Ryan Yuki Huang

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Education

Brown University Expected Graduation: May 2026

B.S. in Computer Science, Concurrent M.S. in Computer Science ***GPA:*** *4.0/4.0*

- **Relevant Coursework:** Data Structures & Algorithms, Deep Learning, Linear Algebra, Discrete Mathematics, Computer Systems, Software Engineering, Computer Vision, Object-Oriented Programming, Graphics
- **Awards:** Undergraduate Teaching & Research Award, Hack@Brown 2024 Winner, Regeneron STS Semifinalist

Experience

Brown Visual Computing Sep. 2022 – Present

Graphics and Vision Research Assistant *Providence, RI*

- Created a shape editing system that lets users augment 3D furniture meshes with natural language by leveraging Chain-of-Thought prompt requests to the OpenAI API (**Published in arXiv**)
- Rendered edited meshes into **Blender** with **Python** and a web app via **WebGL** with **Javascript** for visualization
- Received an **undergraduate research award** for building a pipeline to classify breast cancer images using topological analysis and a **convolutional neural network (CNN)**, resulting in **87%** accuracy

ModernVivo Dec. 2023 – May 2024

R&D Software Engineer Intern *Seattle, WA (Remote)*

- Integrated an LLM-guided system that semantically clusters texts with **97%** accuracy into the **Django** backend, allowing customers to effectively filter searches for clinical trials (Method accepted to **IJCAI conference 2024**)
- Utilized **multithreading** to run OpenAI requests in the system concurrently, decreasing clustering times by **55%**
- Incorporated **Google BigQuery** to store large text datasets, and utilized it to test the clustering system

Full Stack @ Brown Sep. 2023 – May 2024

Full Stack Developer, Puzzlehunt Team *Providence, RI*

- Developed a full stack **Django** site for Brown's annual puzzlehunt using **React**, **Python**, and **PostegreSQL**
- Implemented user authorization to securely store data and progress in the competition for **5,000+** participants
- Set up **RESTful API** hooks for users to submit puzzle answers, which were securely validated on the backend

Projects

MemoTech | Github | Devpost | Website *Python, Flask, TypeScript, React, MongoDB*

- **Won 1st Place out of 300+ Participants at Hack@Brown 2024** for a **React** application that provides detailed feedback for users' answers to flashcards using **OpenAI API**
- Integrated a flashcard recommendation system that finds related flashcards from Anki/Quizlet by storing flashcard embeddings in **MongoDB** and identifying the k-nearest related flashcard decks using a **vector search**
- Used **Redis Caching** to store prior recommendation queries, resulting in **35%** faster searches
- Deployed database onto **AWS** EC2 Instance through MongoDB Atlas, supporting backend for **200+** users

Pokémon GAN (Gotta generate 'em all) | Github *Spark, Python, Pytorch*

- Developed and trained a **Deep Convolutional Generative Adversarial Network (DCGAN**) in **Pytorch** to generate synthetic Pokemon images that were accurate/diverse with a Frechet Inception Distance of **126.7**
- Utilized **Apache Spark** for distributed preprocessing of a large Pokémon image dataset, including tasks such as data augmentation, normalization, and filtering to enhance training efficiency
- Designed a **command line interface (CLI)** for users to edit the image dataset, GAN model, hyperparameters

MedChat | Github *Firebase, Dart (Flutter)*

- Developed a mobile **iOS** application to expedite doctor/patient interactions via check-ins and chats in **Flutter**
- Implemented text, updates, and checklist functionalities and stored real-time changes into **Firebase**
- Conceptualized dynamic front-end design in **Figma** for easy use (currently **1,000+** users in local hospitals)

Technical Skills

Languages: Python, Java, TypeScript/JavaScript, SQL, C/C++, HTML/CSS, R
Tools: React, Flask, JUnit, PyTorch/TensorFlow, Blender, Playwright, MongoDB, PostgreSQL, Git, AWS, Bash