**Scott D. Odland**

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**Education**

**NORTHWESTERN UNIVERSITY** Evanston, IL

Bachelor of Science in Mechanical Engineering, Concentration in Robotics, GPA: 3.54/4.00 June 2021 Relevant Coursework: Electronics Design; Computer Aided Design; Fluid Dynamics; Thermodynamics, Mechatronics, Embedded Programming, Swarm and Multi-Robot Systems, Robotic Manipulation, Probabilistic Systems, Feedback Systems

**Leadership and Activities**

**Quadcopter Control** March 2021 - Current

*Independent Project*

* Designed control algorithm using sensor fusion of 6-axis IMU for stable flight of quadcopter
* Interfaced ESP32 microcontroller with QWinOut 30A ESCs and 1000 kV motors
* Created WebSockets interface to send commands wirelessly to and receive data from the quadcopter

**Northwestern University Robotics Club (NURC)**  March 2020 – April 2021

*Workshop Chair*

* Designed an introductory course in robotics for new members of NURC
* Developed a curriculum to teach these students embedded programming, circuitry, PWM, CAD and motor control
* Maintain and advise club activities as a member of the NURC Exec Board

**RoboBrawl** Jan 2020 – March 2020

*Manufacturing Lead*

* Managed manufacturing for four five person teams to ensure battle-readiness by competition date.
* Programmed microcontroller in Arduino C++ to link a PS4 controller to the differential and weapon drive of battlebot.

**Design Competition, Northwestern University** March 2019 – June 2019

*Team Member*

* Designed and built a semi-autonomous robot to detect/collect objects under a shroud.
* Devised, executed diagnostic tests for electrical components.
* Designed and built servo actuated gripping system

**Work Experience**

**Signode Industrial Group** Glenview, IL

*Electrical Engineering Intern – Robotics*  Jan. 2021 – Apr. 2021

* Wrote software for robotic pick and place procedures, accounting for failure modes, error cases and inputs from a PLC
* Designed 3D printed fixtures for end effector of ABB robot arm to grip various objects
* Simulated robot packaging process and conveying process as proof of concept for purchasing

**Interactive and Emergent Autonomy Lab** Evanston, IL

*Research Assistant*  Sep. 2020 – Mar. 2021

* Led design and development of 10+ robots for Bayesian particle filter experiment
* Optimized IR detection and line following algorithms to create more consistent readings for target detection algorithm

**Sibel Health** Niles, IL

*Hardware Engineering Intern* June 2020 – Sep. 2020

* Performed and documented mechanical life cycle testing on chest and limb sensors for FDA approval
* Validated new temperature sensor in comparison with old one using a Bland-Altmann plot
* Designed new custom battery pack for lithium polymer battery packaging

**Segal Design Institute** Evanston, IL *Shop Trainer*  Jan. 2020 – June 2020

* Trained undergraduate engineers to use the mill, lathe, waterjet, and horizontal/vertical band saw.
* Received CPR, first aid and AED certification and ensured student adherence to safety protocols

**Grain Surfboards**  Amagansett, NY

*Skateboard Workshop Instructor & Woodshop Crew Member* June 2018 – Aug. 2018, June 2019 – Aug. 2019

* Led workshops for custom built skateboards, hand-planes and bodyboards.
* Built for-sale furniture pieces/household items: benches, cutting boards, picture frames and mirrors.
* Drafted instruction manual for at-home construction of custom-built skateboards.

**Skills/Other/Interests**

**Software:** SolidWorks, Git, OnShape, C, C++, Python, Excel, FEA analysis, Solid Edge, Eagle, MATLAB, NX, PID control, RAPID, GD&T, ROS, CoppeliaSim, Docker, HTML, CSS, Linux, SLAM & Path Planning Algorithms

**Machinery:** Manual and Conversational Mill; Water Jet; Laser Cutter; 3D Printer; Lathe; Band, Chop, and Table Saw; Router; Joiner

**Other Activities:** Club Lacrosse, Practice Goalie for Northwestern Women’s Lacrosse, ZBT Risk Manager and Standards Director

**Interests:** Skateboarding, Snowboarding, Surfing, Painting