AHARON SEBTON

SEEKING AN ELECTRICAL ENGINEERING POSITION STARTING FALL 2023

CONTACT

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EDUCATION

Rochester Institute of Technology
Aug 2017 to May 2023
B.S. & M.S. in Electrical Engineering
Focuses in Robotics and Image & Signal Processing
Immersion in Music
GPA of 3.33

SKILLS

- Robot Kinematics and Dynamic Analysis
- Trajectory Planning
- Filter Design
- Neural Networks & Machine Learning
- CAD Design
- Circuit Simulation
- Circuit Design (Schematic & PCB)
- Project planning
- Effective communicator

LANGUAGES/TOOLS

- C & C++
- MATLAB & Simulink
- Python
- R
- Assembly
- Verilog
- VHDL
- ROS
- SolidWorks, AutoCAD, Inventor
- Altium Designer
- Quartus Prime
- SPICE

HOBBIES

- Singing
- Guitar
- Hiking
- Cooking
- Running

WORK EXPERIENCE

GRADUATE RESEARCHER

Rochester Institute of Technology | Jan 2022 - Present

- Integrating RealSense RGBD camera with Sawyer arm robot
- Applying CNN and deep RL algorithms to solve object grasping and manipulation tasks
- Improving solutions to 3D bin packing problem

HARDWARE QUALITY AND RELIABILITY ENGINEERING INTERN

Amazon Robotics | July 2022 - December 2022

- Communicated with subject matter experts to learn the most common hardware failures seen in the field, and potential methods to diagnose failed units
- Researched and selected measurement and testing equipment for purchase
- Built test stations and wrote test procedures for the new Failure Analysis lab
- Performed root cause analysis on failed units and worked with suppliers to launch long-term solutions to identified failure modes

HARDWARE DESIGN ENGINEERING INTERN

Collins Aerospace | Jan 2020 - July 2020

- Member of a process-oriented hardware test and development team
- Assisted in troubleshooting, revision, qualification testing and FAA approval of flight deck control panels for commercial and firefighting aircraft
- Documented requirement-based testing using Jama, updated PCB schematics using DxDesigner, and tracked document changes using Subversion version control software

PROJECTS

SAWYER MOBILE DEVICE INTERACTION

Fusion 360, Python & ROS | github.com/sebtona/sawyer-mobile-device-interaction

- Enabled 7-DoF robotic arm Sawyer to safely perform single and multi touch gestures on mobile devices
- Designed and 3D printed custom end effector for Sawyer
- Developed Python scripts to actively sense force applied to screen and perform each gesture

MATHEMATICAL EDGE DETECTION AND IMAGE RECONSTRUCTION

MATLAB | github.com/sebtona

- Created and explored edge detection algorithms using gradient (Prewitt) and Laplacian kernel filters. Discovered and proved caveat with RGB images
- Created an image reconstruction algorithm using an image's eigenpairs ordered by magnitude. Tracked error in pixel values as more eigenpairs were used. Discovered excluding eigenpairs of low magnitude is a crude image compression algorithm

DANCING HEXAPOD

Arduino, C++ | github.com/sebtona/dancing-hexapod

- Programmed a six-legged robot to detect the tempo of audio being played and dance to the beat
- Used Hamming windows and FFT algorithms to help estimate true tempos of audio signals
- Frequency used to time delays between modular dance moves

PEDIATRIC TEST MANNEQUIN

Altium Designer, C++ | github.com/sebtona/pediatric-test-mannequin

- Worked with a team of engineering students to develop the sensing system for an anthropomorphic test device
- Designed, tested and implemented custom support circuitry for sensors
- Created, communicated, and helped implement wiring diagrams with the structural team

RELEVANT CLASSES

- Advanced Robotics
- Digital Signal Processing
- Pattern Recognition
- Random Signals and Noise
- Advanced Engineering Mathematics