Osaid Zahid

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Aspiring Roboticist - Research Intrests: Machine Perception, SLAM, Neurorobotics, Path Planning

I aim to understand how biological beings, in real time, build representations of the envoirnment, localize and plan their motion in unstructured envoirments. Currently exploring various implementations of SLAM.

EDUCATION

Electronics Engineering
Ghulam Ishaq Khan University (GIKI)
08/2015 – 05/2019 *CGPA: 3.14 Class Average: 2.89*

Electives: Robotics, Robotic Vision, Parallel Processing, Data structures and Algorithms, Technology Management

Udacity
Self Driving Car Nanodegree *2018 – 2019*

Term 1: Computer Vision, Deep Learning (Passed)
Projects: Basic Lane Finding ,Traffic Signs , Behavioral Cloning, Adv. Lane Finding, Vehicle Detection.
Term 2 : Sensor Fusion, Localization and Control
Projects: PID Controller

NVIDIA Deep Learning Institute *2019*
Fundamentals of Deep Learning for Computer Vision
Cirtificate: 7e439c4583b94178b92e14be15dd65ff

EXPERIENCE

Software developer - Intern
Hibot *07/2018 – 08/2018* *Tokyo, Japan*

- Implemented 2D SLAM with RpLidar using Google cartographer framework on ROS, running on Windows Subsystem for Linux.
- Wrote the driver for RPLidar on Python.
- Setup a slam test environment via a script to publish sensor data from Vrep on Windows over to ROS on WSL using UDP sockets.
- Travel grant (700 USD) and living expenses were sponsored

Global Self-driving Hackathon *(22-28) May 2019, Guiyang, China*

- Built a 1/10th scale self driving car that relied on lane markers to compute steering angles.
- Among 10 global participants selected for DIY Robocar competition travel (710 USD grant) and stay was sponsored.

AI Summer School *(22-28) July 2019 National University of Singapore*

- Overview of Machine Learning, Data Science, Vision Natural Language Processing (NLP), Multi-Agent Systems Privacy, Fairness and Algorithmic Transparency, Game Theory
- Awarded a travel grant of 600 SGD

Summer School *July 2014 University of Oxford, Sommerville College*

- Overview of Physics and International Relations. Essay and presentation: The Development of Quantum Mechanics. (Grade: Essay : 2:1 Presentation : 2:2)

Team Technobolt@GIKI
A Student body organized to coordinate efforts for national competitions

- Lead Programmer, supervising and mentoring teams, arranging workshops.

Visiting Researcher - Jacobs University
Bremen, Germany *Oct - Nov 2019*

Built a underwater test capsule to assess how well intel realsense D435i works underwater. Tested KIMERA, RTABMAP, VINS and ORB SLAM Did camera calibration underwater and tested KIMERA VIO on Udoo.

PROJECTS

Multi-Robot System - A system inspired by ants (10/2017 – 12/2017)

- Three robots were designed and fabricated to move in a constrained arena. The objective was to coordinate and find the shortest route to transport an object to a safe zone.

National Engineering Robotics Contest 2016,2017
(Team Lead)

- Based on the theme of search and rescue, a robot was designed to map and localize itself on a maze. The following components were designed and implemented:
- Differential drive - 2016, Synchro Drive - 2017.
- H-bridges, Power distribution board, switching regulator.
- Particle Filter, A* search, multiple PID control loops.

Senior Design Project - Autonomous Go-Kart (10/2018 – 4/2019)

- Steering angle computed from lane features
- Vehicle Detection - YOLO(DL) /HOG features(Traditional CV)
- Designed 450W motor controller using MOSFETS
- ORB SLAM - VINS MONO - OSM Cartography (Experimental)
- Camera and IMU calibration using Kalibre
- PID control of steering and drive motors
- ROS (Navigation stack - EKF localization GPS + IMU + Encoders) https://youtu.be/Qdkze5VVQZU

Home service robot on Gazebo (8/2019)

- Used ROS navigation stack, gmapping and amcl to map, localize to move turtlebot in a simulated home envoirment.

ACHIEVEMENTS

Pytorch Udacity Scholarship (11/2018 – 01/2019) : Built a Flower Classifier using Vgg architecture on Pytorch

Selected for Robot Guru WAFR Undergraduate Program (12/2018 – 04/2019): Paired with a stanford Phd candiate. Monthly mentoring sessions.

Winner Robomaze at All Pakistan National Electronics Olympiad (02/2018) : Maze solving robot

Third place in Junior Year Robotics competition(02/2018) : Built a pair of two maze solving robots.

Deans Honor Roll (8th Semester)

SKILLS

C++, Python, Matlab | ROS | OpenCv | ExpressPCB | Keras, Pytorch | CREO | Multisim | CUDA