Pasala Haasith Venkata Sai

haasithpasala haasithp
haasith.pasala@research.iiit.ac.in haasithp.github.io Hyderabad, India

Education

MS By Research, ECE
(CGPA: 8.5/10)
IIIT Hyderabad
Aug 2021 – 2024(Expected)

B.E., ECE
(CGPA: 6.93/10)
Anil Neerukonda Institute of Technology and Sciences, Visakhapatnam
Sep 2014 – May 2018

Research Interests

Mechanism Design
Robotics
Machine Learning
Optimal Control
Reinforcement Learning
Robotic Manipulation
Embedded Systems

Skills

Programming Languages:
C, C++, Python, Embedded C, Assembly Language of 8085/8051

Libraries/Frameworks:
Pytorch, TrajOpt Framework, Webdriver IO, Appium, Selenium, OpenCV, Open3D

Tools:
Matlab, ROS, Proteus, Arduino IDE, Raspberry Pi, Pybullet, MuJoCo, Gazebo, Ardupilot, Photoshop, Fusion360, Git

Experience

Graduate Researcher, RRC **IIIT Hyderabad** Oct 2021 – Present

Mechanism Design | Matlab | ROS | Python

- Working under the guidance of Dr Nagamanikandan Govindan on projects related to mechanism design of grippers using trajectory optimisation and learning techniques.

Teaching Assistant **IIIT Hyderabad** Jan 2023 – May 2023

Fusion 360 | Matlab | 3D Printing | Python

- Worked as TA for the course ”Mechatronics System Design” during the Spring Semester,2023.

Consultant Engineer **L&T Technology Services, Mysore** Mar 2019 – June 2020

Appium | Selenium | Javascript | WebdriverIO

- Worked as Automation Test Engineer
- Worked on automation of an application on Android and iOS Devices using WebdriverIO Cucumber framework and Appium with Javascript

Projects

Rigid Body Dynamics-Based Trajectory Optimization for Precision Object Throwing | Independent Study

ROS | MATLAB | Gazebo | Trajectory Optimization

- Formulating the dynamics of the rigid body and implementing trajectory optimization.
- Simulation of the motion of the rigid body using MATLAB, gazebo and ROS.

Integration of the Novel Gripper with XArm7 and Mobile Robot via ROS | Research Work

ROS | Xarm7 | Arduino | Raspberry pi | Realsense D455

- Skillfully executed the seamless integration of the Novel Gripper, XArm7 robotic arm, and the Mobile Robot through the Robot Operating System (ROS), underscoring advanced proficiency in the field of robotics. This integrated system was strategically applied across a spectrum of applications, highlighting a keen emphasis on problem-solving acumen and demonstrating practical deployment expertise through efficient utilization of singular resources

Enhancing a Novel Gripper Design and Prototyping for Object Grasping, Picking and Throwing | Research Work

Fusion 360 | MATLAB | Raspberry Pi | ROS | Arduino | Xarm7

- Collaborated on the modification of an existing gripper design, enhancing its capabilities by integrating control systems via Raspberry Pi and Arduino. The successful integration with a manipulator using ROS underscores my comprehensive expertise in design refinement, precise control system implementation, and the seamless incorporation of ROS for sophisticated robotic applications. This project showcases my commitment to advancing robotic functionalities through innovative design and integration solutions.

Course Work

Graduate

- Statistical Methods in AI
- Mobile Robotics
- Robotics: Dynamics and Control
- Advances in Robotics and Control
- Topics in Applied Optimization

Undergraduate

- Digital Electronics
- Analog Electronics
- Advanced Network Theory
- Control Systems
- Electronics Devices and Circuits
- Signals and Systems

Mobile Robotics Project: Stereo SLAM with PnP, Bundle Adjustment, and Pose-Graph Optimization

g2o | SLAM | Open3D | ROS

- Implemented Stereo Reconstruction, PnP, and Bundle Adjustment for 1D and 2D SLAM in a mobile robotics course project. Applied Pose-Graph Optimization to enhance localization accuracy. Demonstrated expertise in advanced computer vision and robotics techniques.

PointNet: Deep Learning on Point Sets for 3D Classification and Segmentation | Research Work

Open3D | PyTorch | Python | Point Clouds

- Implemented and delved into the "PointNet: Deep Learning on Point Sets for 3D Classification and Segmentation" project, showcasing expertise in advanced deep learning architectures tailored for the analysis of 3D point cloud data. Demonstrated a keen understanding of PointNet's capability to process unordered point sets, contributing to precise 3D object classification and segmentation. This project underscores my proficiency in cutting-edge techniques within the realm of computer vision and 3D object recognition.

Application of PID control on a Bionic-Hand | Course Work

Fusion 360 | MATLAB | MuJoCo | ROS | Dynamixels

- Applied PID control to a Bionic Hand project as part of a course, contributing to Mujoco simulation and hands-on fabrication of a tendon-based anthropomorphic hand prototype. This coursework showcased my practical skills in control systems and robotics, demonstrating the ability to integrate theoretical concepts into real-world applications.

MEMS based Wheel Chair | B.E. Final Project

PCB | Proteus | Arduino | MEMS | RF

- Designed a revolutionary wheelchair prototype integrating Micro Electro-Mechanical Systems (MEMS) for precise control based on patients' fundamental movements like finger and wrist gestures. The system operates wirelessly through RF modules and encoder-decoder circuits, providing a seamless and responsive user experience for individuals with limited physical mobility.

Publications

- Govindan, Nagamanikandan, Bharadhwaj Ramachandran, Pasala Haasith Venkata Sai, and K. Madhava Krishna (2023). "A Novel Hybrid Gripper Capable of Grasping and Throwing Manipulation". In: *IEEE/ASME Transactions on Mechatronics*, pp. 1–12. DOI: 10.1109/TMECH.2023.3264287.

Achievements/Awards

IEEE SPECTRUM | 2023

- The work related to this Paper "A NOVEL HYBRID GRIPPER CAPABLE OF GRASPING AND THROWING MANIPULATION", Featured on the IEEE Spectrum in April 2023.