

# SHIVANG AGRAWAL

EMAIL: [contact@shivangagrawal.in](mailto:contact@shivangagrawal.in) WEBSITE: [shivangagrawal.in](http://shivangagrawal.in)

LINKEDIN: [shivangagrawal](https://www.linkedin.com/in/shivangagrawal) GITHUB: [shivangagrawal](https://github.com/shivangagrawal)

## EDUCATION

---

### Indian Institute of Technology Kharagpur

B.Tech. Chemical Engineering 2019

## SKILLS

---

**PROGRAMMING:** C, C++, Python, Java, MATLAB, Bash

**LIBRARIES:** OpenCV, ROS, TensorFlow, PyTorch, CUDA

**TOOLS:** Linux, Git, Gazebo

## PROJECTS

---

### DeepFlow

Oct 2017 - Current

- Developing deep recurrent CNN model for relative position estimation
- End-to-end training from downward facing image feed to raw position estimate using data recorded from Microsoft's Airsim.

### TheCrawler

May 2017 - Jun 2017

- Implemented Q-Learning algorithm on Arduino for a robot with a 2-DOF arm and an encoder to learn to crawl on its own

### Disparity-Generator

Mar 2017 - Apr 2017

- Compute the disparity map for 3D reconstruction only with one moving camera.
- Used epipolar geometric relations to calculate relative pose between the images.

### Smart-Steer

Feb 2016 - Mar 2016

- Built the software framework on Robot Operating System for smooth communication between sensors' input and actuator controllers.

## ACTIVITIES

---

### Aerial Robotics Kharagpur, *Controls and Perception Team*

Aug 2016 - Current

- Technologies: ROS, Gazebo, OpenCV, C++.
- Working on map generation from stereo and lidar data for obstacle avoidance in long-range outdoor navigation.
- Integrated PX4 SITL gazebo simulator with IARC problem statement 7 arena.
- Implemented High-Level Controller using MAVROS to compete in IARC 2017.

### Swarm Robotics IIT KGP, *Software Team*

Mar 2016 - Current

- Technologies: ROS, OpenCV, C++, Bash
- Built a decentralized message passing framework using ignition-transport for communication between the swarm robots.
- Developing a distributed SLAM system using ORB descriptors to rapidly map an unknown environment.

### Technology Robotix Society, *Autonomous Head*

Feb 2017 - Current

- Organized an autonomous event in 'Robotix' fest under Kshitij, Asia's largest techno-management fest of its kind. Robotix attracts 2000+ participants from over 100 colleges in the Indian subcontinent
- Mentored IEEE workshop on Autonomous Robotics for 30+ first and second-year students.

## RELEVANT COURSEWORK

---

### UNDERGRADUATE

Programming and Data Structures, Probability and Statistics, Transform Calculus, Basic Electronics

### MOOC

Machine Learning, Neural Networks and Deep Learning, Robotics: Perception, Robotics: Computational Motion Planning, Probabilistic Graphical Models(Ongoing)