Karnik Ram R.

web: karnikram.info

Email: karnikram@gmail.com
Phone: +91 9940049947
Github: github.com/karnikram

Education

Sri Sivasubramaniya Nadar College of Engineering, Anna University July, 2013 - May, 2017
B.Eng. in Electronics and Communication Engineering Chennai, India
Cumulative Grade Point Average : 7.20

Vidya Mandir Senior Secondary School April, 2011 - May, 2013
Senior Seconday Education, Central Board of Secondary Education Chennai, India
Aggregate : 94.4%

Experience

International Institute of Information Technology, Hyderabad May, 2017 - Present
Research Assistant, Robotics Research Center Hyderabad, India
Evaluating and researching different techniques for the extrinsic calibration between a lidar and a camera, within the context of a self-driving car. Also a part of the lab's team for the Mahindra Rise Prize - Driverless Car Challenge.

Navstik Autonomous Systems June, 2016 - August, 2016
Summer Intern Pune, India
Developed and evaluated a vision based person tracking module for drones.

Health Care Technology Innovation Centre, IIT Madras Oct 2016
Project Associate Chennai, India
Developed a motion capture application using a Kinect.

Projects

Markerless Cross - Sensor Pose Calibration June, 2017 - Present
Developing an online and markerless calibration system for calibrating the extrinsics between a camera and lidar through non-linear photometric error minimization.

Automated Stock Counting Using a Quadcopter Nov, 2016 - March, 2017
Assembled a custom quadcopter, developed an optic flow based visual odometry module for its localization and incorporated it into the PX4 navigation stack. A stock counting module was implemented using ArUco markers.

Visual Servoing of a Mobile Robot Jan, 2016 - Feb, 2016
Developed a simple navigation stack for controlling the motion of a differential drive mobile robot using visual feedback from an overhead camera. The stack consisted of a color based localization module and a PID controller for issuing steering commands to the motors.

Flight Controller for a Quadcopter July, 2015 - October, 2015
Built and programmed a flight controller for stabilizing a custom built quadcopter, using the ATmega 328. Utilized interrupt service routines, PWM signals and PID rate control loops.

Project Seglio June, 2015 - July, 2015
Developed an Android application to enable undergrads to share course textbooks among each other. This app has close to a thousand installations and was also featured in a prominent weekly magazine.

The SSN App Dec, 2014 - Jan, 2015
Ideated and developed an Android application to notify students and faculty about important events, announcements and other campus related information like bus routes and dining menus. Today it has close to two thousand users and is the official app of SSN.

Responsibilities

Event Coordinator, SSN Tech Club June, 2016 - April, 2017
Prepared material and conducted introductory hands-on sessions on basic robotics and computer vision where we together built a visual servoing system using OpenCV and Arduino, which enabled attendees to participate in inter college competitions. Organized a 24 hour IOT hackathon as a part of Invente, SSN's annual technical fest, and the event saw close to fifty participants.

Awards

Best Project Award April, 2017
My thesis project titled "Visual Odometry Assisted Quadcopter for Stock Counting" was declared as the best student project, within my discipline.

Winner, K!ardinal Quest Feb, 2016
Placed first in K!ardinal Quest, an image processsing cum robotics event held as a part of Kurukshetra, the annual techno-management fest of College of Engineering, Guindy.

Second Runner Up, Clash of Pirates Feb, 2016
Placed third in Clash of Pirates, an image processing cum robotics event held as a part of Pragyan, the annual techno-management fest of NIT - Trichy.

Best UI Design Aug, 2015
Awarded the best UI design for Project Seglio during the 32 hours startup challenge college hackathon.

Independent Coursework

Autonomous Navigation for Flying Robots July, 2015
A course of study offered by Technische Universitat Munchen through Edx, covering the dynamics of a quadcopter and its state estimation, and visual motion estimation.

Kaizen Robotics Program (Advanced) using Arduino Feb, 2015
A hands-on course at Lema Labs where I built maze solving and gesture controlled robots. I was awarded a certificate of excellence for my performance during the course.

Kaizen Robotics Program (Basic) using ATmega 16 Dec, 2014
A hands-on course at Lema Labs where I built line following and obstacle avoiding robots, and table top robots using the Atmega 16.

Embedded System Design using TI MSP430 Launchpad July, 2014
A hands-on course at Li2Innovations covering the MSP430 microcontroller and its interfacing.

Technical Skills

Tools and Libraries :
Proficient : OpenCV, PCL, ROS, Matlab, Git
Familiar : Android, Nvidia Jetson, Eagle EDA

Programming Languages :
Proficient : C/C++, Python
Familiar : Java