Cameron Selby

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Education

Carnegie Mellon University, Pittsburgh, PA

- **M.S. & B.S in Mechanical Engineering** Graduating: December 2018
  Dean's List: S'16, F'17, S'18, Cumulative QPA: 3.72 Department QPA: 3.81
- **Projects**

  Robotic Ice Hockey Goaltender Fall 2018
  Individual project to create a training robot to help players practice shot placement and velocity. Raspberry Pi controlled system employs computer vision to track incoming pucks and actuated models of goaltender limbs to intercept.

  Automated High-Power Rocket Launch Pad Spring 2018
  Senior design project to create a launch pad to automatically adjust launch angle for rockets up to 10ft tall to improve safety and flight trajectory using real time wind data. Performed structural and dynamic analysis of rotation and lifting mechanisms for accurate position control and stabilization during lift-off.

  RoboBuggy 2017-2018
  The CMU Robotics Club enters an autonomous vehicle into the CMU Buggy Races, an annual competition that pits drivers in gravity powered vehicles in a relay race around campus. Last year a new buggy chassis was built. My role has included layups of fiberglass body components, design and milling of brake and steering parts, data collection and testing, and repairs.

Employment and Research

RoboMechanics Lab., Carnegie Mellon University, Student Researcher Summer 2018-present
Studied robotic tails as part of the RoboMechanics Lab. Designed low mass tails that use aerodynamic drag to provide torque for body reorientation and stabilization. Conducted experiments to characterize drag performance in rotational modes, and compare the torque provided to traditional inertial tails. Conducted experiments with quadrupedal robot to evaluate real world performance and develop behaviors and control strategies.

Lutron Electronics Co., Inc., Coopersburg, PA, Mechanical Engineering Intern Summer 2017
Primary project: designed and built a rotary cycling robot, Arduino based desktop device to conduct rotary endurance cycling. Secondary work: product development of electronics housings with consideration given to RF performance, prototyping, preparation of engineering drawings, and testing.

Carnegie Mellon University, Grader/TA, Dept. of Mechanical Engineering Fall 2016/Spring 2017
Graded homework and exams for Statics. In-class Teacher's Assistant for Introduction to CAD.

Sawdust Arts Festival, Laguna Beach, CA Summer 2016
Sawdust is a summer-long art education festival. Managed ceramic inventory and made sales.

Activities and Achievements

Carnegie Mellon University Robotics Club 2014-present
Carnegie Mellon Club Ice Hockey Team, Co-President 2014-present
FIRST Robotics Competition Team 117, Co-Captain (Allderdice High School) 2013-2014
Pittsburgh Vintage Grand Prix, Volunteer (charitable vintage sports car race) 2005-present

Skills

Prototyping skills:

- Manual and CNC machining
- Composite layup
- Molding and casting
- Additive manufacturing
- Soldering and circuit protoyping

Software skills:

- CAD: SolidWorks & Creo
- FEA: Structural & CFD
- C++ (and Arduino)
- Matlab
- Python