

# AHARON SEBTON

SEEKING AN  
ELECTRICAL  
ENGINEERING  
CO-OP STARTING  
AUGUST 2022

## 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 3.53

## 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 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

### ORIENTATION PROGRAM ASSISTANT (OPA) / ORIENTATION LEADER (OL)

RIT New Student Orientation | Aug 2018, 2019, 2020, 2021

- As an OPA, collaborated with a team of ten student leaders and two supervisors. Facilitated organizational aspects for RIT's week-long orientation for new students
- As an OL, welcomed approx. 40 new students and their families to RIT. Arranged social and educational events to promote relationship-building and comfort in a new living and learning environment

## PROJECTS

### SAWYER MOBILE DEVICE INTERACTION

Fusion 360, Python & ROS | [github.com/sebtona/sawyer-mobile-device-interaction](https://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](https://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](https://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](https://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