Jayesh Nagpal

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Education

- *Ph.D. – Computer Science*   *August 2024 - Present*
  - ARIZONA STATE UNIVERSITY, *TEMPE, AZ, USA*
  - *GPA: **3.44/4.00***
- *Master of Science – Robotics and Automation Systems (Mechanical and Automation Engineering)*   *August 2022 – Summer 2024*
  - ARIZONA STATE UNIVERSITY, *TEMPE, AZ, USA*
  - *GPA: **3.44/4.00***
- *Bachelor of Technology – Mechanical and Automation Engineering*   *August 2018 – June 2022*
  - MAHARAJA AGRASEN INSTITUTE OF TECHNOLOGY, GGSIPU
  - *GPA: **8.033/10***

Technical Skills

Python, C++, ROS, Computer Vision, Machine Learning, Deep Learning, Fusion360 CAD, Optitrack Motion Capture.

Experience

- Autonomous Agents and Intelligent Robots (AAIR) Lab, Arizona State University,

  Graduate Student Assistant (Research), *November 2022 – Present*
  - Designed experiments for testing and demonstrating the effectiveness of abstractions learned for task and motion planning.
  - Developed data generation and processing pipeline for an abstraction-based task and motion planning approach.
  - Led and managed a development team of graduate students working on JEDAI: an AI system designed for outreach and educational efforts aimed at non-AI experts.
  - Containerized a simulator-based application and converted it into a server-deployable web application.

- Mechatronics Lab, Maharaja Agrasen Institute of Technology

  Research Intern, *September 2020 – February 2021*
  - Stress tested different 3D printed actuators to determine the best actuator design for additive manufacturing.
  - Tested structural strength of robotic arm links made by changing 3D printing parameters to determine the Ideal Values.
  - Designed scalable actuators for making a robotic limb.
  - Designed and developed a scalable, testing, and prototyping robotics platform and published the findings.

- Pristine Manufacturing Lab, Delhi Technical University

  Research Intern, *September 2019 – February 2020*
  - Compared various surface texturing methods to benchmark their efficiency.
  - Compared different surface textures made by Laser Surface Texturing to find the most effective pattern.
  - Analyzed surface textures with different parameter values to determine an ideal set of parameters.
  - Published the findings of the experiments.

- Production Technology Lab, Maharaja Agrasen Institute of Technology

  Project Intern, *January 2019 – April 2019*
  - Designed and developed a 6-DoF 3D printed robotic arm for object manipulation.
  - Designed components for supportless printing.
  - Used ROS and MoveIt to calculate the inverse kinematic model and remote arm operation.

Publications

- Shah N., **Nagpal J**. Verma P. Srivastava S. From Reals to Logic and Back: Inventing Symbolic Vocabularies, Actions and Models for Planning from Raw Data
- Dobhal D., **Nagpal J**., Karia R., Verma P., Nayyar R., Shah N, Srivastava S. Using Explainable AI and Hierarchical Planning for Outreach with Robots (*in submission*).
- **Nagpal J.** (*2024, MS Thesis*) System Design and Real-World Empirical Evaluation for Learning World Models with Planning.
- **Nagpal, J.**, Rana, R. Lal, R., Singari, R. M., Kumar, H. (MATPR 2021). A Brief Review on Various Effects of Surface Texturing Using Lasers on Tool Inserts.

Projects

- *Autonomous Mobile Base Using Stereoscopic Vision SLAM Setup*
  - Created an autonomous operation mobile robot using ROS.
  - Used stereoscopic setup with SLAM for localization and mapping.
  - Applied odometry using IMU and stereo data for SLAM using EKF.