Gabriel Fuchs

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EDUCATION

Cornell University, College of Computing and Information Science — **Expected December 2024**
Master of Engineering • *Computer Science* — Current GPA: 4.0

Cornell University, College of Engineering — **October 2020 - May 2024**
Bachelor of Science • *Mechanical Engineering* — Summa Cum Laude**,** GPA: 4.0

TECHNICAL SKILLS

Skills: Python (NumPy, PyTorch), Java, C, OCaml, React, Docker, Git, Cloud Services (AWS), Excel

Relevant Courses: Parallelism and Performance, Distributed Systems, Computer Networks, Artificial Intelligence Seminar, Embedded Operating Systems, Object-Oriented and Functional Programming

RELEVANT EXPERIENCE

Distributed System: Sharded Key-Value Store — August 2024 - Present

- Builds a linearizable, sharded KVStore with multi-key updates and dynamic load balancing in Java
- Designed and implemented a protocol for server fault tolerance through primary/backup replication
- Achieved exactly-once semantics in a KVStore application facing duplicated and delayed messages

Web-Based Experimentation Platform for IDS Virtual City System — August 2024 - Present

- Builds a complete end-to-end system to allow virtual control of a robotic city, increasing accessibility
- Develops a dynamic front-end for college students and researchers with varying user access restrictions
- Designs a Python application to convert user-provided robot instructions into formal ROS commands

Database Management System — February 2023 - May 2023

- Led a team of 3 students to design and implement a scalable database management system in OCaml
- Designed a protocol to parse JSON files into program memory and write back to reflect changes
- Compiled a detailed test case suite to verify proper integration of individual and team deliverables

Concussion Rehabilitation Cognitive Therapy Program — May 2023 - Present

- Engineered a user-centric, interactive therapy program tailored to concussion patients using Python
- Integrated proven therapy formats into cognitive exercises to remove paywalls and increase accessibility
- Used LLM APIs to handle messy voice input from voice-to-text models, achieving accurate testing

ADDITIONAL EXPERIENCE

Engineering Intern at Newark Energy Center — June 2022 - January 2023

- Automated energy capacity report calculations through development of a Python script using plant API
- Conducted comprehensive analysis of evaporative cooler efficiency, proposing solutions to combat wear
- Remained on call for technical advice, providing insights on transitioning to a new data storage system

Cornell Student Researcher: Partial Differential Equations using ML — May 2021 - October 2021

- Explored error associated with FFT when using small-size datasets in modeling heat/wave equation
- Developed MATLAB scripts to isolate key features and handle periodic boundary conditions of the PDE
- Researched alternative PDE modeling methods, using Machine Learning models as a black box solution

PGN Professional Business Organization — October 2021 - May 2024

- Led cross-functional teams to design entrepreneurial projects, focusing on technical feasibility
- Mentored junior members, guiding project development and promoting collaborative problem-solving
- Researched and presented data to drive informed decisions in management and emerging technologies