

# DEVESH DATWANI

ROBOTICS **ENGINEER**  
WORCESTER, MA

## OBJECTIVE

Seeking for full time co-op positions in the space of computer vision and/or robot perception

## SKILLS

### LANGUAGES

Python 3+ • MATLAB • C/C++

### SOFTWARE STACK

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

### HARDWARE STACK

Arduino Uno • Raspberry Pi 3 B

### EXPERTISE

Deep Learning • Computer Vision  
Machine Learning • Robot Perception

## EDUCATION

### MS IN ROBOTICS ENGINEERING

WORCESTER POLYTECHNIC INSTITUTE  
WORCESTER, MA | AUG 2021 - MAY 2023

KEY COURSES: Machine Learning • Robot Control • Computer Vision • Artificial Intelligence • AI For Autonomous Vehicles  
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

## CERTIFICATION

Python Programming • Robotics: Aerial Vehicles • Applied Machine Learning  
Introduction To Self Driving Cars  
Deep Learning Specialization

## LINKS

<https://github.com/deveshdatwani>  
<http://www.linkedin.com/in/deveshdatwani>  
<http://www.devshdatwani.com/>

## CONTACT

dbdatwani@wpi.edu  
(978) 809-5026

## LATEST EXPERIENCE

### SPACE GOAT | DESIGN & PERCEPTION ENGINEER

SEP 2021 - JAN 2022 | WPI, WORCESTER, MA

- Competed at the NASA Extreme Terrain Challenge 2022 to build a Mars rover while representing WPI
- Actively contributed in the design of a Martian rover encompassing a novel OTM capstone clutch mechanism
- Integrated sensors with the rover and contributed to the firmware code for rover-environment-perception and pose estimation by implementing statistical filtering algorithms on sensor data

## CAPSTONE PROJECT

### QUADCOPTER NAVIGATION | RESEARCH ASSISTANT

AUG 2022 - PRESENT | WPI, WORCESTER, MA

- Developing a swarm of mini-quadcopters to navigate through dense spaces like forests & buildings to aid rescue missions under Professor Nitin Sanket
- Building GPS-free quadcopters the size of sunflowers that solely rely on visual perception to navigate challenging environments
- Attempting to build a neural network-based perception stack

## RESEARCH PROJECT

### AIRFLOW INDUCTION WITH PLASMA ACTUATORS [DOC]

2017 - 2018 | ASPIT, MUMBAI UNIVERSITY

- Designed and led a research project on plasma actuators to induce air flow without the use of any moving elements
- Designed and fabricated a plasma actuator inside hollow pipes powered by a high voltage-high frequency transformer
- Observed & recorded wall-bounded jet air flow of ~ 9000 liters/hr during experiments at the aerospace department of IIT, Bombay

## ENGINEERING PROJECTS

### HUMAN POSE ESTIMATION WITH CNN [GITHUB]

MAR 2022 - MAY 2022 | WORCESTER POLYTECHNIC INSTITUTE

- Implemented the DeepPose paper to build a convolution neural network for estimating human-body pose in 2 dimensions
- Created a TensorFlow pipeline to fetch and load the FLIC dataset and train an AlexNet on a Google Colab notebook
- Recorded mean squared error values of ~ 400

### TRAFFIC SIGN DETECTION WITH MASK R-CNN [GITHUB]

SEP 2021 - DEC 2021 | WORCESTER POLYTECHNIC INSTITUTE

- Implemented adaptations to the Mask R-CNN network to enhance its performance in detecting traffic signs
- Augmented a dataset of 10,000+ traffic sign images (motion blur and condensation) to improve model robustness in adverse weather conditions
- Helped enhance mAP value of the model from 0.05 to 0.25

### AERIAL VEHICLE DESIGN [DOC]

2011 - 2020 | MUMBAI, INDIA

- Designed, fabricated and flight-tested remote operated and semi-autonomous fixed-wing planes and quad copters
- Combined various power-plant, wing, composites and electronic, microcontroller and sensor configurations in the 100+ test flights
- Gained hands on experience working with open source firmware for reaching semi and sometimes full autonomy during flights