

ANTON SHOHAM

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EDUCATION

BASc, Engineering Physics, University of British Columbia

September 2022 – August 2027

Focus on upper-level mathematics and physics with a blend of electrical, mechanical and software engineering.

TECHNICAL SKILLS

Software: Python, PyTorch, OpenCV, Tensorflow, HMI, Structured Text, C, Linux, Matlab/Simulink, LabVIEW, Java,

Electrical: Microcontrollers, Multimeter, I2C, Ethercat, Soldering, LabJACK, Oscilloscope, Logic Analyzer

Mechanical: Solidworks, FEA, Beckhoff PLC, Laser Cutter, 3d Printer, AutoCAD, Onshape, Powertools, Lathe, Mill

EXPERIENCE

Plasma Centrifuge Intern

May 2025 – Present

Marathon Fusion | **Electrical Design, Oscilloscopes, Microcontrollers, LabVIEW, Data Acquisition** *San Francisco, CA*

- Designed electrical cabinet used to power 800A magnets capable of 0.5T. Cabinet includes current sensors, contactor status telemetry, cooling control, safety interlocks and integration into broader data acquisition system.
- Designed centralized data acquisition system to control 4 plasma centrifuges. Collects telemetry from 33 sensors and controls 34 relays, alarm system, and gas feed system. Has safety interlocks built into hardware and software.
- Wrote software in LabVIEW and Lua to control all 4 plasma centrifuges. Consists of state machine, safety interlocks, telemetry readouts and datalogging.
- Implementing Hollow Cathode plasma source for Plasma Centrifuge.

Attitude Determination Developer

Sep. 2024 – Present

UBC Orbit - Student Cubesat Design Team | **C, Linux, Microcontrollers, Applied Math, HIL Testing** *Vancouver, BC*

- Responsible for implementing sensor processing algorithms in C to determine Satellite's current orientation
- Implemented QUEST algorithm in C to determine orientation by finding rotation matrix between measured and calculated sun pointing and magnetic field vectors
- Calculated rotational setpoints in C for CubeSat to feed into control feedback loop
- Investigating GNC systems with ultimate goal of building satellite state machine

Thermal Controls and Automation Intern

Jan 2024 – April 2024

MKS Instruments | **Solidworks, FEA, PLCs, HMI, Matlab/Simulink, TwinCAT3, LabVIEW** *Vancouver, BC*

- Coded temperature controller where PID values are a function of temperature in TwinCat3
- Improved accuracy of controller by modeling system with Matlab's System Identification Toolbox and tuned with Simulink
- Ran FEA thermal simulations in Solidworks for test stand to determine heat of product after 1000+ hours of operation
- Implemented LabVIEW state machine, data-logger, GUI, task scheduler and Python hardware control to enable temperature probe to measure with accuracy of 0.1 °C made possible by auto-tuning PID controller for laser

PROJECTS

Simulated Self Driving Car | **PyTorch, OpenCV, ROS, Python, Linux**

September 2024 – December 2024

- Coded self-driving robot in Gazebo environment which uses imitation learning to navigate a complex obstacle course
- Wrote image preprocessing scripts using OpenCV to prepare data for training models
- Built data pipeline in Python with OpenCV that allows for the rapid conversion of recorded manual driving into encoded data suitable for model training
- Designed imitation learning 3-layer CNN model in PyTorch using images to determine command velocities for vehicle

Burger Building Robots | **Solidworks, Laser Cutting, 3d Printing, Motion Simulations**

June 2024 – August 2024

- Designed chassis, conveyor belts, grabbers and drivetrain for two robots in Solidworks, mated parts into assemblies and ran motion simulations. Manufactured robots using laser cutters and 3d printers
- Responsible for mechanical design and manufacture of conveyor belt, claws and chassis of main robot, and completely designed mechanical elements of second robot

Motor Driver with Feedback | **Oscilloscopes, Wavegens, Logic Analyzer**

October 2023 – December 2023

- Built a motor driver that used an Op-Amp integrator and differentiator to add PID feedback
- Debugged circuit using logic analyzers, oscilloscopes, multimeters and wavegens