Justin Zheng

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Education

Georgia Institute of Technology Expected May 2026
Bachelor of Science in Computer Science - GPA: 4.0 *Atlanta, GA*
Relevant Coursework: Data Structures & Algorithms, Linear Algebra, Computer Organization & Programming, Probability & Statistics with Applications, Systems & Networks, Artificial Intelligence, Database Systems

Experience

Incoming Software Development Engineer Intern May 2025 – August 2025
Amazon *Tempe, AZ*

Undergraduate Researcher January 2025 – Present
Georgia Institute of Technology - Professor Christopher Wiese *Atlanta, GA*

- Developed BrainBridge, a collaborative application that enhances interdisciplinary team communication through real-time AI-powered speech-to-text transcription and jargon translation
- Implemented advanced speech processing pipeline using **WhisperX** and **pyannote.audio**, achieving **90%+ transcription accuracy** with speaker diarization across diverse accents and noisy environments

Machine Learning Researcher June 2022 – August 2022
The Pennsylvania State University - Professor Suman Saha *Remote*

- Researched and implemented machine learning models for credit card fraud detection using algorithms such as **Logistic Regression**, **Decision Tree**, and **Random Forest**
- Analyzed and visualized dataset of **284,807 credit card transactions** using **pandas**, **Matplotlib**, and **seaborn** to identify patterns in fraudulent behavior
- Optimized model performance by identifying key features from imbalanced datasets, resulting in improved accuracy and F1 scores, achieving up to **99.951% accuracy** with **XGBoost**

Projects

Virtual Memory Simulator | *C*

- Reduced page fault rates under simulated high-memory pressure by engineering a **C** virtual memory simulator with efficient page eviction and allocation
- Enhanced memory management flexibility by implementing **3 distinct page replacement algorithms** (Random, Approximate LRU, FIFO), validated across varied simulation workloads

LC-3200 Datapath | *Assembly*

- Devised a **32-bit processor datapath** in **CircuitSim** based on a custom ISA, integrating components like an ALU, register file, and comparison logic while adding interrupt support with an external timer and distance tracker
- Engineered a **4-ROM finite state machine** microcontrol unit to manage instruction execution using microcode

Workout of the Day (WOD) Prediction | *Python*

- Scraped and cleaned data from public leaderboards with **BeautifulSoup**, processing over **10,000 WOD records** using **pandas** and **NumPy** to gather detailed performance insights
- Implemented large language models to convert unstructured WOD descriptions into structured tables
- Composed and evaluated machine learning models to predict athlete performance with **scikit-learn**, validated on a dataset of **2,000 athlete benchmarks**

Sense | *(HackGT 11) Next.js, React, Python, MongoDB*

- Created a web application detecting early indicators of mental health issues, analyzing real-time speech, body language, facial expressions, and user-reported symptoms with **87% detection accuracy** during testing
- Built a front-end in **Next.js**, **React**, **TypeScript**, and **Tailwind CSS**, complete with a chatbot powered by the **OpenAI API** to help users better understand their diagnosis
- Utilized **OpenCV** and **TensorFlow** for facial and body language analysis, linking to the front-end with **FastAPI**

Technical Skills

Languages: Java, Python, C, C++, HTML/CSS, JavaScript, TypeScript, SQL
Frameworks: Next.js, React, Node.js, Express, Tailwind CSS, FastAPI
Tools: Git, MongoDB, Firebase, Amazon Web Services, MySQL, Jupyter