

AFROZ KHAN MOHAMMED

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EDUCATION

Northeastern University, Boston, MA

April 2020

Masters of Science in Mechanical Engineering, Concentration in Mechatronics

Courses: Digital Signal Processing, Modern Signal Processing, Assistive Robotics, Mechatronic Systems, Computer Vision, Machine Learning and Pattern Recognition, Robot Sensing and Navigation, Robot Mechanics and Control, Control Systems Engineering, and Dynamics and Mechanical Vibration.

Activities: Intramural Sports Official, Teaching Assistant – Statics (ME-2350)

Kalinga Institute of Industrial Technology, Bhubaneswar, OR

April 2015

Bachelor of Technology in Mechanical Engineering

Activities: Varsity team basketball player (runner-up at 'All India Central Zone University Basketball' tournament 2013)

PROFESSIONAL EXPERIENCE

SharkNinja Operating LLC, Needham, MA

January 2019 - August 2019

Product Development, Mechanical Engineer Co-op

- Developed test methods involving design of test fixture, use of programming languages and machine shop operations.
- Tested prototypes of robotic vacuum cleaner for operational performance.
- Performed root cause analysis and communicated critical data across teams.
- Analyzed consumer surveys and insights to optimize test data and used them to generate test protocols.
- Performed verification and validation activities of test protocols.

Volvo Trucks India, Bangalore, India

July 2015 - September 2016

Site Engineer

- Performed hands-on analysis of vehicle aggregates such as engine, gearbox, and differential axle.
- Ensured availability of trained manpower and adequate infrastructure at sites.
- Adhered to site process such as preventive maintenance, fleet upkeep and availability of parts.
- Provided timely input to customers on better operating maintenance practices of trucks, therefore reducing the maintenance cost and fuel consumption.

Field Robotics Lab, Northeastern University, Boston

May 2018 - June 2018

Graduate Student Assistant

- Reconditioned and tested under-water vehicle used for exploring seabed.
- Gained exposure to ROS-based system software architecture of autonomous vehicles.

PROJECTS

Human Gait Analysis using inertial measurement and optical sensors - Assistive Robotics (EECE – 5552) (2019)

- Calculated joint angle progression between shank and knee for a human walk motion, by fusing accelerometer and gyroscope data from a pair of inertial measurement sensors mounted on limbs.
- Obtained lower body joint angles from a video with the help of a human pose estimation package and used it to generate Gillette Gait Index, as a summary for gait analysis.

Comparison and Modelling of vehicle suspension systems- Assistive Robotics (EECE – 5552) (2019)

- Modelled and compared hydraulic and magnetorheological vehicle suspension systems for various road profiles in MATLAB.

Automated test data collection and its processing for robotic vacuums, SharkNinja Operating LLC

- Tracked robot's position coordinates from test videos using a neural network and used them as pass/fail criteria for various tests with a 98% of accuracy.

SKILLS

Programming Languages

C++, MATLAB, Python, & Arduino

Packages

OpenCV, ROS & CUDA (beginner)

Software & Tools

AutoCAD, Minitab & MS Office

Hands-on

Advanced repair of heavy-duty off-road trucks & autonomous under-water vehicles