BHAVESH PARKHE

bparkhe.github.io * linkedin.com/in/bparkhe * bparkhe@umass.edu

EDUCATION

University of Massachusetts Amherst **December 2019**
M.S. in Mechanical Engineering, (GPA – 3.64/4.00)
Thesis : Identification and control of Roll-2-Roll flexible electronic printing process

University of Mumbai, India **August 2014**
B.Eng. in Mechanical Engineering, (Grade: First Class)
Thesis : Computational and experimental analysis of temperature separation in vortex tube

SKILLS

Programming Skills	: MATLAB, C, Python, Git, OpenCV
CAD Tools	: CATIA V5, CREO Parametric, Solidworks
Other Tools	: ANSYS Structural, OpenFAST, NI LabView
Other Skills	: Finite Element Analysis, System Identification, Raspberry Pi, Arduino
Certifications	: Udacity Self Driving Car Nanodegree (Ongoing)

RELEVANT PROJECTS

System Identification and Predictive Control in Roll to Roll Printing **Ongoing**
Intelligent Sensing Lab, UMass Amherst
- Performed system identification of control parameters for micron-scale roll to roll printing of flexible electronics
- Computed a black box model and simulated the process with 93% accuracy which enabled implementation of predictive control algorithms

Advanced Lane Finding using OpenCV **August 2019**
Self Driving Car Nanodegree, Udacity
- Used Hough Transform, Sobel gradients, distortion correction and HLS color thresholding to segregate lane pixels
- Identified lane pixel windows using Gaussian smoothing and fitted polynomials to measure lane curvature
- Successfully implemented the algorithm on complex road sections with shadows and deformities in the road

Autonomous Bot for MIT Duckietown **Fall 2018**
Embedded Systems Coursework, UMass Amherst
- Designed an autonomous bot with lane navigation and path planning capabilities to navigate through checkpoints in a miniature town (MIT's Duckietown Project - duckietown.org)
- Successfully demonstrated lane finding and pedestrian detection alongside 6 other bots with zero accidents

Drilling Tool Failure Prediction using Machine Learning **Fall 2018**
Intelligent Manufacturing Coursework, UMass Amherst
- Performed data acquisition and processing of machine vibration using NI DAQ 6000, Labview and MATLAB
- Extracted features, attributed it to different tool failure modes using statistical quality control and machine learning which resulted in a 95% failure detection accuracy in test data

Fault detection in semiconductor etching process **Fall 2018**
Intelligent Manufacturing Coursework, UMass Amherst
- Analyzed semiconductor etching process data and classified them using Principal Components Analysis (PCA)
- Successfully identified faults in the etching process of 129 wafers in three experiments with 92% accuracy

Advanced Numerical Analysis Coursework **Fall 2018**
Intelligent Manufacturing Coursework, UMass Amherst
- Performed a comparative analysis of numerical algorithms for dynamics systems and fluid mechanics to improve their accuracy, speed and computational efficiency
- Successfully implemeted multiple iterative algorithms while analyzing their utilization of memory to perform computationally expensive numerical operations

Vibration analysis of Roll-to-Roll printing **Fall 2018**
Intelligent Sensing Lab, UMass Amherst

- Involved in procurement and installation of sensors and supporting equipment for vibration measurement
- Analyzed vibration data from the components in machine structure to characterize its static and dynamic behavior

INDUSTRIAL EXPERIENCE

Design Engineer **November 2014 – June 2017**
TAAL Technologies, Bangalore, India

- Designed Volkswagen and BMW exhaust systems using CATIA v5 for a major emission systems manufacturer
- Brainstormed 2 new concept designs for the rear muffler with the onsite plant engineers and successfully advanced them to the production stage
- Performed rigorous quality checks and maintained appropriate best practices documentation which resulted in a 100% positive feedback over 8 quarters

Graduate Intern **November 2014 – June 2017**
AECOM, Mumbai, India

- Designed sustainable HVAC systems for a commercial establishment in Mumbai while implementing IGBC standards for Platinum energy efficiency certification
- Evaluated heat load and air flow rate (cfm) for HVAC systems using HAP, Trace 700 and Carrier Load Charts