KOYAL BHARTIA

240-918-2187|kbhartia@terpmail.umd.edu| 8125 48th Avenue, #113, College Park MD-20740 <u>https://koyalbhartia.github.io</u> | https://www.linkedin.com/in/koyalbhartia/

EDUCATION

University of Maryland, College Park - Current GPA: 3.78/4.0 *Master of Eng., Robotics*

Expected in May, 2020 College Park, MD

June 2016

Bangalore, India

PES Institute of Technology, PES University - First Class with Distinction *Bachelor of Engineering in Telecommunication Engineering*

TECHNICAL SKILLS

Languages and Libraries: Java, C, C++, MATLAB, Python(NumPy, SciPy), SQL, R, OpenCV, ROS, OpenAI Gym, Scikit-learn
Design and CAD Tools: Simulink, Xilinx ISE, Tanner-tools, P Spice, Solidworks, Gazebo
S/W Tools and OS: Android Studio, Eclipse, JDK tools, MIB Browser, Mobaxterm, Wireshark, Linux
Other S/W Tools: ROBOT C, HFSS Simulator, Google Analytics, Tableau, R Studio, JUnit, JIRA
Hardware: 8051 Board, Arduino, FPGA Board, Routers and Gateways, Cable Modems, Set-Top Boxes, Raspberry Pi

GRAD. PROJECTS

*	Automating robotic solution for last-mile delivery using multiple drones - TSP, Python/C++, ROS, Gazebo/AirSim	Present
*	Localization of mobile robot in indoor crowded environment - SLAM, Python/C++, ROS, Gazebo	Present
*	Implementation of Traffic Sign Detection and Classification using MSER and SVM Model - ML, OpenCV, Python	May'19
*	Roadmap Based Robot Motion Planning in Dynamic Environments - PRM, Python	May'19
*	Implementation of Multi-Class Classification on Image Data using CNN (Kaggle) - ML(CNN), Python	May'19
*	Implementation of Visual Odometry for estimating trajectory of robot - ORB/SIFT, Structure from Motion, Python	April'19
*	Color segmentation using Gaussian Mixture Models and Expectation Maximization Techniques - OpenCV, Python	April'19
*	Design of Algorithm for Lane Detection and Turn Prediction used in Self Driving Cars - OpenCV, Python	Mar'19
*	Detection and Tracking of AR Tags using Homography and Pose Estimation - OpenCV, Python	Feb'19
*	Region-based shape control for a swarm of robots - Robot Control Theory, MATLAB	Nov'18
*	Perspective Correction Enabled Video Recording - Raspberry Pi, Sense HAT, PI Camera, Python	Dec'18
*	Design and Simulation of LQR (Linear Quadratic Regulator) Controller for a gantry crane - Control Theory, MATLAB	Dec'18

WORK EXPERIENCE

→	Robotics Intern, Kawasaki Robotics (USA),Inc, MI	May'19 - Aug'19	
	Successfully programmed cooperative motion between two industrial robots for heavy Material Handling	applications	
	using Teach Pendant and Action Script Language.		
→	Associate (Analyst), The Math Company, Bangalore, India	Apr'18 - Jul'18	
	• Analyzed customer requirements using statistical methods to help enhance their revenue by 15%.		
	• Developed Tableau Dashboards for Melco Resorts & Entertainment Limited using R and SQL.		
→	Embedded Product Design Engineer, Tata Elxsi Pvt Ltd, India	Jul'16 - Apr'18	
	Porting of Android Oreo on Ali's chipset M3755 (Client: ALi Corporation, Taiwan)		
	Ported Android Open Source Project 8.0 TV build with implementation of HAL Components Linux, C/C++, GIT, JIRA.		
	> RDK-B Middleware Development on the Comcast Xfinity Gateway and Cable Modems (Client: Comcast Corporation		
	Developed the Reference Design Kit – Broadband (RDK-B) and fixed JIRA (a bug-tracking tool) issues based on Networking,		
	WiFi, Communication and Docsis 3.0 Protocols leading to a 20% decrease in defect rate Linux, C/C++, GIT, JIRA		
→	Intern, Technophilia Systems - Robotics & Computer Applications Institute of US	Jun'15	
	> Advanced Robotics with Machine Vision - AVR microcontroller programming using Robot C; Machine Vision; 6 th Sens		
	Technology using MATLAB . Conducted experiments on interfacing of peripherals and I/O devices using U A	ART, I2C and RC-5.	
→	Intern, Center for Computer Vision and Image Processing, PES University	Jun'14	
	Automatic Image Annotation using Speeded Up Robust Features (SURF)		
	Computation of SURF descriptors for training image dataset, classification using Bag of Words to train Su	upport Vector	
	Machines (SVM) which are used to compare with test image SVM values C++, OpenCV, Boost Library a	nd Cmake.	

AWARDS AND ACTIVITIES

- Undergrad Project: H/W Development of On-Board Computer for Low Earth Satellites Xilinx, Verilog, Virtex 5, Arduino Due
- Awarded Mozilla Badge International Certified Robotics Engineer in 6th Sense Technology by Technophilia Systems, 2015.
- Attended workshop on i-SensoBotz conducted by National Robotics Championship, ARK Techno-solutions, 2014.
- Secured the Award of Achievement for successfully completing Programming in Java, as part of Oracle's Workforce Development Program at NIIT Bangalore, 2014.