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-Printingm 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.**