# MITCHELL GRAY

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## Education

**Cornell University, Ithaca, NY**                                                             **Aug 2020 – May 2024**
*Bachelor's of Science, Computer Science*                                                      *21 Graduate Credits*
*Minor, Operations Research Information Engineering*                                            *Deans List: Fall 2022*

**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** | *Java, AWS* | *Github* | *VLDB*            **Jan 2022 – Present**
- Paper accepted and presented at **VLDB 2023** · Currently working on transforming the query engine into a **distributed query engine** · Created dynamic data visualizations for the ADOPT query engine using **Java**, JavaFX, and GraphStream · Visualized the engine's reinforcement learning and worst-case optimal join algorithms

## Projects

**Distributed Testing Platform (SPEED)** | Masters Project | *Java, JUnit, Cloud* | *Github*   **Aug 2023 – May 2024**
- My team and I created a <u>S</u>calable <u>P</u>latform for <u>E</u>fficient <u>E</u>xecution of <u>D</u>istributed testing. The fault-tolerant system contains a controller node that orchestrates worker nodes that run **JUnit** tests on **Java** code. The worker nodes report their findings to the controller. Once all tests are ran, test results are shown in the frontend to the user.

**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.

## 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