Karan Vivek Bhargava

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OBJECTIVE

To obtain a summer internship in robotics engineering with a focus on machine learning or computer vision

EDUCATION

Masters in Robotics Engineering Aug '16 - May '18 (Expected)
University of Maryland, College Park, Maryland GPA: N/A
Coursework: Machine Learning, Robot Modelling & Control of Robotic Systems

Bachelors of Engineering (Honors) Electronics & Instrumentation Engineering May '15
Birla Institute of Technology and Science, Pilani, India CGPA: 7.65/ 10.0
Coursework: Image Processing, Digital Signal Processing, Analog & Digital Design, Signals & Systems
Honor: Awarded the **Srikant Visweshwariah Analog Design Award 2014** for excellent academic performance
Activities & Societies: Instrumentation Forum, Creative Activities Club, RC Club, Maharashtra Mandal (Publicity & Editing Team Lead)

EXPERIENCE

Grey Orange, India **- Hardware Research and Development Engineer** May '15 - May '16
Involved in the development of the 'butler' robotics product line. Butlers are industrial grade mobile robots which carry storage racks around the storage facility (warehouse), directly fetching items for the operator.

- Independantly built and programmed a new modular charging system (PCB & assembly) which solved critical problems like static discharge, EMI on signal lines which were a common occurrence in Singapore and China installations
- Single handedly and voluntarily designed the harness assembly for the entire butler system and initial vendor management for manufacturing the same
- Implemented testing jigs in production facilities for checking individual PCBs and harnesses. Reduced the failure rate due to harnesses from 50% to 5% by proposing checkpoints in production
- Independantly maintained the embedded layer code for the charging and power scheduling systems

STMicroelectronics Pvt. Ltd, India **– Trainee** June'14 – Dec'14

- Researched recent workflow development in VLSI simulation industry using technical journals
- Independantly wrote a 30-page report on optimizing the workflow for modelling phase locked loop intellectual properties as black boxes for simulation to update senior engineers
- Report pursued management to make changes in the methodology and decrease simulation time by 40%

MG Automation Technologies, India **- Embedded Intern** May '14 - June '14

- Led a team of three people to prototype a segway system and implemented PID control on a microcontroller
- Helped conceptualize an IoT product which was submitted to HAXL8R, a hardware accelerator in Shenzen

TECHNICAL PROJECTS

Handwriting Learning Module using CMAC Learning Algorithm Sept '16 – Present

- Implemented a recurrent CMAC network based on Marr-Albus cerebellum theory to learn a signature curve
- Succeeded in learning cursive signatures containing loops
- Presently working on classifying different strokes in a signature to learn more complex signatures.

Design and control of Wall-E Sept '16 – Present

- Designed the CAD for the assembly in Inventor and imported it to simscape for controlling the motion
- Was able to make the model perform various emotions and also was able to perform pushups.

Smart-Shoe for Indoor Monitoring Aug '13 - Sept '16

- Pinpointed location of a person in a small space by measuring the data from accelerometer and gyroscope
- Interfaced the sensors & programmed the microcontroller.

Grid Solving Robots for Industrial Applications May '15 - Jun '16

- Built differential drive behavioral robot systems capable of line following
- Implemented the algorithm for traversing the grid to reach a specific coordinate without crashing

TECHNICAL SKILLS

- **Languages:** C, C++, Python, Embedded C, Arduino, x86 Assembly Language
- **Tools**: Autodesk Inventor, Altium, Eagle, LABVIEW, MATLAB, Simulink, Cadence Virtuoso and Eldo
- **Others:** Well versed in PCB Printing and prototyping (Protomat S103), 3D printing (Cube3D)