AKASH KUMAR SINGH

ksakash@iitk.ac.in | +91-7318019013 | Github:ksakash

EDUCATION

INDIAN INSTITITE OF TECHNOLOGY, KANPUR
Kanpur, UP, INDIA
B.Tech, Electrical Engineering
July 2016- Exp. April 2020
CPI : 8.1/10

D.A.V. PUBLIC SCHOOL, NTS BARKAKANA, C.C.L.
Ramgarh, Jharkahnd, INDIA
AISSCE
June 2014 - March 2016
Result : 93.4%

D.A.V. PUBLIC SCHOOL, URIMARI
Hazaribagh, Jharkahnd, INDIA
AISSE
March 2014
CGPA : 10/10

COURSEWORK

Introduction to probability and Statistics
Control Systems
Introduction to Microelectronics
Signal, Systems and Networks
Essentials of Scientific Computing
Introduction to Electronics
Data Structures & Algorithms (Upcoming)
Principles of Communication (Upcoming)

SKILLS

Image Processing • Computer Vision
Linux Command Line • Robotics
3D simulation

LANGUAGES

C • C++ • Python • LATEX • HTML
CSS • TypeScript • shell (BASH)

TOOLS

ROS • OpenCV • Git • SolidWorks
Arduino • Gazebo • zeroc-ice • Angular
Tensorflow • Keras • GNU octave

WORK EXPERIENCE

GOOGLE SUMMER OF CODE | Robocomp
May 2018 – Aug 2018 | MENTORS: Marco A Gutiérrez and Ramon Cintas

- The project aimed to integrate Robocomp, a robotic framework, with a 3D robotic simulator, Gazebo, using zeroc-ice as a communication middleware.
- Used Gazebo plugins for robotics interfaces, corresponding to different sensors and actuators, to communicate with the Gazebo simulator.
- The integration is expected to allow developers more options from the framework and provide a better simulation with a more realistic physics engine.

AUTONOMOUS UNDERWATER VEHICLE | underwater robotics team, IITK
February 2017 – Present | MENTOR: Prof. Mangal Kothari

- Developed an image processing pipeline, which can enhance raw underwater images coming from a live video stream through a camera and get essential information about objects present before the robot.
- Developed Vision Processing ROS package using OpenCV library and implemented in C++, in order to perform particular tasks in SAUVC 2018.
- Developed a PID based controller for the vehicle to achieve a particular state and configuration for the robot.
- Developed motion module for the robot, using actionlib provided by ROS, to move it to a desired location according to the goal from the vision module.

TIC-TAC-TOE | Reinforcement Learning
November 2017 - April 2018| Prof. Nisheeth Srivastava

- The project aimed to help an artificial agent learn to play tic-tac-toe game with the help of a reinforcement learning algorithm called Temporal Difference Learning.
- Further used the technique of representing the states by set of feature vectors to reduce the state space in order to reduce the time complexity of the algorithm used.

FRONTEND DEVELOPEMENT | New York Office, IIT Kanpur
May 2018 - July 2018| Prof. Manindra Agrawal

- Developed new features and improved UI/UX of a scalable web application.
- Used latest technology stacks like TypeScript in Angular 6 as well as HTML and SCSS for styling while following reactive paradigm using NgRx.

CLUB AUTOMATION | Winter Camp
December 2016| Robotics Club, IITK

- Managed to count the number of people inside a room using PIR sensors so that all electric devices can be turned off in case room is empty.
- Used Arduino as a microcontroller in order to read data from sensors and perform calculations.

SCHOLASTIC ACHIEVEMENTS

- Secured rank 3146 at National level in JEE Mains 2016
- Secured rank 2477 at National level in JEE Advanced 2016

OTHER CAMPUS ACTIVITIES

- Secretary, Robotics Club, IIT Kanpur | July 2017 - Mar 2018
- Secretary, Fine Arts Club, IIT Kanpur | July 2017 - Mar 2018