ISHAAN THAKUR

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EDUCATION

Cornell University, College of Engineering **Ithaca, NY**

MEng. in Electrical & Computer Engineering *Exp. December 2021*

B.S. in Electrical & Computer Engineering w/ Minor in Computer Science | GPA: 3.7 *Exp. December 2020*

Specializations: Algorithms, Distributed Systems, Deep Learning and Networks

Relevant Courses*: Algorithms, Systems Programming (T.A.), Deep Learning, Machine Learning, Computer Vision, Networks,* Operating Systems, Data Structures, Applied Logic, Image Processing, Probability

PROFESSIONAL EXPERIENCE

Chiang's Lab, Cornell University **September 2020 – Present**

Graduate Researcher + Master's Thesis, Advisor: Prof. Hsiao-Dong Chiang *Ithaca, NY*

- Conduct research on testing the accuracy of a dynamic global solver designed to systematically compute multiple local optimal solutions in a tier-by-tier manner of deep neural networks.
- Analyzing its application on image / video-based object detection, identification and classification tasks.

On Pepper LLC **May 2020 – August 2020**

Software Engineering Intern – Voice Experience Team *New York, NY*

- Implemented reference Business Intelligence (BI) tool using NLP techniques such as sentence segmentation, POS tagging, dependency parsing and relation extraction, to gain insights on the company's fund asset data.
- Developed a chatbot for managing multiple user queries and internal app plugins via DialogFlow API and MongoDB for persistence; ran its A/B tests on 1000+ users which recorded retention rate for voice search engagement.
- Added authentication services to the Asset Analysis platform for handling multiple login requests.

TestAIng.com **June 2020 – July 2020**

Software Engineering Intern – Machine Learning Team *Remote*

- Designed and implemented a custom neural network architecture (CNN with BERT embeddings) in PyTorch capable of performing slot filling and intent classification task on user search queries with 97% accuracy.
- Applied Metamorphic testing to text classification models and evaluated their interpretability with LIME and SHAP.

ESnet, Lawrence Berkeley National Lab **May 2019 – August 2019**

Software Engineering Intern – Scientific Networking Team *Berkeley, CA*

- Built a dashboard capable of collecting service quality metrics, monitoring network security and allowing real time debugging on the network packets received from telemetry adapters, using Node, React and D3.js.
- Improved High Touch Services for Network engineers using Node and React. Impact: Improved rendering speed by 10x; added support for 100 Gbps data transfer and packet features filtering.

Swarm Robotix LLC **May 2018 – July 2018**

Software Engineering Intern – Sensor Software and Controls Team *Nokia Bell Labs, Naperville, IL*

- Successfully designed a localization system for autonomous mobile robots in ROS using C++ and implemented visual SLAM with distributed formation control for mapping unknown environment.
- Used Dynamic Window Approach Algorithms to improve existing pathing implementation by 67%.

PERSONAL PROJECTS

Waymo Open Dataset Challenge **April 2020 – May 2020**

- Trained a modified Cascade R-CNN on 600,000+ images, and improved the mAP scores of vehicles, cyclists and pedestrians by 40%, 25%, and 35% respectively.

Over-the-Air Deep Learning Based Radio Signal Classification **April 2020 – May 2020**

- Implemented 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.

React Weather App **December 2019**

- Developed a RESTful web app in React using OpenWeatherMap API that displays the current weather information of the queried location, storing data with Firebase.

HONORS & INVOLVEMENT

- **Honors:** Dean's List; Top 10% Kaggle in-class ML competition (2020); Second Place, Cornell Robotics Competition (2019); First Place, ECE Pulse Design Competition (2018); Top 5 Teams, Northwestern Hackathon (2017)
- **Involvement:** Teaching Assistant, CS4414: Systems Programming (2020); Research Assistant, Autonomous Systems Lab (2019); Research Assistant, WaggleNet (2018); ACSU (2018 – Present); IEEE (2018 – Present)

TECHNICAL SKILLS

- **Programming Languages:** Proficient: Java, C++, Python | Familiar: C, SQL, JavaScript, HTML, CSS, Go
- **Tools + Frameworks:** TensorFlow, PyTorch, MongoDB, MySQL, Node.js, React, Express, Docker, Git, CLI, Linux