# Mitchell Gray

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## Education

**Georgia Tech, Atlanta, GA** — **Jan 2025 – Aug 2026 (Part-Time)**
*Master's of Science, Computer Science* — *GPA: 4.0; Machine Learning*

**Cornell University, Ithaca, NY** — **Aug 2020 – May 2024**
*Bachelor's of Science, Computer Science* — *Distributed Systems*
*Minor, Operations Research Information Engineering* — *30 Extra Graduate-Level Credits*

**Knowledge Domain**: Distributed Systems · Systems Programming · Databases · Cloud Computing · AI · ML

## Technical Skills

**Languages**: C · PL/SQL · C++ · Python · Java · Rust
**Software & Tools**: Git · NumPy · Pandas · Poetry · CMake · CI/CD · Docker · Kubernetes · GCP · Azure · AWS · REST

## Relevant Work Experience

**Oracle** — **Redwood City, CA**
*Software Developer I* | **C, PL/SQL, Raft, Java, OracleDB, OCI** — **June 2024 – Present**

- Working on Shard Native Replication (SNR) in the Oracle Globally Distributed Database · Implementing the **Raft** Consensus algorithm for Shard Replication · Writing Distributed Systems code in **C**, **Java**, and **PL/SQL**.
- Engineered a fault-tolerant Replica replication feature on Oracle Cloud Infrastructure · Enforced placement of Raft Replicas on separate server racks to eliminate single-rack replication-unit failures and improve database availability.
- Refactored over 1,200 lines of Sharding serialization code to eliminate a critical data-loss defect · Designed robust de/serialization pipelines and multi-format conversion logic that greatly improved data integrity and system reliability.
- Optimized SNR's Replica "Copy" and "Move" operations · Resolved critical memory management issues, corrected existing logic errors, and batched I/O calls to significantly enhance reliability and throughput · Achieved a **700%** performance improvement without workload and **250%** improvement under active workloads.
- Resolved critical recoverability issue in SNR's Replica Copy/Move operations by ensuring complete transfer of essential recovery-related tables and data between Replicas · Improved reliability and system integrity during Replica failure.
- Implemented comprehensive Pluggable DBs (PDBs) lifecycle management for SNR · Enabled seamless Drop, Unplug, and Plug operations of PDBs to streamline maintenance for Sharded Databases using a multi-tenant container architecture.
- Enhanced error-handling mechanisms throughout the SNR codebase · Enabled accurate and timely error reporting even during database recovery · Optimized error-display logic and filtering, significantly streamlining database error management · Improved diagnostic speed, and simplified troubleshooting workflows for customers.

**Gecko Robotics** — **Pittsburgh, PA**
*Software Engineer Intern* | **C++, Python, C, CMake, GCP, CI/CD** — **May 2023 – Aug 2023**

- Worked on the Robot Controls team · Wrote code for an asynchronous distributed system in **C++**, **Python**, and **C**.
- Revamped Robot & DAQ emulators · Implemented communications protocol and Client/Server TCP networking.
- Replaced VS build-system with **CMake** · Added calibration support to emulators · Integrated **CI/CD** and **Poetry**.

**CMU-Software Engineering Institute** — **Pittsburgh, PA**
*DevOps Engineer Intern* | **Python, Rust, CI/CD, Docker, Kubernetes** — **May 2022 – May 2023**

- Developed **Python**, **Rust**, and **Bash** code on various NDA projects · Updated and created **CI/CD** pipelines · Created GitLab **REST API** data visualizations for clients · Used **ArgoCD** and **Helm** to deploy **AWS EKS** cluster.
- Improved efficiency of the company by using **Python**, **Neo4j**, **NeoDash**, **Confluence** Documents, and the PageRank algorithm to create scripts, metrics, and long-term documentation that are now used throughout the company.

## Additional Work Experience

**Georgia Tech & Cornell University** — **Atlanta, Georgia & Ithaca, NY**
*Graduate Teaching Assistant* | **Python, NumPy, SQL, Java** — **Aug 2022 – Present**

- Received the **Course Staff Exceptional Service Award** · Taught Graduate AI, Databases, OOP, and Physics.

**Cornell Database Group** — **Ithaca, NY**
*Database Research Intern* | **Java, AWS** — **Jan 2022 – May 2024**

- Published and presented paper at **VLDB 2023** on combining Reinforcement Learning and Worst-Case Optimal Joins.
- Worked on upgrading query engine to a **Distributed Architecture** · Created dynamic statistics & RL visualizations.