GB** of genomic data, optimizing performance through **parallelization** and **vectorized operations** for a **150x** speed up
- Developed a genomic sequence binding KNN classifier in **scikit-learn**, achieving **97% accuracy** and **39x** prediction speed compared to the traditional computational approach
- Shipped a search-driven data visualization tool in **React 17** and **Material UI X** to display matching regions from genomic sequence queries as heatmaps
- Designed a Jekyll template and conference website using it, supporting **300+** attendee registrations and **15** sponsors

Bellevue College | Teaching Assistant (Fundamentals of Computer Science)

Mar. 2023 – Jun. 2023 | Bellevue, WA

- Identified critical **remote code execution** and **SQL injection vulnerabilities** in a **PHP**-based homework grading platform used by **200+** students and implemented solutions to mitigate risks
- Taught fundamental data structures and algorithms in **Java**

PROJECTS

InfoSec Club Website | Full-Stack Web Application

- Created original **CTF**-style cybersecurity challenges on **JavaScript** type confusion and basic **cryptography** concepts
- Implemented a RESTful **Next.js backend** API to verify user-submitted "flags" and created an intuitive corresponding **frontend** submission interface to enhance user experience
- Configured **CI/CD** pipelines using **GitHub Actions** for automated deployment and code quality enforcement with **Husky**, **ESLint**, and **Prettier**

Rankinator | Music Game Level Classification Model

- Drove development of an audio spectrogram-based **transformer** classifier in **PyTorch** leveraging OpenAI's Whisper architecture, delivering a **0.95 F1 score** to automate quality assessment of game levels
- Conducted detailed experimentation with ablation studies on feature embeddings to understand model biases and improve generalization, leading to a **7% increase in accuracy** over the baseline performance

MaiHome | Arcade Machine Emulator

- Recreated the arcade game *maimai* with Arduino hardware emulation and software to replicate system behavior
- Reverse engineered undocumented binaries to uncover encryption keys and system functionality
- Developed custom tooling using an **Express.js** API and **C++ library** (Node.js foreign function interface) to decrypt and parse custom file formats for a community of over **1000** members

SKILLS

Technologies: Python, C/C++, Java, JavaScript, Bash, Git, Node.js, React, Next.js, PyTorch, NumPy, Pandas

Languages: English (Native), Mandarin (Proficient), Cantonese (Proficient), Japanese (JLPT N3)