Brandon Hui

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EDUCATION

University of Pittsburgh **Pittsburgh, Pennsylvania**
B.S. in Computer Science, Minor in Philosophy *Expected Graduation, Spring 2027*

- **GPA:** 3.4
- **Related Coursework:** Data Structures & Algorithms, Computer Organization & Programming, Object-Oriented Programming, Statistics & Applications, Linear Algebra, Objects & Design, Systems Software

EXPERIENCE

Software Developer Intern **Pittsburgh, Pennsylvania**
ScottyLabs at Carnegie Mellon University *June 2025 – August 2025*

- Collaborated with a team to design and develop a **full-stack** finance portal to track club expenses, spending history, reimbursements, and sponsorships at Carnegie Mellon University
- Implemented backend services such as **validation** using **Flask** and **Marshmallow** to ensure security
- Designed and implemented a **relational database schema** using **SQLAlchemy** to manage users, committees, and audit logs

Software Engineer **Pittsburgh, Pennsylvania**
Rover Project at the University of Pittsburgh *September 2024 - Present*

- Developed and simulated a rover using **ROS 2 Humble** and **Python** for autonomous navigation, task execution, sensor integration, path planning, and obstacle avoidance, enhancing the rover's operational efficiency
- Collaborated with mechanical and electrical engineers to integrate software with hardware systems, improving the rover's efficiency and reliability

PROJECTS

Healthiest Neighborhoods Analysis | *Jupyter Notebook, Python, pandas, NumPy*

- Conducted analysis of neighborhoods in Pittsburgh to determine the healthiest areas based on factors such as disease statistics, healthy eating, and green spaces
- Collected and processed data from over **400** public health records, environment reports, and census data in Pittsburgh, using **pandas** and **NumPy** to clean, analyze, and visualize the data
- Developed and presented an interactive visual and a detailed report that identified **3** key indicators of health and provided insight for further improving them
- Collaborated with peers to ensure high data accuracy and focused on the most relevant metrics, resulting in a well-rounded final project

Similar Song Recommender | *Python, discord.py, Spotipy, pylast, Gemini*

- Developed a Discord bot that allows users to input a Spotify link using a command and utilizes the audio features of that song to have Gemini recommend similar songs
- Integrated the **Spotify API** using **Spotipy** and **Last.fm** using **pylast** to extract song metadata
- Searched through over a **million** songs in Last.fm's database to recommend 5 that are the most similar
- Utilized AI such as **Gemini** to generate a short insight into a given song, gives **recommendations based on audio features such as BPM and genre**, and outputs them with their respective Spotify link

Max-Cut Problem by IonQ at iQuHACK | *Python, Qiskit, NumPy, pandas, Matplotlib*

- Developed a quantum algorithm using **Qiskit** to solve the **Max-Cut** problem on graphs
- Designed an **ansatz** and a **Hamiltonian**, leveraging the **varQITE** algorithm to optimize solutions and visualized performance by convergence
- Implemented techniques to analyze Max-Cut, balanced Max-Cut, and connected Max-Cut solutions using graphs to visualize the before and after quantum analysis

SKILLS

Programming: Java, Python, JavaScript, HTML/CSS, SQL, React, Node.js, pandas, Matplotlib, Flask, PyTorch, SQLAlchemy
Developer Tools: Jupyter Notebook, GitHub, VS Code, VirtualBox, QEMU