

# Luke Schmitt

Luke@LukeSchmitt.me • LukeSchmitt.me

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## EDUCATION

### Carnegie Mellon University

Master of Science in Mechanical Engineering  
QPA: 3.83/4.00

Pittsburgh, PA

May 2021

### The University of Akron

Bachelor of Science in Mechanical Engineering, Minor in Applied Mathematics  
GPA: 3.78/4.00

Akron, OH

May 2019

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## WORK EXPERIENCE

### Westinghouse Electric Company

Robotics Engineer

Madison, PA

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

Engineering Co-op

North Olmsted, OH

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

Electroplating Intern

Chicago, IL

Summer 2016

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

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## ACADEMIC & RESEARCH PROJECTS

### Carnegie Mellon University

Computational Engineering and Robotics Lab • *Control Project Group*

Pittsburgh, PA

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

Senior Design Project • *Autonomous Combat Robot*

Akron, OH

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 tools and toys for children in the local community with disabilities

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## SKILLS

**Programming:** Advanced - MATLAB, Simulink | Intermediate - C++, ROS, Python, Git | Basic – JavaScript, Web Dev

**CAD & CAE:** Advanced - SolidWorks, Creo Pro/E | Intermediate - ANSYS FEA | Basic - Eagle CAD