Anurag Bansal

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EDUCATIONAL QUALIFICATIONS

University of Maryland – College Park, MD Expected Dec 2018
Master of Engineering in Robotics GPA – 3.8/4.0
University of Mumbai – Mumbai, MH Aug 2014
Bachelor of Engineering in Electronics with *First Class Honors*

SOFTWARE PROFICIENCY

Languages - C, C++, Python, MATLAB, LATEX
Softwares - ROS, MATLAB, OpenCV, PCL, Gazebo, RViz, Eclipse, Tensor Flow, CUDA, Arduino, WinAVR, Visual Studio, SIMULink

PROJECTS

Autonomous Driving Car

- Developed various modules for autonomous driving car like Lane Detection, Traffic Sign Recognition, Vehicle Detection and Tracking, and Visual Odometry on MATLAB as part of Perception for Autonomous Robots course projects

Decoupled Path planning for Warehouse material handling robots

- Implemented Priority and Velocity tuning based decoupled path planning approach for multiple robots in a warehouse environment using MATLAB
- Used A* algorithm as the base planner and applied various tuning parameters to make it applicable in multirobot scenario. Studied M* Algorithm, the sub-dimensional approach, as an extension to project

BRAT – Bipedal Robotic Articulating Transport

- Led this project, which included the ability to remotely control the robot wirelessly, basic obstacle avoiding mechanism, self-balancing and performing a pre - learnt motion (forward, backward and sideways).

Other projects implemented during the coursework include – A*, **Weighted A***, **RRT**, **RRT** for **non-holonomic systems**, **SLAM** for Turtlebot by Clearpath Robotics, **Structure from Motion, Q-learning for Tic Tac Toe agent**

PROFESIONAL EXPERIENCE

Research Assistant – Autonomy Robotics and Cognition Lab, University of Maryland

Quadrotor Landing and Takeoff on Mobile Platform -Reverse Control Jan 2018 – Current

- Leading this project which involves landing an autonomous Quadrotor on a mobile platform. Active vision based technique will be used for visual recognition and localization of quadrotor with respect to the mobile platform
- ROS is being used as the development platform (C++), and AR Drone 2 and Turtlebot will be used for the hardware

Visual Servoing and Grasping on Baxter by Rethink Robotics May 2017 – Dec 2017

- This is a part of a major project which involves object recognition from a cluttered scene based on the auditory input and grammar based response. It receives an image of the detected object and robot arm is localized using the visual feedback
- ROS is being used as the development platform (C++)

CareNX Innovations Pvt. Ltd. – Indian Institute of Technology, Bombay (Mumbai, India)
R&D – Team Lead and Senior Embedded Engineer Jun 2016 – Nov 2016

- Led and mentored a team to research and develop Universal Mobile/Micronutrient Reader, a single device that can conduct various medical tests at any facility and is smart phone integrated. Received recognition from Department of Science and Technology, Govt. of India. Led the team to the finals of ImagineIf Innovation Forum, a Cambridge University initiative.
- Developed first prototype of a stethoscope which has both digital and analog functionalities.

E14 Technologies Ltd. – Techno-Sciences Inc. (Mumbai, India)
R&D Embedded Engineer Oct 2015 – May 2016

- Developed Computer Vision Algorithm for blister packing inspection system and tablet inspection system and player tracking for Board of Cricket Control India (BCCI) for Indian Premier League (IPL) tournament
- Developed a band that can transmit the data captured from patient's body directly to the cloud server using Wi-Fi network, which can be observed by Doctor remotely

Grey Orange Robotics (Delhi-NCR, India)
Solution & Design Engineer and Implementation, LDAS (Sortation Systems) Dec 2014 - Aug 2015

- Designed Warehouse Automation Solutions, Process Flow, Integration Development, and conducted Requirements Identifications and Root Cause Analysis during system breakdown phase
- Analyzed Design Engineering output to ensure compliance with project requirements and design standards *and* provided strategic direction during the Project Implementation stages

GRADUATE COURSES

Perception for Autonomous Robots, Planning for Autonomous Robots, Robotics and Perception, Control of Robotic Systems, Robot Modelling, Robot Learning, Building a Robot Software System, Machine Learning