Jackson Brouwer

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Education

University of Chicago — Chicago, IL
Master of Science in Computer Science — *Dec. 2023 – Aug. 2024*
- GPA: 3.81/4.00
- Featured Coursework: Advanced C++, Databases, HPC, NLP, Parallel Programming, Time-Series Analysis

University of Chicago — Chicago, IL
Bachelor of Science in Computer Science — *Sept. 2020 – Dec. 2023*
- GPA: 3.70/4.00, Dean's List: 2021-2022
- Featured Coursework: Algorithms, Architecture, Computer Vision, Data Structures, Mobile Computing, Systems

Experience

Software Engineering Intern — June 2023 – Jan. 2024
Zelia (Techstars NYC '23) — *New York, NY*
- Developed user account, clothing, and outfit recommendation APIs in **Python** Flask using SQLAlchemy
- Deployed **AWS** compute, security, and DevOps services, ensuring 99.9% uptime and streamlined deployment
- Designed scalable **PostgreSQL** tables and low-latency queries for user, clothing, and outfit data
- Migrated an on-site database from an earlier app version to AWS with data from 50,000 users

Software Engineering Intern — June 2022 – Sept. 2022
Fuel Cycle — *Los Angeles, CA*
- Developed back-end QA testing on an enterprise market insights automation platform
- Implemented automated unit and functional API tests using **Java** and Postman, catching 22% more back-end bugs
- Collaborated cross-functionally with front-end engineers to resolve development issues involving back-end APIs

Undergraduate Research Assistant — Apr. 2021 – Feb. 2022
University of Chicago — *Chicago, IL*
- Built software for an interactive virtual user experiment on the efficacy of smart-home-integrated IoT devices
- Implemented feature updates using a **Python** backend server and **Angular** for frontend
- Evaluated the usability of the software through manual pilot testing and guided user sessions

Non-Profit Lead Developer — Sept. 2021 – Jan. 2022
University of Chicago IOP — *Chicago, IL*
- Enhanced the accessibility of an educational app for Chicago Public Schools, directly resulting in 60% more users
- Led a team of five developers to implement iOS compatibility using **React**

Projects

Speech-to-Speech Translation | ***Python, PyTorch, React*** — July 2024 – Aug. 2024
- Developed an end-to-end Speech-to-Speech model and app for translating conversation or speeches
- Fine-tuned OpenAI Whisper, Helsinki Opus, and Coqui models on English speech and transcribed translation data
- Fine-tuned OpenAI's Whisper-large-v3 model, reaching an end-to-end ASR-BLEU score of 23.7

Handwriting in VR | ***Python, C#, AWS*** — May 2024 – June 2024
- Leveraged finger tracking on the Meta Quest 2 to allow real-time transcription of the user's writing to text
- Implemented a data pipeline and a CNN to translate the user's movement inputs into predicted text
- Achieved an 8.7% character error rate, as well as minimal headset energy and battery use through hosting on AWS

Threaded Twitter Server | ***Go, Python, REST*** — Feb. 2024 – Mar. 2024
- Developed a threaded faux-Twitter server which accepted REST API requests in Go
- Built concurrent data structures such as thread-safe queues and linked lists to allow for concurrent user actions
- Analyzed the parallel performance by collecting latency data and visualizing in Python

Technical Skills

Languages: Python, Go (Golang), C, C++, C#, Java, SQL (PostgreSQL, MySQL), JavaScript, Node.js
Frameworks: Docker, MongoDB, Flask, REST API
Developer Tools: AWS, Git, Jira, CUDA, Postman