Luke Schmitt

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EDUCATION

Carnegie Mellon University — **Pittsburgh, PA**
Master of Science in Mechanical Engineering — May 2021
QPA: 3.83/4.00

The University of Akron — **Akron, OH**
Bachelor of Science in Mechanical Engineering, Minor in Applied Mathematics — May 2019
GPA: 3.78/4.00

WORK EXPERIENCE

Westinghouse Electric Company — **Madison, PA**
Robotics Engineer — Summer 2020

- Implemented and tested safe velocity filters in ROS to improve mobile robot autonomous navigation stack
- Performed conceptual design for a novel multi-robot inspection system
- Communicated with suppliers and potential vendors for product selection and market research

Moen — **North Olmsted, OH**
Engineering Co-op — Spring 2017, Fall 2017, Summer 2018

- Developed, prototyped, and evaluated new product concepts
- Designed critical components for a high-volume product based on analytical and marketing feedback
- Used CFD tools and math models to maximize product attributes such as flow rate and pressure
- Performed finite element analysis to efficiently design critical components against pressure and consumer use

S&C Electric — **Chicago, IL**
Electroplating Intern — Summer 2016

- Wrote standard work orders, formed relationships with suppliers, advanced operator aptitude certification system

ACADEMIC & RESEARCH PROJECTS

Carnegie Mellon University — **Pittsburgh, PA**

Computational Engineering and Robotics Lab • *Control Project Group* — Spring 2020 - Present

- Research tethered drone controller design, simulation, and application
- Develop an adaptive controller for UAVs operated under windy conditions
- Design a drone controller development platform

24-774 Advanced Control Systems Integration • *Model Predictive Control Hardware Integration* — Fall 2020

- Wrote an MPC C++ application that achieved position and balance control of a two-wheeled robot

24-787 Machine Learning & Artificial Intelligence • *Tethered Quadcopter Reinforcement Learning* — Fall 2020

- Learned a stabilizing controller for a tethered drone using reinforcement learning methods

16-899 Adaptive Control & Reinforcement Learning • *Improving State Estimation Through Filter Learning* — Spring 2020

- Improved state estimation of a simulated quadcopter using machine learning techniques

16-868 Biomechanics & Motor Control • *Modeling Bipedal Balance Strategies* — Fall 2019

- Modeled a robust 2D bipedal controller using Simulink that recovers standing balance under disturbances

The University of Akron — **Akron, OH**

Senior Design Project • *Autonomous Combat Robot* — Spring 2018 - Spring 2019

- Designed, built, and analyzed a platform for the development of an autonomous combat robot
- Won first place at senior design showcase for Health, Robotic, and Manufacturing System Design

Undergraduate Research • *Bone Biomechanics and Mechanobiology Lab* — Fall 2016 - Fall 2018

- Worked with a small team to design and test a unit to evaluate the mechanics of bones of variable size
- Won second place for undergraduate biomedical engineering in university-wide poster showcase

NASA Robotic Mining Competition Team • *ME/EE Divisions & Treasurer* — Fall 2015 - Spring 2019

- Lead the design and fabrication of the robot's locomotion and excavation systems and LED driver PCB

Biomedical Engineering Design Team • *President & Various Projects* — Fall 2015 - Spring 2019

- Created and delivered tools and toys for children in the local community with disabilities

SKILLS

Programming: Advanced - MATLAB, Simulink | Intermediate - C++, ROS, Python, Git | Basic - JavaScript, Web Dev
CAD & CAE: Advanced - SolidWorks, Creo | Intermediate - ANSYS FEA | Basic - Eagle CAD
Technologies: Controls (Classical, PID, LQR, MPC), Linux OS, Robot Operating System, OpenAI Gym Toolkit, MDP