Jonah Okike-Hephzibah

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Education

Cornell University | College of Engineering — **Ithaca, NY**
B.S./M.Eng in Mechanical Engineering/ Dynamics, Controls and Robotics (3.8) — *Expected May/Dec 2018*

Santa Monica College — **Santa Monica, CA**
Honors & STEM Curriculum — *Aug 2012–June 2015*

Related Coursework: Multivariable Control Theory; Feedback Control Systems; Embedded Operating Systems; Digital Systems Design using Microcontrollers; Machine Learning for Intelligent Systems; System Dynamics; Intermediate Dynamics & Vibrations; Advanced Dynamics; Mechatronics; Object-Oriented Programming and Data Structures; Assembly Programming

Technical Experience

Cyngn — **Menlo Park, CA**
Vehicle Platform Intern — *June 2018 – Aug 2018*
- Intern at a stealth mode startup working on autonomous vehicles

Cornell Autonomous Systems Laboratory — **Ithaca, NY**
Independent Undergraduate Researcher and Intern (Principal Investigator: Hadass Kress-Gazit) — *Feb. 2017 – Present*
- Collaborating with a PhD and postdoc student to interface collision avoidance via barrier certificates and path planning strategies for efficient navigation using Python
- Developed a scalable controller for multiple robots to enable navigation of a swarm using Vicon Motion Systems as positional feedback
- Interfaced an ESP8266 Microcontroller with Hexbugs to enable wireless communication using the Arduino IDE

Cornell University, Department of Mechanical & Aerospace Engineering — **Ithaca, NY**
Graduate Teaching Assistant - Mechatronics — *Aug 2018 – Dec 2018*
- Worked as a lab TA with analog circuits and microcontrollers and helped students debug their robots for the courses final competition

Cornell Hyperloop — **Ithaca, NY**
Electrical Sub-Team Member — *Sep 2016 – June 2017*
- Researched & selected the linear actuators for pod induction breaking subsystem
- Advanced straight to third stage of SpaceX Hyperloop Pod Competition in Spring 2017 based on innovation in Fall 2016

Cornell Cup Robotics — **Ithaca, NY**
Mechanical Modular Robot Sub-Team Member — *Sep 2015 – Dec 2016*
- Built a Java interface to allow for virtual communication methods with the modular robot. This also gave control of the robot to the user
- Implemented and tuned a PID controller using MATLAB and converted algorithm into C#
- Calculated necessary motor requirements based on estimate of bot weight and performance metrics to optimize motor selection

UCLA, The Mechatronics and Controls Laboratory — **Los Angeles, CA**
Summer Undergraduate Student Researcher (400+Hours) — *Jun 2015 – Aug 2015*
- Designed MRI compatible robotic arm for biopsy using SolidWorks
- Utilized a 3D printer to produce the individual parts
- Implemented a PID controller using LabVIEW, interfaced through myRIO

Projects

Robotic Arm Simulation | MAE 5710 Applied Dynamics
- Simulated an N-link robotic arm for waypoint navigation using inverse kinematics

Robust Control of a Bi-Copter | MAE 6780 Multivariable Controls
- Created a model of a bi-copter in simulink to implement a sliding mode controller. The controller was intended to reject environmental disturbances as well as follow waypoints that are fed in from a path planning algorithm.

Nerf Gun Cannon | ECE 5725 Embedded Operating Systems
- Used opencv to implement stereo vision with two web cameras on a Raspberry Pi in order to determine global coordinates of a target. This data was fed into an inverse kinematics model to determine necessary pitch and yaw to orient the gun to hit the target.

Real Time Pressure Mapping of a Hand for Startup (OrthoFit) | ECE 4760 Digital Systems Design using Microcontrollers
- Designed and programmed a glove that mapped the pressure applied on the hand in real time to a locally hosted website for visualization.

Stabilization of an Inverted Pendulum on a Cart | MAE 5780 Feedback Control Systems
- Stabilized the linearized dynamical model of an inverted pendulum using control concepts and applied controller to a physical system

The N-Link Pendulum | MAE 4730 Intermediate Dynamics and Vibrations
- Implemented an N-Link Pendulum deriver and animator using three different numerical approaches in MATLAB.

Skills & Interests

Technical: MATLAB, Simulink, LabVIEW, Java, Python, Linux, C++, C, Git, Microcontrollers, PID, LQR, CAN Bus
Extracurricular: Shake Ultimate Club Frisbee team, Theta Tau Engineering Fraternity, DREAM Team.