Ishaan Thakur

Contact Information

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Education

Cornell University — Ithaca, NY
M.Eng., Electrical & Computer Engineering (Early Admit) — **Exp. Dec 2021**
B.S., Electrical & Computer Engineering; Minor, Computer Science | GPA: 3.7 — **Exp. Dec 2020**

Relevant Coursework: Algorithms, Databases (IP), Systems Programming (TA), Machine Learning, Networks, Operating Systems, Data Structures, Optimization Theory (IP), Image Processing

Professional Experience

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

- Created an Enterprise Knowledge Graph for fund asset data using sentence segmentation, parsing dependency trees through NER, and relation/predicate extraction via spaCy's rule-based matching.
- Developed a chatbot for managing multiple user queries and internal app plugins via DialogFlow, MongoDB; ran A/B tests on 100+ users which recorded retention rate for voice search engagement.
- Added authentication services to the Asset Analysis platform for handling multiple login requests.

TestAIng.com — Remote
Software Engineering Intern - Machine Learning Team — **Jun 2020 – Jul 2020**

- Designed and implemented a custom neural-net model (CNN with BERT embeddings) capable of performing slot filling and intent classification task on user search queries with 97% accuracy.
- Evaluated interpretability of text classifiers and setup testing frameworks to audit ML models.

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

- 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.
- 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.

Autonomous Systems Lab, Cornell University — Ithaca, NY
Undergraduate Research Assistant — **Sep 2018 – Nov 2018**

- Collaborated with PhD students on developing a robust MATLAB GUI capable of receiving beacon information and range estimation over WiFi from a robot platform with an accuracy of 89%.

Swarm Robotix LLC — Nokia Bell Labs, Naperville, IL
Software Engineering Intern - Sensor Software and Controls Team — **May 2018 – Jul 2018**

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

WaggleNet, University of Illinois at Urbana-Champaign — Champaign, IL
Undergraduate Research Assistant — **Mar 2018 – May 2018**

- Built a data-logger in Arduino that reads and displays data from various sensors in a mesh network with an accuracy of more than 95%.
- Added features such as user mocking and Oauth single sign-on to the website for secure user login.

Project Highlights

Over-the-Air Deep Learning Based Radio Signal Classification

- Developed 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.

Automatic segmentation of brain MRI scans into anatomical ROI

- Implemented a multi-atlas segmentation strategy with majority voting based label fusion to perform automatic segmentation of middle coronal slices dataset extracted from brain MRI images.

Programming Experience

Languages: Proficient: Java, C++, Python | Familiar: C, JavaScript, HTML, CSS, Go, Verilog
Tools: Git, LaTeX, Cloud (AWS, Firebase), Databases (MongoDB, InfluxDB, MySQL), Web (Node.js, React, Express, Angular, WebSocket), Machine Learning (Keras/TensorFlow, PyTorch)

Awards + Involvement

Dean's List; Top 10% Kaggle in-class ML competition (2020); Second Place, Cornell Robotics Competition (2019); First Place, ECE Pulse Design Competition (2018); Completed Deep Learning Specialization [Andrew Ng] (2018); First Place, Innovation Idea fair, UIUC (2017); Top 5 teams, Northwestern Hackathon (2017); ACSU (2018 – Present); IEEE (2017 – Present)