Scott D. Odland

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Education

NORTHWESTERN UNIVERSITY Evanston, IL

Bachelor of Science in Mechanical Engineering, Concentration in Robotics, GPA: 3.50/4.00 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. – 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 – 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 – 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. – 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 – Aug. 2018, June – 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
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