

## ISHAAN THAKUR

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## EDUCATION

## Cornell University College of Engineering

Ithaca, NY

*M.Eng., Electrical & Computer Engineering, GPA 3.90***Feb. 2021 – Dec. 2021***B.S., Electrical & Computer Engg; Computer Science Minor | Magna Cum Laude, GPA 3.78***Grad. Dec. 2020****M.Eng. Thesis:** Analysis of Metaheuristic Algorithms for Improving Performance of Deep Neural Networks**Relevant Courses:** Algorithms, Systems Programming (TA), Datacenter Computing, Cloud Computing, Machine Learning, NLP, Computer Vision, Operating Systems, Networks, Embedded Operating Systems, Data Structures

## PROFESSIONAL EXPERIENCE

## SoFi Inc.

San Francisco, CA

*Software Engineering Intern - Lending Platform Team***Jun. 2021 – Aug. 2021**

## On Pepper LLC

New York, NY

*Software Engineering Intern - Voice Experience Team***May 2020 – Aug. 2020**

- Developed a chatbot using React, DialogFlow and MongoDB that **reduced average response time by 87%**; wrote its unit & integration tests and ran its A/B tests on 1000+ users for recording voice search engagement.
- Redesigned authentication service on the firm's asset management platform to allow integration with Auth0.
- Built Business Intelligence (BI) tool that leveraged ML and NLP to analyze firm's fund asset data.

## ESnet, Lawrence Berkeley National Lab

Berkeley, CA

*Software Engineering Intern - Scientific Network Team***May 2019 – Aug. 2019**

- Implemented a network packet tracing dashboard for collecting service quality metrics, monitoring network security and allowing real time debugging on network packets, using Node.js, React and Cassandra.
- Improved High Touch Services for Network engineers using Node.js and React. **Impact: improved rendering speed by 10x; added support for significant data transfer (100 Gbps) and packet features filtering.**

## Swarm Robotix LLC

Naperville, IL

*Software Engineering Intern - Sensor Software & Controls Team***May 2018 – Jun. 2018**

- Designed a localization system with Dynamic Window Approach for autonomous mobile robots in ROS using C++.
- Successfully improved collision detection and avoidance by 67%.**

## PROJECT HIGHLIGHTS

## Cloud-based IoT System for Mastitis Detection

**Apr. 2021 – May 2021**

- Built an IoT system in Python to concurrently monitor up to 200 simulated dairy farms, where the VMs at the edge issue email alerts via an Azure Function App when mastitis is detected among cows.
- Deployed a random forest classifier as an Azure Container Instance for batch inference on continuously streaming data, with response times consistently under 20 milliseconds.

## Implications of Serverless Compute Framework on End Users 📄

**Apr. 2021 - May 2021**

- Analyzed impact of varying invocation patterns and concurrency of serverless functions on hardware resources as opposed to native execution, showcasing results in a graduate-level course, ECE 5710: Datacenter Computing.

## Shopping Cart Service

**Mar. 2021**

- Implemented a shopping cart DHT (Distributed Hash Table) service in Java that lets client perform several operations to buy, list, update and checkout items via remote procedure calls.

## Conversation Starter

**Nov. 2020 – Dec. 2020**

- Developed a chat backend REST API in Java capable of supporting text, image and video messages.
- Leveraged JPA CrudRepository and Hibernate ORM for implementing data persistence in MySQL.

## Over-the-Air Radio Signal Classification

**Apr. 2020 – May 2020**

- Designed a 6-layer Residual Neural Network in PyTorch to classify time-series data, obtained from measuring signals with low-SNR, into one of 10 modulation types with 60% accuracy. Top 10% Kaggle submission.

## TECHNICAL SKILLS, HONORS &amp; INVOLVEMENT

**Languages:** Proficient: Java, C/C++, Python | Familiar: SQL, JavaScript, HTML, CSS, Go, Verilog, L<sup>A</sup>T<sub>E</sub>X**Tools:** MongoDB, MySQL, Node.js, React, Azure, Docker, Git, Gradle, Ansible, Data/ML/NLP Python Libraries**Honors:** Dean's List | 2<sup>nd</sup> Place, Cornell Robotics Competition (2019) | 1<sup>st</sup> Place, ECE Design Competition (2018)**Involvement:** Intelligent Physical Systems Head T.A. | CS 4414 (Systems Programming) Staff | Outreach, ACSU