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

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*

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

- 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 & built cloud-based systems to automate data prep, training & evaluation of computer vision models, saving 4X time &reducing errors
- Designed & implemented software for smart sampling of training data across multiple classes for balanced training
- Managed tools and systems for training data storage(images), annotation and sampling, including designing active learning with feedback
- Built proof-of-concept for multimodal models with image & map data. Awarded 'Significant Development' prize (cash prize) for patentable IP
- Designed, built and deployed a service for highway sign parsing (OCR, scene text and icon extraction) and reduced human effort by 5X per user
- Prototyped hazard detection models for mobile phones as 20% project, now launched as a new product HERE LiveSense SDK
- 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 and wrote software for cognition, vision and controllers for soccer playing AcYut 4, 5, 6 and 7 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