AHARON SEBTON

SEEKING POSITION UTILIZING ONE YEAR OF ELECTRICAL ENGINEERING AND ROBOTICS EXPERIENCE

CONTACT

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EDUCATION

Rochester Institute of Technology
BS/MS dual degree in Electrical Engineering awarded May 2023
Focuses in Robotics and Image & Signal Processing
Immersion in Music
GPA of 3.53

LANGUAGES/TOOLS

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

SKILLS/CERTIFIED

- Lean Six Sigma Yellow Belt
- Root Cause Analysis
- Robot Kinematics and Dynamic Analysis
- Trajectory Planning
- Neural Networks & Machine Learning
- Computer Vision
- CAD Design
- Circuit Simulation
- Circuit Design (Schematic & PCB)
- PCB Rework
- Project planning

HOBBIES

- Singing
- Guitar
- Hiking
- Cooking
- Running

CO-OP EXPERIENCE

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, reworked PCBs, updated PCB schematics using DxDesigner, and tracked document changes using Subversion version control software

WORK EXPERIENCE

BIOROBOTICS/CYBERNETICS TEACHING ASSISTANT

Rochester Institute of Technology | Jan 2023 - May 2023

- Led instruction of and supervised biorobotics lab experiments
- Guided students regarding homework, lab reports, and final projects
- Provided troubleshooting assistance with biosignal acquisition devices/software

PROJECTS

BIN PACKING ROBOTIC SYSTEM (GRADUATE PAPER)

PyTorch, Point Cloud Library, Python | github.com/sebtona/bin-packing-robotic-system

- Repurposed hand-eye calibration and GR-ConvNet based grasping techniques for Sawyer arm robot
- Automated generation of 3D point cloud models for objects picked up by robot
- Built bin, designed and 3D printed objects of varying dimensions for experimentation
- Developed code to pack objects in bin with desired location and orientation

GESTURE CONTROLLED DRONE SIMULATION

TensorFlow, Flightmare, ROS | github.com/sebtona/gesture-controlled-drone-simulation

- Captured dataset of biosignals for fifteen different hand/arm gestures
- Researched and implemented biosignal preprocessing and feature selection techniques
- Developed novel machine learning model to accurately classify hand/arm gestures
- Created pipeline to observe gestures, classify them, and maneuver drone in simulation environment, all in real time

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

RELEVANT CLASSES

- Advanced Robotics
- Digital Signal Processing
- Pattern Recognition
- Biorobotics/Cybernetics
- Image & Video Compression
- Lean Six Sigma Fundamentals