Anjali Parashar

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Google Scholar

Research interests

Model Validation & Testing, Bayesian inference, Sequential decision making, Control theory, optimization theory
Looking for internships in Robotics, Autonomous systems for Summer 2026.

Education

- **Massachusetts Institute of Technology** — Advisor: Prof. Chuchu Fan
  PhD, Robotics, REALM — *June 2023 - On-going*
- **Massachusetts Institute of Technology** — Advisor: Dr. Anuradha Annaswamy
  M.S. in Mechancial Engineering, Active Adaptive Control Lab, MIT — *Aug 2021 - May 2023*
- **Indian Institute of Technology, Indore** — Advisor: Prof. Santhakumar Mohan
  Bachelor of Technology in Mechanical Engineering — *August 2016-Dec 2020*

Work Experience

- **John Deere Pvt. Ltd. (ETEC)** — India
  Graduate Engineering Trainee — *July 2020 - March 2021*
  - **Factory Automation (FA) team, Robotics Technology Group**: Delivering automation-driven solutions to the factories and warehouses of John Deere. Worked on the design and software development of mobile robots (AMRs and AGVs) for deployment in factories.

Research Experience

- **PhD Thesis**: Developing benchmarking tools for cost-aware evaluation, and failure discovery of real-world autonomous systems using Bayesian Experimental Design (BED) and optimization (BO) and qualitative investigation via LLMs. Work presented at ICRA 2025 [Website], Neurips Bayesian Decision Making and Uncertainity Workshop 2025 [Website], CoRL 2025 [PDF].
- **M.S. Thesis**: Developed framework for implementation of accelerated algorithms for solving constrained convex optimization problems with an application in autonomous flight control and optimal power flow (OPF) problems. Work presented at CDC 2022, ACC 2023. [Thesis PDF]
- **B.Tech Thesis**: Fault Tolerance Control with trajectory tracking backstepping control of underactuated AUV, verified robustness of controller to oceanic currents, validated performance using MATLAB simulations [PDF]

Publications

- **CoRL (2025)**: A. Parashar, J. Zhang, Y. Li, C. Fan,"Cost-aware Discovery of Contextual Failures using Bayesian Active Learning" [PDF]
- **Neurips BDU Workshop (2024), Allerton (2025)**: A. Parashar, J. Zhang, K. Garg, C. Fan, "Failure Prediction from Limited Hardware Demonstrations" [Website]
- **TRO (2025)**: C. Dawson, A. Parashar, C. Fan,"RADIUM: Predicting and Repairing End-to-End Robot Failures using Gradient-Accelerated Sampling" [PDF]
- **RA-L (2024), ICRA (2025)**: A. Parashar, J. Yin, C. Dawson, P. Tsiotras, C. Fan, "Learning-based Bayesian Inference for Testing of Autonomous Systems" Website
- **TMLR (2025)**: T.E. Gibson, S. Acharya, A. Parashar, J.E. Gaudio, A.M. Annaswamy,"On the stability of gradient descent with second order dynamics for time-varying cost functions" [PDF]
- **ACC (2023)**: A. Parashar, P. Srivastava, A.M. Annaswamy, "Accelerated Algorithms for a Class of Optimization Problems with Equality and Box Constraints" PDF
- **CDC (2022)**: A. Parashar, P. Srivastava, A.M. Annaswamy, "Accelerated Algorithms for a Class of Optimization Problems with Constraints" [PDF]
- **Journal of Ocean Engineering, Science Direct (2020)**: J. Kadiyam, A. Parashar, S. Mohan, D. Deshmukh, "Actuator fault-tolerant control study of an underwater robot with four rotatable thrusters" [PDF]

Skills Summary

- **Courses**: Bayesian inference and modelling, Machine Learning, Real Analysis, Stochastic systems, Nonlinear Control, Identification, Estimation & Learning.
- **Software**: Python, HTML/CSS, MATLAB, ROS & associated tools, Airsim, Simulink, CARLA, Webots
- **Hardware**: F1-Tenth, UR3E, Turtlebots

Honors and Awards

- Recipient of Travel Support Grant for CoRL 2025 conference
- Recipient of IEEE Student Travel Support Grant for CDC 2022 conference
- Received Siemens Fellowship for Master's Thesis (2021-22)
- Receipient of NTSE scholarship awarded by Govt of India for high school education and undergraduate degree (2014-20)