YASH MANIAN

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Github: https://github.com/yashmanian

EDUCATION

Master of Engineering in Robotics: May 2018
University of Maryland, College Park, GPA: **3.8/4.0**
Bachelor of Engineering in Electronics Engineering May 2016
University of Mumbai, GPA: **3.38/4.0**

TECHNICAL SKILLS

Languages: C++, Python, MATLAB, Embedded C
Tools: ROS, SolidWorks, Simulink, AVR Studio, Linux, OpenCV, Git, STL, Eigen, Doxygen, gtest, CMake
Fabrication: PCB design/fabrication, Laser cutting, CNC mill operation, 3D-printing, Milling based MEMs Fabrication

RESEARCH EXPERIENCE

- **Vision based Trajectory Tracking study under Dr. Yiannis Aloimonos** Aug 2017- Dec 2017
  Developed a monocular camera-based navigation system, using Visual Inertial Odometry.
  Implemented an Extended Kalman Filter to fuse data from the camera and the IMU to estimate states.

- **Research Assistant at the Micro Robotics Lab with Dr. Sarah Bergbreiter** March 2017- May 2018
  Designed and conducted experiments to characterize a novel mechanoluminescent elastomer using captured data from a variety of sensors, including cameras and force sensors.
  Worked on developing sensorimotor control loops with bio inspired whisker sensors.
  Developed lightweight, compliant airflow sensors to sense ground effect in quadrotors.
  Designed sensing and conditioning electronics for a capacitive strain sensing skin.

ACADEMIC PROJECTS

- **Autonomous Manufacturing for the ARIAC competition with UR10** May 2018, University of Maryland
  Developed algorithms for automated kit assembly in the ARIAC environment, using ROS, C++, MoveIt!.
- **Autonomous flight through a window, with the Parrot AR Drone 2.0** Dec 2017, University of Maryland
  Developed vision and control to have the AR Drone detect and fly through a window with ARTags. Used OpenCV, C++, ROS.
- **Visual-Inertial Odometry for Aerial Robots with an Extended Kalman Filter** Dec 2017, University of Maryland
  Developed EKF to use IMU data and optical flow data to estimate odometry.
- **Tic Tac Toe with Baxter using RRT and Q-Learning** May 2017, University of Maryland
  Trained Baxter to play tic tac toe against a human opponent using Q-learning. Used RRT to plan to waypoints. Developed using ROS and Python.
- **Visual Odometry and Structure from Motion for Autonomous Cars** May 2017., University of Maryland
  Computed odometry using FAST features from a video. Developed using MATLAB and the CV Toolbox.
- **Visual Navigation on Turtlebot2 mobile platform** May 2017, University of Maryland
  Developed search algorithm given a map, using Turtlebot 2 and the ASUS Xtion pro. Developed using ROS, Python, OpenCV, Moveit and the point cloud library.
- **Traffic Sign Identification using SVMs for Autonomous Vehicles** April 2017, University of Maryland
  Developed traffic sign detection and classification using Haar cascades and SVMs. Developed using MATLAB and the CV toolbox.
- **Detection and Homography Estimation for Fiducial Markers** March 2017, University of Maryland
  Estimated homography and projected a 3D cube onto AR Tags. Developed in MATLAB.

CO-CURRICULARS

- Technical Advisor at Robocon LTCOE, National ROBOCON 2016 March 2016, Mumbai
- Founder and Team Captain at Robocon LTCOE, National ROBOCON 2015 April 2015, Mumbai
- Data Acquisition In-charge at Schnell Racing, FSAE India 2014 July 2014, Mumbai