

Frederick Wachter |

205 N 36th St., Apt. 2M
Philadelphia, PA 19104

✉ faw28@drexel.edu

☎ +1 (610) 517-0948

📄 fwachter.github.io

Education

Bachelor's and Master's of Science in Mechanical Engineering

Undergraduate GPA: 3.92 | Graduate GPA: 3.89 | *Focus in Controls & Systems*
Drexel University, Pennoni Honors College | Anticipated Graduation: June 2018

Engineering Work Experience

Autonomous Systems Laboratory – Robotics and Development Engineer

Zürich, Switzerland | March 2016 to September 2016 | *Swiss Federal Institute of Technology*

- Developed ROS driver to interface with ABB YuMi robot from Linux
- Interfaced YuMi with the MoveIt! software in C++ to automate the kinematic and dynamic model and to integrate existing algorithms for path planning and controls
- Integrated the Leap Motion sensor with YuMi in C++ for interactive manipulation
- Presented work to the President of ABB Switzerland and his colleagues

Production Technology West – Research Engineer

Trollhättan, Sweden | September 2014 to March 2015 | *University West*

- Developed algorithms to determine robustness of weld defect detection from an IR camera with various light sources
- Built a GUI to interface with algorithms to display defect locations to user

Engineering and Leadership Experience

Drexel Hyperloop Team – Steering Committee, Project Manager, Sponsorship Head

Drexel University | June 2015 to Present

- Developed organizational structure, grew team of 5 to over 100 students
- Interfaced between university advisors, university staff, and sponsors
- Raised over \$65,000 as sponsorship head for developing a scaled prototype
- Interfaced between subsystems as project manager to develop project schedule, deadlines, and manage team resources to keep the project on track for competition
- Ran weekly and biweekly steering committee and general body meetings

THOR – Three Omni-Wheeled Robot

Drexel University | March 2015 to September 2015

- Developed controller for three omni-wheeled robot using an Arduino
- Used PID, interrupts, SMA, remote radio, and sensor feedback

Extracurricular Activities

Robotics Lecture Group – Founded a group focused on learning robotics concepts through online lectures and projects

Founder | September 2016 to Present

Drexel Space Systems Laboratory – Developed lab website and advise projects running in the lab

Lab Manager and Webmaster | Spring 2015 to Present

American Society of Mechanical Engineers – Worked with the committee to plan events and tours of local companies

Executive Board Member and previous Vice Chair | Fall 2013 to Present

Honors and Awards

Paul Peck Scholar – Mentoring incoming freshman in engineering and taking specialized courses in leadership

Drexel University | September 2016 to Present

Hess Honors Research Scholar – Developed orbital trajectories for CubeSat's in MATLAB for NASA sponsored project

Drexel University | December 2015 to March 2016

Skills

Robotics

ROS (Robot Operating System)
ABB Industrial Robots

Programming

MATLAB (Proficient)
HTML/CSS (Proficient)
C++ (Working Proficiency)
JavaScript (Working Proficiency)
Java (Limited Working Prof.)

Software

AutoCAD (Working Proficiency)
Creo Parametric (Working Prof.)
SolidWorks (Working Prof.)

Languages

English (Native)
French (Working Proficiency)

Specialized Courses

Graduate

Eng. Analysis & Methods I
Aircraft Flight Dyn. & Control
Non-Linear Controls I

Undergraduate

Numerical Analysis I
Computer Programming I
Basic Robotic Simulation