Harsh Sinha

http://harshsinh.github.io
harshsin@iitk.ac.in | +91 9198263225

EDUCATION

IIT, KANPUR

BTech in Aerospace Engineering
Expected July 2019 | IIT, Kanpur

Major in Electrical Engineering
Expected July 2019| IIT, Kanpur
Cum. GPA: 7.1 / 10.0
Major GPA: NA

GRSS VIDYA MANDIR

Class XII | CBSE
Grad. May 2013| Bhagalpur, India
89.6%

GRSS VIDYA MANDIR

Class X | CBSE
Grad. May 2013| Bhagalpur, India
10.0 / 10.0

LINKS

Github:// **harshsinh**
LinkedIn:// **harsh-sinha**

COURSEWORK

Probabilistic Mobile Robotics
Visual Recognition
Data Structures and Algorithms
Modern Control Systems
Digital Control Systems
Finite Element Methods
Aircraft Design

SKILLS

PROGRAMMING

Langueages :
C++ • Python • Matlab • Shell • LaTeX
Frameworks and Libraries:
ROS • Gazebo • OpenCV • Pillow • Caffe • PyTorch • Tensor Flow

SOFTWARE

gEDA–pcb • Altium • Eagle • Git • Blender

EXPERIENCE

QUAZAR | Research Intern

May 2016 – July 2016 | Delhi, India

- Designed a the oscillation control electronics, harware PID and Phase Locked Loop system for an Atomic Force Microscope
- Designed PCBs for the electronics.
- Made the preliminary test setup and the software drivers.

INTELLIGENT GROUND VEHICLE | Team Leader

Expected Nov 2016 – April 2018 | IIT Kanpur, India | Under Prof. Gaurav Pandey and Prof. Mangal Kothari

- Developed a system for autonomous waypoint navigation in uncharted teritories and driving in lanes.
- Worked on Simultaneous Localization And Mapping (SLAM), on Rapidly - exploring Random Tree (RRT) for Motion Planning on ground vehicles, and on High Level Control Systems for the robot.
- Implemented Extended Kalman Filter (EKF) for obtaining correct odometry information from sensors and a particle filter for SLAM.
- Lead the team for the project, was also responsible for the code base of the project.

IMAGE BASED RELOCALIZTION OF ROBOT | Research Project

May 2017 - July 2017 | IIT Kanpur, India | Under Prof. Gaurav Pandey

- Developed a system for relocalization of robot.

MULTIAGENT MAPPING | Summer Project

May 2017 - July 2017 | IIT Kanpur, India | Under Prof. Indranil Saha

- Worked on making large scale segmented maps using multiple quadrotors.

ROBOCON'16 | Senior Member

Sep 2015 – May 2016 | IIT Kanpur, India | Under Prof. Bhaskar Das Gupta

- Developed the electronics for a pair of semi-autonomous robots capable of Line following, Wall following and Pole Climbing.
- Designed and implemented a control systems for Wall following and Propeller speed control.
- Implemented a modified Kalman Filter for fusing Encoder and IMU data to get Odometry information for a ground robot.

AUTONOMOUS UNDERWATER VEHICLE | Electronics Head

Dec 2014 - Aug 2015 | IIT Kanpur, India | Under Prof. K S Venkatesh

- Worked on making of a waterproof underwater vehicle capable of underwater navigation.
- Worked on the motherboard and the drive system PCB design.
- Performed partial localiztion of the underwater vehicle.

PUBLICATIONS