**SUMMARY**

Aerospace Engineer with R&D experience. Looking for a role with a math and physics focus. Versed in missile design, GNC, radar, stereo vision, airfoil analysis, spacecraft electric propulsion, hardware testing, and systems engineering. Willing travel and relocate.

**EXPERIENCE**

**Hardware Test Engineer,** *Project Kuiper, Amazon* **2021-present**

* Owned environmental testing of the electric thruster power and control board. This involved designing, building, and running test racks which would touch flight hardware. The test racks included typical electronics testing equipment (power supplies, SMUs, electronic loads), a custom interface PCBA, and custom harnessing.
* Wrote automation code for the test racks. This included python software development of test equipment drivers and a framework for testing. Data from both the unit under test and the test equipment was collected and analyzed against performance requirements. Data and results were saved locally as well as streamed to AWS for real-time monitoring.

**GNC Engineer,** *Sandia National Laboratories* **2020-2021**

* Augmented a hypersonic glide body simulator with different guidance laws. I examined novel guidance laws from research papers and implemented the algorithms in a C++/CUDA based simulator.
* Developed a digital twin of the hypersonic glide body. I modeled sub-components in Simulink then ran them on HWIL/SWIL combo test racks. The digital twin was modularized so that physical avionics components could be mixed with simulation hardware for rapid development and testing.
* Tested fin and actuator sub-assemblies. I wrote the test plan, ran the tests, and analyzed the results. This testing involved large stores of mechanical and electrical energy therefore I developed safety procedures for the equipment.

**Aerospace Engineer,** *General Atomics* **2018-2020**

* Developed stereo vision 3D tracking system using high speed and IR cameras.
* Calibrated radar systems using RTK GPS data from UAVs.
* Analyzed images taken from inside the railgun bore to check for wear and depositions.
* Created a thermal management system simulation for a high-powered laser system.
* Formulated PTOC, SMC, and PID missile roll control methods for the next-gen interceptor.
* Evaluated multiple hydrofoil designs for submarine concept.

**Researcher and TA,** *University of Illinois* **2015-2018**

* TA for the electric propulsion class covering plasma physics and thruster architecture.
* Research assistant in the electric propulsion lab. Worked on:
  + Fusor, Helicon, RF power, vacuum chamber, laser interferometry, plasma
  + [arc.aiaa.org/doi/abs/10.2514/6.2017-4629](https://arc.aiaa.org/doi/abs/10.2514/6.2017-4629)
* Research assistant in the fusion lab. Worked on:
  + Tokamak, plasma deposition, circuits, plasma, vacuum, slow motion imaging
  + [nucleus.iaea.org/sites/fusionportal/Shared%20Documents/FEC%202016/fec2016-preprints/preprint0582.pdf](https://nucleus.iaea.org/sites/fusionportal/Shared%20Documents/FEC%202016/fec2016-preprints/preprint0582.pdf)

**Structural Engineer and Team Lead,** Manned Mars Mission, *University of Illinois* **2016-2017**

* Systems engineering, spacecraft structures, AIAA design competition, trade studies

**Engineer and Business Associate,** *Empod* **2013-2017**

* CAD, IMDS, 3D printing, Manufacturing, Windchill

**Design Engineering Intern,** *Autosplice* **2014**

* Metallurgy, CAD, electrical testing, cross sectioning, heat testing, IQMS

**EDUCATION**

**University of Illinois at Urbana-Champaign** **GPA: 4.00** **2018**

Master of Science, Aerospace Engineering

Electric propulsion, combustion, distributed and satellite control systems

**University of Illinois at Urbana-Champaign** **GPA: 3.97** **2017**

Bachelor of Science, Aerospace Engineering

Control systems, CFD, systems engineering, UAVs, thermodynamics

**SKILLS & LANGUAGES**

* **Software:** SolidWorks, Fluent, NX, Mathematica, Comsol, Abaqus
* **Programming:** Matlab, Simulink, Python, C++, Fortran, Java, SQL
* **Other:** Linux, Windows, Git, SVN, Photoshop, Premier Pro

**ACTIVITIES**

* **Boy Scouts (**Eagle**), Baja SAE**, Raspberry Pi, TechNews,Motorcycles, Bicycles, Camping, Fishing