AKASH KUMAR SINGH

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EDUCATION

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

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

D.A.V. PUBLIC SCHOOL, URIMARI
AISSE
March 2014
Hazaribagh, Jharkahnd, INDIA
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

EXPERIENCE

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

- The project aims 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 will allow developers more options from the framework and provide a better simulation with a more realistic physics engine.

TRAFFIC LIGHT DETECTION USING DEEP LEANING | NYU-IITK Research Track
June 2018 – July 2018 | Prof. Yi Fang (New York University)

- The project aims to develop a light weight traffic light detection model based on Deep Learning, using various using various model compression techniques.
- Developed a R-FCN (Region Based Fully Connected Network) model using object-detection tensorflow apis.
- Built a feature extractor, using keras, to extract high level features from a trained network, in order to build the meta architecture R-FCN on top of it and retrain it using transfer learning.

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.
- Worked on Feature Extraction and Matching using various algorithms like SURF, SHIFT, etc. to recognize a known object in a particular scene.
- Working on developing image enhancement techniques for underwater images.
- 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, which is responsible for moving the robot on getting a goal from the vision module.

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