

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

Main Courses: Computer Vision, Deep Learning, Visual Learning & Rec, Computer Graphics, Geometric Vision; 4.08 GPA

BITS Pilani (Birla Institute of Technology & Science, Pilani)

Pilani, India

BACHELOR OF ENGINEERING IN ELECTRONICS AND INSTRUMENTATION

Aug 2011 - May 2015

Work Experience

Argo AI

Pittsburgh, PA

SOFTWARE ENGINEER INTERN

Jun 2020 - Aug 2020

- Developed pipeline for associating external map data with internal HD Map format (geospatial matching)
- Optimized speed and memory for processing dataframes to reduce processing speed from ~100 hours to ~30 mins
- Enhanced object-detection pipeline to extract raw results on unlabeled data to estimate data importance (cloud data retrieval and inference)

CMU – General Motor Autonomous Driving Collaborative Research Labs

Pittsburgh, PA

RESEARCH ASSISTANT

Nov 2019 - May 2020

- Worked on curb detection using ultrasonic sensors and road boundary detection to improve LIDAR based methods

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%+.
- Automated training data sampling process from different sources for object detection models
- Designed and built cloud-based pipelines for detection model training and evaluation, using cost optimized cloud infra (AWS)
- Developed hazard detection models for mobile phones as 20%-Time project, now launched as a new product HERE LiveSense SDK

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'

Octoloo Systems

Gurgaon, India

CO FOUNDER

Apr 2016 – Mar 2017

- Octoloo Systems built robots for industries and warehouses. Involved in all aspects of an early stage technology startup.
- 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)

Projects

MRSD Capstone Project – Simulation of Realistic Behavior for Traffic Agents

Pittsburgh, PA

SOFTWARE ENGINEERING & PROJECT MANAGEMENT

Jan 2020 - Dec 2020

- Simulating realistic behavior for traffic agents by learning from real world video data.
- Built computer vision pipeline for detecting and tracking vehicles from traffic camera videos to bird's eye view
- Managing and tracking the project progress and team tasks for 5-member team

Team AcYut, CRIS, BITS Pilani

Pilani, India

SENIOR MEMBER AND LEAD (SOFTWARE SYSTEMS AND ELECTRONICS)

Sep 2011 - Dec 2014

- Team AcYut built India's 1st Autonomous Humanoid robot. Represented India at Robocup 2013. Sponsored by Govt of India for INR 4.5M

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 map and image 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

Cloud: Compute, Storage, Autoscaling infra (EC2, EC2 Spot, S3, Lambda, ECS) **Web:** HTML, CSS, NodeJS, Express