TARANG SHAH

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Education

Carnegie Mellon University - School of Computer Science (Robotics Institute) — *Pittsburgh, PA*

MASTER OF SCIENCE IN ROBOTIC SYSTEMS DEVELOPMENT — *Aug 2019 - May 2021*

- 4.17 GPA; Relevant Courses: Computer Vision, Visual Learning & Recog., Systems Engineering, Robot Autonomy
- Capstone – Simulating realistic behavior for traffic agents by learning from real world video data, used for realistic testing of autonomous vehicles software. Using vision and imitation learning

BITS Pilani (Birla Institute of Technology & Science, Pilani) — *Pilani, India*

BACHELOR OF ENGINEERING IN ELECTRONICS AND INSTRUMENTATION — *Aug 2011 - May 2015*

- Worked on various cross discipline projects and courses
- Projects included Gesture Recognition, Humanoid Robotics, Computer Vision, Machine Learning, Electronics

Work Experience

HERE Technologies — *Mumbai, India*

SENIOR DATA SCIENTIST — *Jul 2019 - **Aug 2019***

SENIOR SOFTWARE ENGINEER — *Oct 2018 - Jun 2019*

- Built deep learning based vision models and tools to automate extraction of map data from street images at the Map Creation team
- Trained and deployed object detection models for detecting 300+ traffic signs in street images using TensorFlow Object Detection framework (based on Faster-RCNN, SSD). Helped increase Recall and Precision to 80%+. Deployed on cloud and mobile products
- Designed & implemented software for smart sampling of training data across multiple classes for reducing bias and balanced training
- Built proof-of-concept for multimodal models with image & map data. Awarded 'Significant Development' prize (cash prize) for patentable IP
- Prototyped hazard detection models for mobile phones as 20% project, now launched as a new product HERE LiveSense SDK
- Designed & built cloud-based systems to automate data prep, training & evaluation of computer vision models, saving 4X time &reducing errors

SOFTWARE ENGINEER II — ***Apr 2017** - Sep 2018*

- Managed tools and systems for training data storage(images), annotation and sampling, including designing active learning with feedback
- Designed, built and deployed a service for highway sign parsing (OCR, scene text and icon extraction) and reduced human effort by 5X per user
- Recognized multiple times with 'Star Of the Month' and 'Innovation Awards'

Octoloop Systems — *Gurgaon, India*

CO FOUNDER — *Apr 2016 – Mar 2017*

- Octoloop Systems built robots for industries and warehouses. Involved in all aspects of early stage technology ventures.
- Built an industrial robotic arm for automated Pick and Place tasks in factories and warehouses. Y-Combinator W2017 onsite interviewee

Hullo Inc — *Mumbai, India*

SOFTWARE ENGINEER — *Oct 2015 - Mar 2016*

- Implemented server with audio routing, and a parse-server like datastore (improving call latencies by 5x)
- Rearchitectured backend services to add auth and verification for clients also implemented MQTT Push notifications

Qualcomm Inc — *Hyderabad, India*

ENGINEER — *Jul 2015 - Sep 2015*

- Implemented code for dynamic updating of tuning parameters for camera focus, as campus recruit

HERE Technologies — *Mumbai, India*

INTERN — *Jan 2015 - Jun 2015*

- Designed and developed a web GeoJSON editor using Openlayers and OSM

Projects

Team AcYut, CRIS, BITS Pilani — *Pilani, India*

SENIOR MEMBER AND LEAD (COGNITION AND ELECTRONICS) — *Sep 2011 - Dec 2014*

- Team AcYut has built India's first Autonomous Humanoid robot and was sponsored by the Government of India[***INR 4.5Mil***]
- Built subsystems for cognition and vision for soccer playing robot AcYut from 2011 to 2014. Represented India at Robocup 2013, Netherlands and Robocup 2012, Iran

Publications & Awards

PUBLICATIONS

Robust gesture recognition using Kinect: A comparison between DTW and HMM, Optik - International Journal for Light and Electron Optics – 2015

AWARDS

2019 - **Significant Development IP Award**, Award from Patent board for POC on hybrid deep learning models. *Here Technologies*

2018 - **Innovation Award**, For successful approval of mobile vision deep learning POC to production *Here Technologies*

2013 - **4th Place**, Autonomous Humanoid Robot Soccer - Teen Size, Robocup *Netherlands*

Skills

Programming: Python, C++, JavaScript, JAVA, C

Vision/ML/Data Science: Pandas, PyTorch, TensorFlow, Jupyter, OpenCV

Web: HTML, CSS, NodeJS, Express