BHAVESH PARKHE

1040 North Pleasant Street, Amherst, MA 01002
Contact: bparkhe@umass.edu • Portfolio: bparkhe.github.io • LinkedIn: linkedin.com/in/bparkhe

EDUCATION

University of Massachusetts Amherst, Amherst, MA Feb 2020
Master of Sciences in Mechanical Engineering
GPA:3.7/4.0
Relevant Courses: Applied Data Analysis, Advanced Numerical Analysis, Embedded Systems

University of Mumbai, Mumbai, India Aug 2014
Bachelor of Engineering in Mechanical Engineering

Thakur Polytechnic, Mumbai, India Jul 2011
Diploma (Associates) in Mechanical Engineering

Udacity (Trainings)
C++ Nanodegree Program May 2020
Autonomous Vehicle Engineer Nanodegree Program Mar 2020

RESEARCH & RELEVANT PROJECTS

Autonomous Vehicle Engineer Nanodegree Program Sep 2019 - Mar 2020
Udacity
This program was aimed at identifying challenges associated with modern-day self-driving cars and implementing some of the most common algorithms that are being used to solve them.

- Perception: Identified lanes from camera input stream using Sobel filter and HSV color thresholds.
- Localization: Performed sensor fusion of radar and lidar data with Extended Kalman Filters & Particle Filter.
- Control:
  Performed online estimation and implementation of PID controller gains for steering control.
  Used Deep Learning (LeNet) to train steering control and perform maneuvers based on lane images.
  Used Model Predictive Control to minimize error accrued while following planned driving trajectories.
- Integration: Integrated above functions using ROS and tested the implementation on CARLA simulator.

Graduate Student Researcher May 2018 - Dec 2019
Intelligent Sensing Lab, UMass Amherst

- System identification of roll-to-roll flexible electronics printing (Independent Study)
  Used state-space system identification to produce a physical model used for predicting tension and speed of the substrate traveling over conveyor rolls.
- Drilling tool failure prediction using machine learning
  Performed data acquisition and processing of machine vibration using NI DAQ, Labview and MATLAB.
  Attributed the vibration features to different tool failure characteristics and achieved a 95% tool failure detection rate in test data.
- Fault detection in semiconductor etching process using Statistical Process Control (SPC)
  Analyzed semiconductor etching process data and classified them using Principal Components Analysis (PCA).
  Identified faults in the etching process of 129 wafers across three different experiments with 92% accuracy.

Undergraduate Participant Sep 2013 - May 2014
Capstone Project Competition, University of Mumbai

- Computational and experimental analysis of Vortex Tube
  Designed and fabricated a Ranque Hilsh vortex tube with a test rig for acquiring process parameters.
  Analyzed the correlation between temperature drop and outlet valve geometries using CFD simulation and experimental data.

PROFESSIONAL EXPERIENCE

Mechanical Design Engineer Nov 2014 - Jun 2017
TAAL Technologies, Bangalore, India

- Designed Volkswagen and BMW exhaust system prototypes for a major emission systems client; used the CATIA Surface module to design cold-end components like muffler outer shells, internal pipes,etc.

Graduate Intern Sep 2014 - Oct 2014
AECOM, Mumbai, India

- Designed sustainable HVAC systems following IGBC Platinum energy efficiency certification standards.

PRESENTATIONS

Computational and Experimental Analysis of Vortex Tube Dec 2014
International Conference on Fluid Mechanics and Fluid Power 2014, IIT Kanpur, India

AWARDS & HONORS

First Place, Genius-X Institute-Level Project Competition Apr 2014
'Computational and Experimental Analysis of Vortex Tube'
Don Bosco Institute of Technology, University of Mumbai

Second Place, ACREX National-Level Engineering Quiz Jan 2014
Indian Society of Heating Refrigeration Air-conditioning Engineers (ISHRAE), New Delhi, India

SERVICE

Volunteer, International Student Orientation Aug 2018, Aug 2019
International Programs Office, UMass Amherst

Volunteer Jan 2017 – May 2017
Greenpeace India-South Zone, Bangalore, India