AKASH KUMAR SINGH

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EXPERIENCE

AUTONOMOUS UNDERWATER VEHICLE | UNDERWATER ROBOTICS TEAM, IITK
February 2017 – Present | Prof. Sachin Y. Shinde

- Developed a image processing pipeline, which can enhance raw underwater images coming from the live video stream through a camera, denoise it and threshold it, to get essential information about objects present before the bot.
- Added a feature to a ROS package which enables to save its node parameters during runtime and save it in a yaml file with the help of dynamic_reconfigure package provided by ROS.
- Made Vision Processing ROS package which takes images from a continuous video stream coming from the camera and perform image processing on it to get essential information about objects present before the bot with features like dynamic reconfiguration of node parameters, 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.
- Working on object recognition and object classification using machine learning to classify between the targets underwater.

TIC-TAC-TOE | REINFORCEMENT LEARNING
Nov 2017 - Present | Prof. Nisheeth Srivastava, CSE, IITK

- Developing a game agent to learn the game of TIC-TAC-TOE, of varied sizes, using reinforcement learning to find out the trade-off in the performance between using GREEDY policy over EXPLORATORY policy with the increasing grid size.

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

- Developed a motion detector automate the light switching in a room using Arduino and PIR sensors to prevent any electricity wastage.

EDUCATION

INDIAN INSTITITE OF TECHNOLOGY, KANPUR | B.Tech in Electrical Engineering
July 2016- April 2020 | Kanpur, Uttar Pradesh (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

SKILLS

Image Processing • Computer Vision (Basics) • Linux Command Line • Robotics

LANGUAGES

C • C++ • Python • LATEX • HTML • CSS

TOOLS

ROS • OpenCV • Git • SolidWorks • Arduino • Gazebo

SCHOLASTIC ACHIEVEMENTS

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

COURSES

Introduction to probability and Statistics (ONGOING)
Control Systems (ONGOING)
Introduction to Microelectronics (ONGOING)
Signal, Systems and Networks
Fundamentals of Programming

OTHER CAMPUS ACTIVITIES

July 2017 - Present | Secretary, Robotics Club, IIT Kanpur
July 2017 - Present | Secretary, Fine Arts Club, IIT Kanpur
Feb 2017 | Junior executive, Marketing, Techkriti 2017