Mitchell Gray

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Education

Cornell University, Ithaca, NY **Aug 2020 – May 2024**

Bachelor's of Science, Computer Science *Deans List: Fall 2022*

Minor, Operations Research Information Engineering

Relevant Coursework: Distributed Computing · Cloud Computing · Systems Programming · Info Networks · Databases · Operating Systems · Software Testing · AI

Technical Skills

Languages: Java · C++ · Python · SQL · Bash · C

Software & Tools: CosmosDB · Neo4j · Azure Functions · Azure · Google Cloud · AWS · Kafka · Git · Protobuf · CI/CD · Docker · Kubernetes · Tableau · Qlik · pandas · NumPy · JavaFX · PyQT · Mockito · JUnit · Poetry · Maven · CMake

Relevant Work Experience

Gecko Robotics **May 2023 – Aug 2023**

Software Engineer Intern | **C++, Python, CMake, C, Google Cloud, CI/CD** *Pittsburgh, PA*

- Worked on Robot Controls team · Revamped Robot & Data Acquisition emulators · Implemented new communications protocol · Wrote code for an asynchronous distributed system · Client/Server TCP networking · Replaced Visual Studio build-system with **CMake** · Added emulator support for calibratable data · Integrated **Github Actions** and **Poetry**

CMU-Software Engineering Institute **May 2022 – May 2023**

DevOps Engineer Intern | **Python, Bash, Neo4j, Docker, Kubernetes, CI/CD** *Pittsburgh, PA*

- NDA · Updated and created **Gitlab CI** pipelines · Developed **Python** and **Bash** scripts · Created **REST API** data visualizations using **Qlik** · Used **ArgoCD** to deploy **AWS EKS** cluster · Improved efficiency of the company by using **Python**, **Neo4j**, **NeoDash**, and the PageRank algorithm to create useful metrics / long-term documentation · Wrote 30+ page whitepaper using LaTeX · Worked in an agile development environment

Cornell University **Aug 2022 – Present**

Teaching Assistant / Head Proctor | **Java, Python, SQL** *Ithaca, NY*

- Fall 2023, Databases: Held office hours twice weekly · Answered online Q&A posts · Proctored exams
- Spring 2023, Object Oriented Programming: Nominated for Course Staff Excellence Award · Taught class sections · Helped students with **Java** assignments and topics in Office Hours & Consulting Hours · Led exam sessions · Graded
- Fall 2022, Intro Physics Lab: Helped students with **Python/NumPy** data analysis labs and homeworks

Research

ADOPT: Adaptively Optimizing Attribute Orders | *Github* | *VLDB* **Jan 2022 – Present**

- Paper Accepted into VLDB 2023 · Created dynamic data visualizations for the ADOPT query engine using **Java**, D3.js, JavaFX, and GraphStream · Visualized the engine's reinforcement learning algorithm · Worked under Prof. Trummer

Projects

DS-Labs Sharded Key Value Store | Distributed Computing | ***Java, Paxos, 2PC*** | *Github* **Jan 2023 – May 2023**

- Using the DS-Lab framework, my partner and I were able to create a sharded transactional key-value store that uses Paxos for replication and 2PC for multi-key updates. We implemented an Exactly-once RPC protocol on top of an asynchronous network, a primary-backup protocol, Paxos implemented with the PMMC protocol, and 2PC.

Cornell Meetup | Cloud Computing | ***Azure, CosmosDB, Python, WebDev*** | *Github* | *BOOM* **Aug 2022 – Dec 2022**

- 1 of 32 projects selected for BOOM 2023. My partner and I created a social media web app that allows users to create groups, chat with friends, and see where their friends are when on campus. Accounts details were obfuscated and salted.

DBMS | DB Practicum | ***Java, SQL, JUnit, Mockito, NIO*** | *Github* **Aug 2022 – Dec 2022**

- My team and I created a Database Management System. The DBMS took **SQL** queries as input and created a logical and physical operator plan. The queries were optimized using indexes, statistics, and V-values to choose the best operators. Queries could be calculated in-memory or externally. Indexes were serialized and deserialized to/from disk.

Organizations

Engineering Entertainment Design Club | *Lead Programmer / Secretary* | *Club* **Aug 2022 – Present**

- Created a robot that makes drinks · Wrote Arduino code · Administrative tasks · Filming/Editing for club Youtube

Cornell Tradition Fellowship | *Fellow* | *Fellowship* **Aug 2020 – Present**

- Contains $< 4\%$ of all students · Keep good grades · Work and volunteer during the school year · Do 100+ hours of each