Nicholas Lanotte

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Website: NLanotte.com – Please view this website for more details of each project

'General Resume'

Education

Worcester Polytechnic Institute - Undergraduate **Class of 2019**

- Robotics Engineering and Electrical and Computer Engineering Double Major
- Overall GPA: 3.91/4.0
- Dean's List for Fall Term 2015 through Spring Term 2019
- Member of Tau Beta Pi – Engineering Honors Society
- Secretary of Eta Kappa Nu – Electrical Engineering Honors Society

Worcester Polytechnic Institute – Graduate

- Pursuing M.S in Robotics Engineering
- Current GPA: 4.0/4.0

Work Experience

- Engineering Internship at Columbia Tech - Summer 2017 and 2018
- Engineer at Lumikha 3D Summer 2019

Projects

- **Robotics Projects** undergrad and graduate
  Undergraduate projects included
    - Line following
    - 4-bar lift arm design
    - 3DOF manipulators
    - Colored ball detection using Computer Vision
    - SLAM implemented using ROS

  Graduate projects included
    - Computed torque control
    - PID control
    - Trajectory generation
    - Simulating 3DOF arm moving with velocity control using Gazebo and ROS
    - Designing and simulating 3DOF to throw a ball at a desired velocity
- **Artificial Intelligence Project**
    - Created AI to predict the outcome of Tennis Matches
    - Predicted before the match using Logistic Regression – 74.5% correct out of 2801 matches
    - Updated prediction throughout the match using Support Vector Machines
    - Merged algorithms yielded 76% correct predictions at halftime, 97.2% correct by the end

- **FPGA Design** - ECE 3829
  This class gave me experience in how to incorporate microprocessors and logic circuits together to solve a complicated problem on a single FPGA.
  Implemented Circuits
    - Function Generator
    - VGA Display
    - ADC
    - MicroBlaze processor
- **Software Engineering Project**
    - Teams of 9 competed for the best application. Used Agile Methodologies
    - My team came in 2nd place overall
    - Created Software app for Brigham & Women's main hospital campus. Features include:
        - Indoor pathfinding
        - Map builder
        - Hospital service requests
        - Heat map of most path travelled
        - Programmed Turtlebot 2 with custom version of the app to perform indoor pathfinding
            - Incorporated Google speech API to verbally command the robot
- **Columbia Tech Internship**
    - Summer 2017 Project – Designed a curing chamber for an SLA 3D printer for internal use at Columbia Tech.
        - Created physical model in Solidworks, designed schematics and programmed an Arduino
        - Arduino controlled UV lights and heating system to cure SLA parts
        - I had to perform design reviews before parts could be ordered
    - Summer 2018 Projects – Columbia Tech is a manufacturer with an engineering department to assist other companies.
        - Worked with Metal 3D printing and Radio Repeater systems for skyscrapers in New York
        - Created Work Instructions, aided in solving manufacturing problems as well as some assembly of each system.
- **Autonomous Landmine Detection Rover – Major Qualifying Project**
  My senior capstone project was to outfit a ClearPath Husky A100 to autonomous scan a minefield and mark landmines in software and on the ground.
    - Designed metal detector, and sweeping mechanism
    - Able to detect metal in quantities equivalent to that in landmines at the desired depths and mark the location using spray-paint.
    - A Differential GPS unit was used to navigate the rover across a predefined minefield created using the Google Maps API
    - Please view my website for video of this rover operating in the "MQP" section.

Skills

Programming

C/C++, Racket, Java, JavaFX, Java DB, Python, PyQt5, MATLAB, Vivado, ROS, HTML, Arduino

Computer Programs

Gazebo, SolidWorks, KiCad, Windows, Mac OS, Linux OS, Microsoft Office, GitHub, Travis CI, Gradle, IntelliJ, PyCharm, Eclipse