Philip J. Hoddinott

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Education

Rensselaer Polytechnic Institute, Troy, NY

M.S. in Aeronautical Engineering, GPA: 3.9	Jan 2018 – Dec 2018
B.S. in Aeronautical Engineering and Mechanical Engineering, GPA: 3.67, *cum laude*	Sep 2015 – Dec 2017

Leadership

Learning Assistant, **Rensselaer Polytechnic Institute,** Troy, NY   Jan 2017 – Dec 2018
Learning Assistant Coordinator, **Rensselaer Polytechnic Institute,** Troy, NY   May 2018 – Dec 2018
- Supervised academic development for residence hall (150 freshman)
- Mentored students in academics, assisted in mediation of conflicts, and helped those in need of counseling.
- Planned and facilitated academic assistance workshops, conducted review sessions, held office hours.
- As coordinator I ran meetings, planned and execute training sessions, and met weekly with Assistant Deans.

Project Minerva, Troy, NY   Aug 2017 – Dec 2017
- Capstone team project to design a rocket that would leave the surface of Mars and rendezvous with an orbiting satellite.
- Used MATLAB to calculate the dynamics of rocket's ascent trajectory and develop a Martian atmosphere model.
- Used Systems Tool Kit to compute rendezvous maneuvers.

Vehicle Team Lead, **RPI Rocket Team,** Troy, NY   Aug 2017 – May 2018
- Developed design requirements, performed trade studies, lead fabrication, assembly, and qualification of rocket hardware.
- Wrote Preliminary Design Review (PDR), Critical Design Review (CDR), and Flight Readiness Review (FRR).
- Performed CFD to determine flow effects on rocket body and components.

Safety Officer, **RPI Rocket Team,** Troy, NY   Dec 2015 – May 2017
- Wrote Preliminary Design Review (PDR), Critical Design Review (CDR), and Flight Readiness Review (FRR).
- Performed Probabilistic Risk Assessment (PRA), and Failure Modes and Effect Analysis (FMEA) on rocket design.
- Designed, manufactured, and tested rocket's structure and payload to achieve safety and competition requirements.

Experience

Teaching Assistant, Troy, NY   May 2018 – Aug 2018
- Guided students in the development, design, prototyping, and presentation of a semester long project.
- Supervised machine shop safety and operations of tools such as drill press, band saw, vertical mill, etc.

Mechanical Engineering Intern, **Affiliated Engineers Incorporated (AEI),** Rockville, MD   June 2017 – Aug 2017
- Used Autodesk AutoCAD and Revit to design fluid systems and mechanical structures.
- Performed site inspections of mechanical systems such as ventilation, piping, heating, and cooling

Undergraduate Research Fellowship, **National Institute of Standards and Technology**, Gaithersburg, MD   May 2016 – Aug 2016
- Worked in the Mechanical Systems and Controls Group to make energy efficient fluid systems.
- Installed, calibrated, and tested instrumentation including RTDs, pressure transducers, flowmeters, and actuators.
- Used LabVIEW and MATLAB to work towards automated laboratory operation for evaluating advanced control algorithms.

Collegiate Projects

A comparison of the Gibbs and Herrick-Gibbs Methods for low eccentric orbits, Troy, NY   Sep 2018 – Dec 2018
- Independent study done to compare the Gibbs and Herrick-Gibbs methods of orbit determination.

Master's Thesis, Troy, NY   Jan 2018 – Dec 2018
- Master's thesis to develop tracking of real time space debris for debris removal satellite project.
- Used MATLAB to develop program that acquires data from NORAD and filters it to get optimal debris filled orbits.

Project Minerva, Troy, NY   Aug 2017 – Dec 2017
- Capstone team project to design a rocket that would leave the surface of Mars and rendezvous with an orbiting satellite.
- Used MATLAB to calculate the dynamics of rocket's ascent trajectory and develop a Martian atmosphere model.
- Used Systems Tool Kit (STK) to compute and optimize rendezvous maneuvers.

Relevant Coursework

Aerodynamics, Aerospace Structures and Materials, Boundary Layers and Heat Transfer, Combustion, Computational Fluid Dynamics, Elements of Mechanical Design, Electronic Instrumentation, Embedded Control, Introduction to Finite Elements, Spaceflight Mechanics, Space Vehicle Design, Spacecraft Navigation

Skills

Languages: MATLAB, C/C++, National Instruments LabVIEW, Python, some FORTRAN
Applications: ANSYS Fluent, Siemens NX, Microsoft Office (Excel, Word, etc.), Machine Tools (lathe, vertical/horizontal mill, etc.)

Activities

Sigma Gamma Tau, Aerospace Engineering Honor Society, member	Dec 2017 – Dec 2018
Pi Tau Sigma, Mechanical Engineering Honor Society, member	May 2017 – Dec 2018
Boy Scouts of America, Eagle Scout, Senior Patrol Leader	Aug 2008 – Aug 2013