SHIVANG AGRAWAL

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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)