

# Thomas Snyder


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**Education**      **Honors BSc. Electrical and Computer Engineering**      Corvallis, OR | Expected Grad. Mar. 2022  
OREGON STATE UNIVERSITY  
GPA: 4.0/4.0 | **Minor:** Mathematics, Computer Science  
**Relevant Coursework:** Adaptive Filtering/Online Learning • Digital Signal Processing • System Dynamics and Control • Robotic Manipulators (Observed) • Signals and Systems 1, 2

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**Work Experience**

**CARNEGIE MELLON UNIV. | SUMMER SCHOLAR | RPLAB**       Remote | Jun 2021 - Aug 2021

- Explored environmental configurations to induce perceptual aliasing in existing SLAM algorithms
- Incorporated DDF-SAM in Unity simulation with ROS backend
- Extensive programming in C++, Python, Bash and XML

**OREGON STATE UNIV. | UNDERGRAD RESEARCH | HMTLAB**       Corvallis, OR | Nov 2017 - Present


- Implemented state estimation via an Extended Kalman Filter
- Developed three PCBs to extend robot sensor suite
- Reviewed the swarm literature to identify heterogeneous swarm testbeds
- Thesis in progress on Ultra-Wideband UGV localization


**AIR WEIGH | EMBEDDED SOFTWARE ENGINEERING INTERN**      Eugene, OR | May 2020 - Sep 2020


- Ported embedded operating system across STM32 microcontroller families
- Conducted new product research on suitable wireless infrastructure
- Presented and implemented new UI changes to main product line

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**Projects**

**SCARA ROBOT ARM**       SYSTEMVERILOG, PYTHON, C, SOLIDWORKS  
A robot arm with SCARA topology (Two joint, planar) intended for drawing. We used an Altera Cyclone V FPGA with an arm co-processor to draw on a piece of paper. I learned about robot kinematics, dealing with nonlinearities, and robotic control concepts.

**SWARM ROBOT POWER MANAGEMENT**       C, EMBEDDED C++, KICAD, EAGLE  
My capstone project was to implement a power management system on swarm robots. I designed and assembled ten PCBs for centimeter-scale swarm robots that will serve as an extensible platform for sensor integration and onboard system monitoring.

**WIRELESS RGB KEYPAD**       C, KICAD  
I designed and built a wireless keypad with backlighting from the ground up. I designed the PCB in KiCad, etched the PCB at home, assembled the hardware, and flashed the firmware. I learned about the PCB manufacturing process, firmware development, and precision soldering.

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**Skills**

**Languages:** C, C++, Python, Bash, MATLAB  
**Hardware:** STM32, KiCad, Eagle, Oscilloscope, Lab Equipment, FPGA, SolidWorks  
**Software:** Git, ROS, LaTeX, Unix, Simulink, Modelsim, Quartus Prime, LTSpice, Docker, Unity

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**Awards**

2019	National	Andy Grove Intel Scholarship
2017	National	Oregon State University Presidential Scholarship
2017	1st	George Fox Programming Contest

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**Leadership**

Nov, 2020	Present	Undergraduate Research Supervisor
Sep, 2020	Present	Creative Team Leader
Sep, 2020	Jun, 2021	Capstone Team Lead
Sep, 2019	May, 2020	Capstone Team Technical Supervisor
Sep, 2018	Jun, 2019	Epic Movement Small Group Leader
Sep, 2018	Jun, 2019	Inventors Enterprise Webmaster