KOYAL BHARTIA

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

EDUCATION

University of Maryland, College Park - Current GPA: 3.78/4.0 — Expected in May, 2020
Master of Eng., Robotics — *College Park, MD*

PES Institute of Technology, PES University - First Class with Distinction — June 2016
Bachelor of Engineering in Telecommunication Engineering — *Bangalore, India*

TECHNICAL SKILLS

Languages and Libraries: Java, Scilab, C, C++, MATLAB, Python(NumPy, SciPy), SQL, R, OpenCV, ROS, Gazebo
Design and CAD Tools: Simulink, Xilinx ISE, Tanner-tools, P Spice, Solidworks
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** - *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 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, US)*
  *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**; 6th Sense Technology using **MATLAB**. Conducted experiments on interfacing of peripherals and I/O devices using **UART, 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 Support Vector Machines (SVM) which are used to compare with test image SVM values. - **C++, OpenCV, Boost Library and 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.