Nihaar Gopalji

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Education

University of Michigan, *Ann Arbor, MI* **August 2021 – December 2025**
B.S.E. in Computer Science ***GPA:*** *3.99/4.00*
B.S.E. in Mechanical Engineering

- **CS Coursework**: Operating Systems, Web Systems, Computer Security, Data Structures and Algorithms, Computer Organization, Foundations of Computer Science, Linear Algebra, Discrete Mathematics, Differential Equations

Experience

Stryker, *Fort Lauderdale, FL* **May – August 2024**
Software Engineering Intern

- Developed a high-performance, **multithreaded C++ framework** interfacing with **TCP-based** robot and camera systems, implementing **real-time data processing pipelines** for calibration, **reducing runtime by 65%** over MATLAB version.
- Designed a **flexible software architecture** utilizing **polymorphic interfaces** for test execution, robot control, and camera integration, enabling **adoption by three additional teams** with diverse test purposes and hardware.

CandleStick, *Remote* **January 2024 – April 2024**
Backend Engineering Intern

- Designed and implemented a scalable **Firebase data architecture** and **API layer** for a brokerage app's referral system, optimizing for **high-volume operations**. Integrated into app update, tracking **1000+ users'** relationships and referrals.
- Developed a **user attribution system** with gamified rewards, optimizing database through **strategic denormalization** to handle promotional traffic spikes. Integrated **branch.io API** to enhance user acquisition and engagement tracking.

Michigan Strength Augmenting Exoskeleton, *Ann Arbor, MI* **September 2023 – May 2024**
Software Engineer

- Engineered an **end-to-end machine learning pipeline** in Python, integrating data collection from IMU sensors, preprocessing, and feature extraction to train a **scikit-learn model** for real-time human movement classification.
- Developed a **real-time movement detection system** using the trained model, achieving **80% accuracy** in classifying walking, running, jumping, and kicking actions.

Projects

Distributed Search Engine **March 2024**
Python, Flask, Javascript, React, HTML/CSS

- Architected a scalable distributed search engine, featuring a **Hadoop compatible MapReduce pipeline** for inverted index creation, alongside multiple **REST API-based Index servers** for efficient data segmentation and retrieval.
- Implemented a **multithreaded Search server** in Python, optimizing query performance through concurrent API requests to distributed Index servers and parallel result aggregation.

Distributed MapReduce Framework **March 2024**
Python, Network Programming (TCP/UDP), Fault Tolerance

- Developed a **distributed MapReduce framework** optimizing for **large-scale data processing** and computation speed.
- Implemented **parallel** map and reduce operations across multiple processes to improve **scalability**.
- Designed **fault-tolerant architecture** using **TCP** for reliable data transfer and **UDP heartbeats** for failure detection.

Instagram Clone **January 2024**
Flask, SQLite, JavaScript, React, REST API, HTML/CSS, AWS, Git

- Developed an Instagram Clone using a **Flask** backend and **React** frontend, featuring a **REST API**, SQLite database, security again common web vulnerabilities, and dynamic content updates through asynchronous JavaScript.

Technical Skills

Languages: C++, C, Python, Java, JavaScript/TypeScript, MATLAB, HTML/CSS, SQL, LaTeX
Tools: Vim/Neovim, Linux, Docker, CMake, Git, Perforce, Flask, REST API, React, Firebase, Pandas, Scikit-learn