Github
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RP Hall of Residence, IIT Kharagpur West
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Academics

2017-2021	*B.Tech* in **Instrumentation Engineering, Department of Electrical Engineering, IIT Kharagpur** | Major
CGPA	**9.24**/10.0 (Ongoing)
2019-2021	*B.Tech* in **Computer Science and Engineering, IIT Kharagpur** | Minor
ACGPA	**9.67**/10.0 (Ongoing)

Competitions and Experience

June 19 — **Intelligent Ground Vehicle Competition** — **Oakland, Michigan, USA**

- Represented IIT Kharagpur and secured **2nd** place out of 37 teams worldwide in the Autonomous Navigation challenge, while being recognized as the first team to qualify at the 27th IGVC, held at Oakland University , USA.
- Built an autonomous robot that can navigate in an arena using lane markings and travelling to specified GPS points while avoiding obstacles in the way.

April 19 — **OSCAR : Open Sewer Cleaning Autonomous Robot** — **IIT Kharagpur**

- Was part of the silver winning hardware modelling team, in an intra-college competition.
- Designed an autonomous sewer cleaning robot which can float in an open sewar and detect floating waste, while also being able to collect the waste and dump it at specified locations.
- Developed a deep learning model for sewage identification.
- Developed a waypoint generation algorithm for sewage collection and disposal by the robot.

April 18 — **GreenDroid** — **IIT Kharagpur**

- Was part of the silver winning hardware modelling team, in an intra-college competition.
- Designed an autonomous lawn mower and seed sowing robot.
- Integrated various sensors and actuators using Raspberry PI and the Robot Operating System.

Projects

Autonomous Ground Vehicle Research Group

- Team Member of the students' research group of IIT Kharagpur aimed at building a fully functional self-driving car.
- Developed traffic sign detection and recognition modules for autonomous driving using Haar and SIFT features and convolutional neural networks.
- Implemented various slam-based algorithms for visual odometry.
- Designed mathematical models and circuit layout for non-intrusive encoders using inertial sensors for wheel odometry.
- Developed the overall electronic architecture and the battery management system of the Eklavya 6.0 and 7.0 robots.
- Experienced in working with IMUs, GPS, lidars, stereo cameras, depth cameras and other robot peripherals.
- Worked on the frenet optimal trajectory generation for local jerk-optimal path planning for autonomous driving.
- Currently working on Mahindra Driverless Car Challenge. We are in the top 13 out of 400 teams of this innovation challenge tasked with building a driverless car for Indian roads.

IEEE Image Processing Winter Workshop

- Mentored a week-long IEEE certified winter workshop for freshers at IIT Kharagpur.
- Taught image processing and basic computer vision using C++ and the Opencv Library.
- Built an image processing robot capable of following a blob.

Technical Skills

Languages	C | C++ | Python
Libraries / Frameworks	ROS | Git | OpenCV | Numpy | Tensorflow | Keras | Pytorch | Matlab | PCL | Gazebo | Eigen

Achievements & Leadership

- **Student Head, Technology Robotix Society, IIT Kharagpur**: Organized and managed robotics events in Kshitij, the techno-management fest of IIT Kharagpur, the largest techno-management fest in Asia.
- **Best Fresher, RP Hall of Residence**: Felicitated as the best fresher of the hall of residence at IIT Kharagpur for active participation in and contribution to various inter hall technology events.

Relevant Coursework

(T)heory and (L)aboratory

Completed	Programming And Data Structures (T/L) | Algorithms I (T/L) | Signals and Networks (T) | Analog Circuits (T/L) | Introduction to Electronics (T/L) | Probability And Stochastics (T)
Ongoing	Machine Learning (T) | Image Processing (T) | Digital Electronic Circuits (T/L)
Open Courseware	Deep Learning (Coursera) | Machine Learning (Coursera) | Introduction to Computer Vision (Udacity) | CS231n