

EDUCATION

Georgia Institute of Technology

B.S./M.S. in Computer Science, GPA 3.75

- Concentrations:** Systems & Architecture, Information Internetworks
- Courses:** Algorithms, Systems & Networks, Probability & Statistics, Machine Learning, Data Structures, Multivariable Calculus, Linear Algebra, Discrete Mathematics, Computer Architecture, Operating Systems, Databases, Real-Time Systems

Atlanta, GA
May 2026 (Expected)

WORK EXPERIENCE

Uber – Knowledge Platform

Software Engineering Intern

- Fine-tuned a large language model with retrieval augmented generation, optimizing hyperparameters and enhancing prompts with a 2,700-acronym dictionary to achieve 97% accuracy in feature name recognition.
- Wrote an Apache Spark job to automatically add LLM-generated descriptions for over 2,100 YAML files, leveraging the Hadoop Distributed File System (HDFS) for scalable, remote data storage.
- Implemented a synchronous gRPC gateway in Java to interface with the LLM and created a Python and PHP code linter to backfill 20,000+ descriptions with 5-second API call latency.

Sunnyvale, CA
May 2024 – August 2024

Uber – Earner Delivery Risk

Software Engineering Intern

- Created a distributed data streaming pipeline using Java, Golang, and Apache Cassandra to compute and feed a near real-time feature to machine learning models for delivery fraud detection, saving over \$14 million yearly.
- Redesigned Java trip-streaming pipeline to filter non-production data, reducing Kafka message delays by 83%.
- Spearheaded a 7-person hackathon project to integrate the GPT-4 large language model in customer service chats using Python, resulting in a 14.3% reduction in time required to detect negative customer behavior.

Sunnyvale, CA
May 2023 – August 2023

AT&T – Chief Security Office

Software Engineering Intern

- Upgraded an internal network access service by using Python and Django to transition from cookie authentication to the SAML open standard, providing over 1,300 employees with a more secure, single sign-on process.
- Pioneered a novel infrastructure to stream video games with 70% lower latency, which was prototyped as a C++ text-based game engine and visualized in Figma. This invention is awaiting patent approval (no. 18/148,428).
- Developed scripts in Python, SQL, and HTML to uncover security vulnerabilities by parsing 500+ event logs and by automating data exports to Excel. Written and tested using the PuTTY SSH client.

Dallas, TX
June 2022 – August 2022

RESEARCH EXPERIENCE

Georgia Tech Habanero Extreme Scale Software Research Laboratory

Undergraduate Research Assistant

- Achieved 1.26× speedup in distributed topological sorting by eliminating yield calls with a dynamic global termination mechanism in HCLib (C++, actor/selector-based), reducing context creation overhead by 99% and yield invocations by 82%.
- Performed OpenSHMEM weak scaling experiments for topological sort on the PACE supercomputer cluster (500,000 elements per core on up to 32 nodes) and extracted runtime statistics to evaluate performance under SPMD conditions.

Atlanta, GA
August 2023 – Present

PUBLICATIONS

- Y. Elmougy, N. Deb, A. Hayashi, and V. Sarkar, “Enhancing Productivity and Performance of HCLib-Actor with Efficient Task Termination,” in 2025 IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW), Milan, Italy, 2025, to appear.

PROJECTS

- Nonprofit Organization Research Panel Social Media Analytics:** Developed an NLP pipeline in Python (Pandas, VADER) to perform sentiment analysis on 2,660 videos from 56 nonprofit YouTube channels, uncovering trends and time-series patterns to support data-driven decision-making for 2,800+ NGOs.
- Enhanced xv6 Operating System:** Implemented stack trace debugging, copy-on-write forking, lazy zero-page allocation, custom scheduling algorithms, user space threading library, and large file support up to 8 MB in C.

SKILLS

Languages: Python, C++, Java, C, Golang, Swift, HTML, SQL, PHP, JavaScript
Frameworks: SciPy, Pandas, Apache Kafka, Apache Spark, JUnit, Spring Boot, Hadoop, Flask, React Native, Flutter, Django
Developer Tools: Linux, Git, Docker, Google Cloud Platform, GDB, Jupyter, Grafana, Visual Studio Code