Parv K. Parkhiya

pparkhiy@andrew.cmu.edu ♦ (412) 773-1610 ♦ linkedin.com/in/parvparkhiya

EDUCATION

Carnegie Mellon University – School of Computer Science Pittsburgh, PA

Master of Science, Robotic Systems Development (MRSD) | ***GPA: 4.04/4.33*** May 2020

- Selected Coursework - Robot Autonomy, Learning for Manipulation, Computer Vision, Robot Localization and Mapping, Robot Mobility

International Institute of Information Technology (IIIT) Hyderabad, India

Bachelor of Technology (Honours), Electronics and Communication | ***GPA: 9.91/10*** August 2014 - May 2018

- Selected Coursework - Mobile Robotics, Statistical Methods in AI

EXPERIENCE

Zenuity Novi, MI

Intern, Localization Team June 2019 - August 2019

- Contributed to codebase (C++) of LIDAR based Simultaneous Localization and Mapping (SLAM) and Electronic Horizon Reconstructor of Zenuity's autonomous car in Agile Software Development environment

RESEARCH EXPERIENCE

Robotics Research Center, International Institute of Information Technology Hyderabad, India

Honours Student June 2016 - May 2018

- Conceptualized and implemented (C++) monocular Object-oriented Simultaneous Localization and Mapping (SLAM) using deep Convolutional Neural Network (CNN) and factor graph optimization
- **[Publication]: (IEEE ICRA 2018, Brisbane)** – "Constructing Category-Specific Models for Monocular Object SLAM"

PROJECTS

CMU

Unmanned Aerial and Ground Vehicle (UAV, UGV) Collaborative Firefighting August 2018 - February 2020

- Built custom Hexacopter to carry high extinguishing payload (2 kg)
- Designed and implemented full system level hardware/software architecture for hexacopter and Husky (UGV) for autonomous navigation in unknown environment, fire detection and extinguishing material deployment
- Part of MRSD capstone project and MBZIRC 2020 Challenge 3

Taking out Trash January 2019 - May 2019

- Modeled picking and placing trash bin skill using manipulator arm of Locobot platform as Gaussian Process (GP) to enable imitation based skill learning from single demonstration

Modelling Motion of Stereotypical Dynamic Objects for Efficient Interaction August 2018 - December 2018

- Incorporated Dynamic Movement Primitives approach to model stereo typical motion in data efficient manner and used that model to predict trajectory and goal location from a partially observed trajectory

IIIT, Hyderabad

Doubly Convolutional Neural Network (DCNN) January 2017 - May 2017

- Implemented DCNN (TensorFlow) where parameter sharing across filters decreased total parameters by factor of **4.7** resulting in better generalization of CNN for supervised learning

SKILLS

Programming Languages: C, C++, Python

Software: Optimizers (Ceres-Solver, GTSAM, G2O), ROS, LCM, LIBSVM, OpenCV, TensorFlow, Gazebo, Unity, LINUX, MATLAB, Eagle (PCB), Solidworks (CAD), Git, CLion (IDE), GoogleTest

Hardware: Cameras (ZED Stereo, Intel RealSense, FLIR Thermal), SICK LIDAR, Microcontroller (Arduino, AVR, VEX), FPGA (ZedBoard), Quadcopter (Parrot Bebop, AR), Pixhawk Flight Controller, Makerbot, Ultimaker

AWARDS

Institute Gold Medal IIIT Hyderabad, India | for graduating B. Tech class of 2018