Yash Kashiv

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Education

Degree	Institution	CPI/%	Year
M. Tech	*Indian Institute of Technology, Gandhinagar*	*8.53*	*2024-Present*
B. Tech	*Jabalpur Engineering Collage, Jabalpur , M.P.*	*8.44*	*2020-2024*
Class XII	*Shree Satya Sai School of Education, Satwas, Dewas, M.P.*	*86 %*	*2018-2019*

Academic Research

- **Imitation Learning Framework for Automatic Object Stacking** *[Mar'25- Present]*
  Prof. Harish P.M., IIT-GN Robotics Lab, IIT Gandhinagar
  - Developed a teleoperation pipeline on Franka Emika FR3 and Addverb Heal, using Cartesian impedance control and Velocity control to capture expert stacking trajectories.
  - Built a ROS-based data acquisition system that integrate depth camera streams with robot state logs for synchronized training inputs.
  - Trained a BC-RNN policy via Robomimic, achieving fast convergence and robust autonomous stacking.
- **Novel Investigation on Influence of Laser Marking of Ni-Ti Shape Memory Alloy Towards Actuation Characteristics for Underwater Soft Robotics** *[Jan'24-May'24]*
  Prof. I.A. Palani, Mechatronics and Instrumentation Lab, IIT Indore
  - Applied laser marking to Ni-Ti SMA wires—validated by surface profilometry—and fabricated both pristine and marked SMA-PDMS composites in custom 3D-printed molds for a soft-robotic turtle limb.
  - Conducted DSC analysis to compare phase-transformation temperatures before and after marking, confirming a clear shift in actuation thresholds.
  - Tested actuation performance under varied voltages and frequencies, demonstrating faster response, greater angular motion, and improved cycle stability in underwater conditions.

Work Experience

- **R&D- Advanced Robotics, Addverb Technologies Ltd., Noida** *[Oct'24-Present]*
  Research Intern
  - Contributing to the development of bimanual capabilities for humanoid robots by both learning-based and classical control strategies, with a focus on large-object manipulation and precision-oriented dual-arm tasks, in collaboration with cross-functional engineering teams
- **Mathematics Expert at Photomath** *[Dec'21-Feb'23]*
  Solver & Reviewer
  - Applied advanced mathematical knowledge and problem-solving skills as a dedicated Math's Solver and Reviewer at Photomath, resolving more than 3000 math problems for students worldwide.

Projects

- **SPAC-R: Suction-Driven Paper Assembly and Crafting Robot** *[Link]*
  Prof. Madhu Vadali., IIT-GN Robotics Lab, IIT Gandhinagar
  - Designed and developed SPAC-R, a 4-DOF Delta robot for automating paper craft flower assembly, integrating a suction-based pick-and-place system, automated glue application, and inverse kinematics for smooth motion control; powered by an Arduino Nano with custom C++ code for precise actuation and coordination.
- **Mechanical Impedance Analysis in Human Arm During Ball-Balancing Task** *[Link]*
  Prof. Vineet Vashista, Human Centered Robotics Lab, IIT Gandhinagar
  - Conducted a comparative analysis of mechanical impedance in dominant and non-dominant human arms during a ball-balancing task with external perturbations, using a motion capture system and pulley-based force setup to estimate stiffness, damping, and inertia, with implications for rehabilitation robotics and human-robot interaction.
- **Optimal Control and Estimation Techniques for Reaction Wheel Inverted Pendulum** *[Link]*
  Prof. Madhu Vadali., IIT-GN Robotics Lab, IIT Gandhinagar
  - Developed a hybrid control framework for a Reaction Wheel Inverted Pendulum (RWIP) combining energy-based swing-up and linear stabilization techniques (Pole Placement, LQR, Leuenberger Observer, and LQG), achieving fast and robust balance control through simulation and performance comparison.

Technical Skills

- **Programming Languages & Frameworks:** *Python, C++, MATLAB, ROS1, ROS2*
- **Relevant Coursework:** *ME 639 |Introduction to Robotics, ME 656 |Human-Robot Interaction, ME 613 |Modern Control Theory, ME 408 |Mechatronics*
- **Robotics Simulation Tools and Libraries:** *MuJoCo, Gazebo, KDL, Moveit, PyTorch, Matplotlib*
- **Designing and Fabrication Tools:** *Micro-controllers, 3D-Printing, Autodesk Fusion 360, SolidWorks, Laser Cutting*

Industrial Training & Extra Curricular Activities

- P*roduction and Maintenance Trainee, Vehicle Factory Jabalpur*: Gained hands-on experience in MPV and Stallion Mark IV assembly, along with practical exposure to instrument calibration and CNC machining processes.
- Machine Learning Trainee at IIT Jodhpur (June–July 2022), developed a CNN-based House Value Prediction Model under the guidance of Dr. Jayant Kumar Mohanta.
- Certified in SolidWorks through an online training program by ThinkNEXT Technologies Pvt. Ltd.
- Actively engage in badminton, table tennis, and swimming, and create travel documentaries as a personal creative pursuit.