Ishaan Thakur

Contact Information

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Education

Cornell University, Ithaca, NY — **December 2021**
M.Eng. + B.S. in Computer Engineering | Computer Science Minor — **GPA: 3.7**

Relevant Coursework: Algorithms, Systems Programming (TA), Deep Learning, Machine Learning, Computer Vision, Image Processing, OS, Networks, Data Structures, Applied Logic

Professional Experience

On Pepper LLC — New York, NY
Software Engineering Intern - Voice Experience Team — **May 2020 – August 2020**

- Implemented reference BI tool using NLP techniques such as sentence segmentation, POS tagging, dependency parsing and relation extraction, to gain insights on company's fund asset data.
- Developed a chatbot using React, DialogFlow and MongoDB that reduces average response time by 87%; ran its A/B tests on 1000+ users which recorded retention rate for voice search engagement.
- Improved and redesigned authentication service to allow integration with Auth0 for all employees and users for more secure requests, using JWT validation on the API gateway.

TestAIng.com — Remote
Software Engineering Intern - Machine Learning Team — **June 2020 – July 2020**

- Implemented a custom neural net model (CNN with BERT embeddings) in PyTorch, capable of performing slot filling and intent classification task on user search queries with 97% accuracy.
- Setup testing frameworks to audit text classification models and evaluated their interpretability with LIME and SHAP values.

ESnet, Lawrence Berkeley National Lab — Berkeley, CA
Software Engineering Intern - Scientific Network Team — **May 2019 – August 2019**

- Built a dashboard capable of collecting service quality metrics, monitoring network security and allowing real time debugging on network packets, using Node, React and Cassandra.
- 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 — Nokia Bell Labs, Naperville, IL
Software Engineering Intern - Sensor Software and Controls Team — **May 2018 – July 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%.

Research Experience

Chiang's Group, Cornell University — Ithaca, NY
Graduate Researcher, Advisor: Prof. Hsiao-Dong Chiang — **September 2020 – Present**

- 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 and classification tasks.

Project Highlights

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 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 $\sim 60\%$ 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%, Cornell's ML competition (2020); Second Place, Cornell Robotics Competition (2019); First Place, ECE Pulse Design Competition (2018)
Involvement: Outreach, ACSU (2018 – Present); Web Dev, IEEE (2018 – 19); Research Assistant, Autonomous Systems Lab (2019); Research Assistant, WaggleNet (2018)

Programming Experience

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