

**Jay Fleischer** ■ email: [jayhf614@gmail.com](mailto:jayhf614@gmail.com) ■ website: [jayf.engineer](http://jayf.engineer)

**University of Pennsylvania** – School of Engineering and Applied Science, Philadelphia, PA

- Master of Science in Engineering (May 2019) in Robotics
- Bachelor of Science in Engineering (May 2019)  
Double major in Computer Science and Mechanical Engineering & Applied Mechanics
- GPA: 4.0/4.0 masters 3.86/4.0 undergrad and Dean's List 2014-2015, 2015-2016, 2016-2017, 2017-2018
- Ralph Teetor Award for being the senior who in the opinion of the department's faculty has demonstrated the qualities of ingenuity, creativity, scholarship, and service
- Francis G. Tatnall Prize for being judged most outstanding project showing ingenuity, proficiency and usefulness for senior design project. Built a coral reef surveying boat with 5 other engineers. Worked on system design, sensor integration, autonomous waypoint control and a phone app for remote control.

### Course projects include:

- Developing a model predictive control algorithm in a custom racecar physics simulation
- Using neural networks to locate cones in blurry images while accounting for the racecar's velocity
- Creating and programming a team of three robots to play hockey autonomously against other teams
- Writing a nonlinear quadcopter controller and using A\* and a trajectory generator to fly through mazes
- Designing a pipelined superscalar CPU for a FPGA and making a Verilog parser to generate a wiring table
- Adding several implementations of surreal numbers to Haskell
- Implementing an Unscented Kalman Filter for orientation tracking and EKF for SLAM
- Constructing a wind turbine that had the highest power output thanks to hundreds of FEA simulations
- Manufacturing the second fastest Stirling engine using mills, lathes, 2.5D CNC and laser cutters

**Horace Mann High School**, Bronx, NY (June 2014)

- Graduated with honors in Computing & Communications, Mathematics, Science, and Theatre

**Penn Electric Racing** – Software Lead (Fall 2014 – Present)

- Building a full-size electric racecar each year to compete in FSAE Electric Lincoln and Formula North
- 1<sup>st</sup> place at Formula North and 1<sup>st</sup> place at FSAE Lincoln in 2017
- Running meetings, teaching new members, reviewing code and ensuring software projects get done
- Researching and starting development of future autonomous racecar
- Debugging and optimizing a field-oriented control algorithm for our custom 30kW motor controllers
- Making a program to log and graph live telemetry data and analyze onboard logs in custom binary format
- Creating software that generates thousands of lines of C++ code to handle communications between devices around the car and integrate with the telemetry/logging system and custom binary serial protocol
- Writing ADC, CAN, I2C, SPI, Timer, UART etc. peripheral libraries for STM32F7s using DMA
- Maintaining our software over the years, fixing bugs, refactoring code and adding new features

### Employment Experience

**Aurora** – Hardware Intern in San Francisco (Summer 2018)

- Completing a variety of smaller tasks for autonomous car startup, including setting up a lab
- Developing a pedestrian localization system for automatic labeling with RTK GPS
- Writing calibration firmware for a power distribution board and a script for automatic calibration

**Two Sigma Securities** – Software Engineering Intern in New York City (Summer 2017)

- Member of the Global Execution Services team that executes large trades for external clients
- Implementing a proprietary binary communications protocol to handle placing orders

**Phosphorus** – Engineering Intern in New York City (Summer 2016)

- One of 15 finalists for the FirstMark Elite internship program selected from over 1300 applicants
- Integrating Activiti workflows into the management software at computational genomics company
- Refactoring existing code to use Spark to improve performance and readability

### Technical Skills

- Programming Languages I'm most experienced with: C#, C++, Java, Python, and MATLAB
- Software/IDEs/Libraries: Linux, Ubuntu, Visual Studio, Eclipse, IntelliJ, CLion, Git, Mercurial, SolidWorks, Simulink, Altium, Gurobi, OpenGL, Numpy, PyTorch, Jupyter, L<sup>A</sup>T<sub>E</sub>X, Android

### Other Interests

- Skiing (16 years): Expert skier
- Running (13 years): High school varsity cross country and track. Ran 2018 SF Ultramarathon (52.4mi)