MAYURESH SAVARGAONKAR

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INDUSTRIAL ENGINEER WITH 2+ YEARS OF INDUSTRY AND 4+ YEARS OF RESEARCH EXPERIENCE

Education

Ph.D. in Industrial Engineering (GPA: 4.0)
University of Michigan - Dearborn **Sep '19 - Apr '23**

Master's in Industrial Engineering (GPA: 4.0)
University of Michigan - Dearborn **Sep '16 - Apr '18**

Bachelor's in Mechanical Engineering (GPA: 3.9)
University of Pune (India) **Jun '11 - May '15**

Technical Skills

Python, MATLAB, R, AutoCAD, Unreal Engine, CATIA V5R16, ANSYS, MS Office, Tableau, TensorFlow, Keras, PyTorch, Git, Deep Learning, Computer Vision, Bayesian Learning, Text Analytics, Design of Experiments.

Employment

Graduate Student Research Assistant- Informatics and Data Analytics Lab (IRDA)
University of Michigan - Dearborn **Sep'19 – Present**

Project: Integrating Infrastructure Information in Autonomous Vehicles for Increased Robustness
- Proposed a synthetic self-driving dataset that promotes use of V2I strategies for safer autonomous driving.
- Developed a GAN-based trajectory prediction algorithm in PyTorch that integrates V2I and V2V information.
- Developed a browser-based scenario generation platform that generates, saves and tags self-driving sensor information along with V2I and V2V messages based on user requirements.

Project: SOTIF and Virtual Verification and Validation of Autonomous Vehicles
- Co-PI of an industry sponsored project tasked to improve the reliability of AVs using Software-in-Loop testing.
- Developed active learning synthetic scenario generation tools for SIL and HIL testing under ISO 21448 and UL4600.
- Developed safety metrics for data-driven and automated realization of 'high-risk' autonomous driving scenarios.
- Proposed statistical improvements to increase realization of safety readiness in autonomous vehicles.

Project: Browser-based GUI for On-demand Generation of Synthetic Autonomous Vehicle and Sensor Data
- Developed a browser-based data generation GUI that generates, saves and tags self-driving sensor information along with V2I and V2V messages based on user requirements.
- Developed GUI can query, filter and replicate interesting scenarios with additional sensors per user requirements.
- The GUI can pin-point and replay interesting scenarios with expanded distributions for verification purposes.
- The developed GUI eliminates the learning curve associated with a self-driving simulator.

Project: Bayesian models for Warranty Analytics
- Developed a Conditional Gaussian mixture model that predicts warranty claims with a 2% error over 18 months.
- The developed model identifies non-parametric temporal warranty trends and automatically clusters products into latent groups to establish an effective prior joint distribution based on robust Bayesian theories.

Project: AI-driven models for Prognostics in Li-ion batteries
- Developed several AI models for online and robust SOC estimations in Li-ion batteries with over 99% accuracy.
- Leading a team of 3 to design, develop and verify models for degradation and age modeling in Li-ion batteries.

Research Summer Intern
Ford Motor Company (Dearborn, MI; Palo Alto, CA) **Jun '21 - Aug '21**

Project: Developing Synthetic Test Capabilities for Ford's L4 Highway Pilot Feature
- Developed pythonic UDP and ROS2 communication package for interfacing an ADS with CARLA simulator.
- Developed and deployed framework for corner-case realization within self-driving stacks.
- Replicated Camera, Lidar, and radar sensor outputs for real-time communication with driving policies.
- Developed OpenDrive maps to test communication interface.

Industrial Engineering Program Manager
Production Modeling Corporation (Dearborn, MI) **May '17 - May '19**

Project: Cost, Value, and Feasibility analysis for Stellantis, Ford, BMW, and Volvo Laser /Lidar Scanning Programs.
- Reduced scanning and modeling defects by over 20% using Lean techniques for continuous improvement.
- Managed a team of 6 for design and development of parametric conveyor models in CAD (Inventor).

Project: Project Planning and Cost Control of Outsourced Projects
- Used Agile methods for project liaisons between India, Mexico and USA, saving > 100hrs/month of redundancy.
- Responsible for creating risk mitigation plans and root cause analysis to avoid delays using a new 5 Why's system.

Research Assistant- Additive Manufacturing
University of Michigan - Dearborn **Sep '16 - May '17**

Project: Electrode 3D printing using Direct Metal Deposition
- Assisted in developing innovative 3D printed electrodes: Designed and developed a heated roller prototype for the process using DFA/M principles. Contributed towards the development of a multi-level BOM for the project.
- Conducted chemical analysis using the design of experiments to analyze factor interactions using statistical analysis.

Assistant Systems Engineer
Tata Consultancy Services (India) **Dec '15 - Jul '16**

Project: Technical Support to Rolls Royce, Derby, UK- Trent XWB Program
- Assisted in the development and maintenance of DVP&R and APQP activities such as PFMEA and GD&T.

Project: Development of 'Axillary' crutches
- Team lead for the project, overviewing data capture and requirement analysis for prototype build.

Publications, Awards and Memberships

Publications: 9 - Research Page (6 Conference and 3 Journal; Three journal papers under review)

Awards: Dearborn Difference Maker 2022, Finalist: IISE-QCRE Best student paper 2020, Graduate Student Scholarship (2016-2018), Ph.D. Student Sponsorship (2019-2023)

Memberships: President IISE Dearborn Chapter, Treasurer Alpha Pi Mu-Dearborn Chapter, Steward- Graduate Employee Organization at UM-Dearborn, IEEE, QCRE, INFORMS