Neeraj Basu

Master's Student

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Technical Skills

Robotics Development
Python
Jupyter Notebook
Linux
Raspberry Pi
Arduino
MATLAB
Component Selection
Power Distribution
Sensors
Circuit Design
Rapid Prototyping
ROS

Personal Projects

Catch the Runaway Robot
Variable PWM/Freq. Driver Circuit
Rehab. Device for PT Patients

Academic Projects

SPM Scene Classification
Shortest Path 1D Robot w Obstacles
AR with Planar Homographies
Neural Networks for Recognition

Awards/Qualifications

5 P&G Power of You Awards
Best ECE Senior Design Award
Finalist Intel Cornell Cup
Dean's List 2015/2016
Low Voltage Qualified

Interests

Weightlifting
Rock Climbing
Hiking
Prototyping

About

After four years of experience in controls, systems and product engineering, I am now pursuing my Masters in Robotics. I'm currently seeking summer internships in robotics, software and mechatronics.

Education

2020 - 2022   **Carnegie Mellon University - Robotics Institute**   Pittsburgh, PA
M.S. in Robotic Systems Development

2012 - 2016   **Boston University - College of Engineering**   Boston, MA
B.S. in Electrical Engineering
Concentration in Technology Innovation

Experience

Jun 2019 - July 2020   **SharkNinja - Senior Robotics Product Development Engineer (MA)**

- Engineered architectural, subsystem and consumer facing design choices to guarantee $25M in profit for 2019/20.
- Oversaw testing and development of newest unit with upgraded processor and optical flow sensor to improve nav. and mapping.
- Fabricated software specifications throughout entire life-cycle, including conception, development, unit testing and deployment.
- Managed cross-disciplinary engineering functions for delivery of 25,000 units of newest advanced nav. robotic vacuums to field.
- Utilized ROS to compare intrinsic robot trajectory with external camera tracking to improve navigation performance.

Dec 2016 - Mar 2019   **P&G - Power, Controls & Information Systems Engineer (WV)**

- Developed simulation platform using virtual machines to host PLC, HMI & Batch software to train team prior to hardware delivery.
- Lead team of 20 E&I technicians and $1M in contractor budget to develop self sufficient team for P&G's largest greenfield startup site.
- Led the installation and power-up of $2M of equipment for electrical panels, industrial transmitters, IO/Ethernet Cards and PLCs.
- Tuned re-circulation and feed loops to meet raw material dosing accuracy standards of sub 1% using fast feed cut off valves.

Sep 2016- Dec 2016   **Amazon Robotics - Mechatronics Co-Op, Advanced Robotics (MA)**

- Researched and identified the best 3D camera to achieve Amazon's vision needs for their robotic pick/pack out of bins applications.
- Created testing protocol to compare point clouds of data collected from 3D camera candidates using Python and Jupyter Notebooks.
- Designed functions to compare characteristics such as pixel noise, exposure time and spatial configuration.

May 2015 - Aug 2015   **View Inc. - Electrical and Software Engineering Intern (CA)**

- Designed and conducted electrical test protocols to determine the total power consumption of controllers for smart windows.
- Created algorithms in Python to solve for factors such as peak current, voltage drops and power consumption eliminating need for manual calculations.

May 2013 - July 2014   **B.U, Solid State Laboratory, - Nanotechnology Researcher (MA)**

- Designed controller to steer static beams of light generated by LEDs using deformable MEMs micro-mirrors and micro-controller.