ROHAN PRATAP SINGH

rohan565singh@gmail.com | +91 - 9871556698 | www.uasdtu.com

RESEARCH INTERESTS

- Mapping, localization and path planning
- Perception in autonomous robots
- Control of mobile robots
- Systems engineering and product design

EDUCATION

Delhi Technological University (formerly **Delhi College of Engineering**), New Delhi, India — Aug 2013 – Present
B. Tech. in Electrical and Electronics Engineering
Percentage: 62.5 (till 7th semester)

Delhi Public School, Mathura Road, New Delhi, India
Senior Secondary, Class XII – Percentage: 90.4 — 2011 - 2012

Khaitan Public School, Noida, U.P., India
Secondary, Class X – CGPA: 9.6 — 2009 - 2010

INTERNSHIP EXPERIENCE

Autonomous Car Lab (Team Swarath), IIIT-Delhi, New Delhi, India — Jun 2016 – Oct 2016

- Worked on development of an electric self-driving vehicle
- Obstacle-detection using Velodyne LIDAR and Point Cloud Library
- Gained key experience in ROS, OpenCV and PCL

ERD Technologies Pvt. Ltd., New Delhi, India — Dec 2015

- Converter survey and developed bench-top power supply
- Designed and fabricated PCB prototypes and studied PCB manufacturing process

PROJECTS

Indian Agriculture Research Institute – Project SENSAGRI — Aug 2015 – July 2016
Team Captain, Software Sub-team Lead

Involves development and testing of UAVs and software applications for health monitoring of crops using Hyper-spectral sensors

- Prototyped Vertical Take off and Land (VTOL) UAS, as a test bed to carry imaging sensors
- Exhibited the UAS capabilities and system features at ‘Krishi Unnati Mela-2016’
- Demonstrated live fly of the UAV at ‘Krishi Unnati Mela-2016’
- In-flight tuning of VTOL UAV

Areas of work: Autopilot, Image Processing, Data acquisition systems, and Systems Engineering

Lockheed Martin Aeronautics Co. – Unmanned Aerial Systems Lab — Aug 2014 – Jun 2015
Avionics Technician

- Prototyped a Group 2 Unmanned Aerial System (UAS), the Aarush X1- a 12ft. wingspan UAV with surveillance capabilities
- Developed image processing software for target recognition, localization and identification in aerial images
- Designed the avionics system (autopilot system, power system and communication system) to meet system requirements
- Worked on the control systems of the UAV including in-flight tuning and avionics integration for flight testing

Areas of Work: Image Processing, Autopilot programming, Power System, Antenna Design, and Systems Engineering

Lockheed Martin Aeronautics Co. – C-130J Roll-on/Roll-off University Challenge July 2015 – Mar 2016
UAV Subsystems Head

- Designed UAS for deployment in disaster relief specifically suited for the C-130J aircraft as a roll-on/roll-off payload
- Derived preliminary statement of objectives through a detailed market analysis and
- Developed long-term and short term plans, budgets, schedules and risk mitigation strategies
- Worked closely with Indian disaster relief agencies for finalizing mission requirements

Areas of Work: Business development, market analysis, UAV conceptual design

Undergraduate Major Project - *Simultaneous Localization and Mapping robot using stereo vision cameras*

- Use of 3D printer wheel encoders and optical flow sensors to obtain accurate odometry
- Use of stereo vision cameras to obtain depth-map of robot environment
- Developed ROS project to create map of the Electrical Engineering Department at DTU

Other Projects
1. Two-wheeled Self-Balancing robot using a 6-DOF IMU.
2. Five bar parallel linkage robot to plot real time on whiteboard.
3. Vision – assisted landing for multirotors

TECHNICAL SKILLS

- Programming languages- C++, C, Python.
- Experience in **ROS, OpenCV, Point Cloud Library (PCL**)
- Software skills in MATLAB, EAGLE, SolidWorks, CST Microwave Studio and Proteus.
- Hardware –**Velodyne VLP-16** , Kinect for Windows, Ardupilot 2.6 and Piccolo II, Raspberry Pi, SolidRun Hummingboard and other SBCs, Video encoders and decoders, Analog and Digital communication systems.

PUBLICATIONS

- “Autonomous payload drop system using mini-Unmanned Aerial Vehicles” – International Journal of Innovations in Engineering and Technology, 2016
- “Delhi Technological University, Unmanned Aerial Systems Project” – Journal Paper for AUVSI-SUAS competition, 2014

ADDITIONAL INFORMATION,

- Finalist, Lockheed Martin C-*130J RORO - University Design Challenge* Phase 2
- Participant, *Arise Startup Launchpad-2016*
- Member, student IET DTU student chapter and SIG for robotics
- Volunteered as a scribe for visually challenged student.