DEVESH DATWANI

GRADUATE ROBOTICS ENGINEERING STUDENT
WORCESTER POLYTECHNIC INSTITUTE, WORCESTER, MA

OBJECTIVE

Seeking for full time co-op positions roles in machine learning / perception

LANGUAGES

Python 3+ ● C++/C ● MATLAB

TECH STACK

ROS 1 & 2 ● Git ● OpenCV ● TensorFlow
Numpy & Keras ● PyTorch ● Django
Linux ● SolidWorks ● AutoCad ● AWS

EDUCATION

MS IN ROBOTICS ENGINEERING
WORCESTER POLYTECHNIC INSTITUTE
WORCESTER, MA | AUG 2021 - MAY 2023

KEY COURSES: Artificial Intelligence Machine Learning ● AI For Autonomous Vehicles ● Robot Control ● Robot Dynamics

BE IN MECHANICAL ENGINEERING
APSIT MUMBAI UNIVERSITY
MUMBAI, INDIA | AUG 2014 - MAY 2018

NOTABLE ACHIEVEMENT: Received the "Young Innovator" award for research on Plasma Actuators at the ICASTe conference

THESIS/PERSONAL PROJECT

PLASMA ACTUATORS [DOC]
AUG 2017 - MAY 2018 | MUMBAI UNIVERSITY
INDIAN INSTITUTE OF TECHNOLOGY
PATENT APP NO. 201921038313

- Spearheaded a team of 4 to design a research project to induce & actuate airflow with plasma actuators
- Designed and constructed a plasma actuator inside hollow PVC pipes
- Conducted experiments at the Aerospace Department of IIT Bombay
- Recorded air flow of ~9000 liters/hr

AERIAL VEHICLE AUTONOMY [DOC]
2011 - 2019 | MUMBAI

- Designed, fabricated and tested semi-autonomous aerial vehicles
- Built fixed-wing & multi rotor aircraft
- Developed a PID for cruise control
- Gained hands on experience in building aerial vehicles after 20+ successful designs in 8 years

LINKS

https://github.com/deveshdatwani
http://www.linkedin.com/in/deveshdatwani
http://www.deveshdatwani.com/

EXPERIENCE

ADMATAZZ | DATA/ML ANALYST
DEC 2019 - DEC 2020 | MUMBAI

- Built end to end data analysis applications for market research analysis with Tensorflow, Python & AWS
- Built training pipelines for training models on primary datasets
- Built web crawling tools for real time data acquisition from social media platforms such as Twitter, Reddit & ProductHunt
- Helped clients boost annual revenue growths by ~5% on average

SURFACE METROLOGY LAB | GRADUATE RESEARCHER
JAN 2022 - MAY 2022 | WPI

- Carried out multi scale analysis of materials under Prof. Brown to build vision based techniques for surface property analysis
- Experimented with different machine learning techniques to predict surficial properties at different tessellation scales
- Contributed to building software functionalities for MS analysis

SPACE GOAT | DESIGN & PERCEPTION ENGINEER
SEP 2021 - JAN 2022 | WPI

- Represented WPI in a 15 member team at the NASA Big Idea Extreme Terrain Challenge 2022 and competed with 100+ schools
- Actively contributed to the mechanical design of the rover
- Built an OTM capstone clutch mechanism for power distribution
- Integrated IMU and ultrasonic sensors with the rover and contributed to the firmware code for robot perception

ACADEMIC PROJECTS

HUMAN BODY POSE ESTIMATION WITH CNN [GITHUB]
MAR 2022 - MAY 2022 | WPI

- Implemented the DeepPose paper from scratch to estimate human body pose in 2D with Tensorflow in Python
- Built a training pipeline and trained a cascaded VGG16 for regression task on the FLIC dataset through Google Colab
- Observed accuracies of ~70% on PCP configurations

TRAFFIC SIGN DETECTION WITH MASK R-CNN [GITHUB]
SEP 2021 - DEC 2021 | WPI

- Trained the Mask R-CNN model on a customized traffic sign dataset with Tensorflow & OpenCV in Python
- Implemented adaptations to the Mask R-CNN's RPN to enhance its performance in the task of traffic sign detection
- Achieved mAP values of 0.35 on val set by training the model on a dataset augmented by motion blur and condensation effects

URBAN STREET SEGMENTATION WITH UNET [GITHUB]
MAR 2022 - MAY 2021 | WPI

- Built and trained a customized UNet with PyTorch for urban street segmentation for perception task of autonomous vehicles
- Built a Resnet18 architecture for the encoder to enhance accuracy & experimented with with CNN model pruning
- Built a training pipeline to experiment with the ResNet and VGG16 architectures and achieved ~75% recall on CityScape data

AGENT MOTION PREDICTION WITH RESNET50 [GITHUB]

- Trained a ResNet50 architecture in Tensorflow for predicting agent motion in urban scenes to aid autonomous path planning
- Built a customized training pipeline and tailored the model to be trained on Lyft's Level 5 prediction time-stamped data