T. M. Prevo

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github.com/TearEmUpTara

Skills

Tools: 3D CAD (SolidWorks, Creo Parametric, NX), Excel, Windchill, LabView, thermocouples
Engineering: Mechanical Design, Research, Design of Experiments, Hazard Analysis, Risk Assessments, Data Analysis, Compliance, Intellectual Property, Project Management, Technical Communication
Additional Training: ITAR/SBU Documentation, Safety (Cryogenic, High Pressure, High Voltage, Machine Shop, Ladder)
Languages: Python, VBA, MATLab, R; English, Spanish, American Sign Language

Relevant Experience

Embedded Software Engineer II, Daimler – Remote in Portland, OR Feb 2021 – May 2024

- Responsible for production of 500 vehicles per day nall aspects of the Central Gateway ECU software development in custom semi-trucks, including requirements verification
- Reduced daily Custom Work Orders by 80% by automating processes
- Used Vector CANalyzer and CANoe to validate development and buxfix software releases

Fluid Mechanics Assistant to Dr. Mark Weislogel, IRPI & Dryden Drop Tower – Portland, Oregon (16 months)
Internship at IRPI, LLC. for NASA Ames Jun 2020 – Sept 2020

- Developed four solid 3D model capillary fluid manifolds in SolidWorks and submitted drawings for commercial print
- Compared beta fluid mechanics software results to numerical calculations of capillary free surface configurations
- Assist with identifying and reporting software bugs, project reporting, publication, proposal writing as needed

Undergraduate Research & Mentorship Award May 2018 – Jun 2019

- 3 months of training on professional technical writing, academic publishing, advanced research & citation techniques
- Assisted with NASA-sponsored microgravity hydroponics research through competitive program, directly informing International Space Station safety protocols and SpaceX-18 mission payload
- Constructed a peristaltic flow test bench, designed experiment for scaled capillary test coupons, and systematically tested parameters to identify operational limits and failure modes of plant water management system prior to launch

Structural Vibrations Assistant to Rob E. Berry, NASA – Huntsville, AL (8 months)
Internship at Marshall Space Flight Center, Remote Aug 2020 – Dec 2020

- Completed a 16-week internship project in 1 day, including engineering report
- Designed and machined a test bench to analyze magnetic drag forces in response to dynamic vibrational signals to determine design proposal's conformance to NASA's Disruptive Tuned Mass standards
- Authored technical reports, guides, and provided calculations according to ITAR/SBU security standards, simplifying complex information for various internal and external stakeholders

Internship at Marshall Space Flight Center Aug 2017– Dec 2017

- Continuing research from 2017, built client relationships to extend NASA's disruptive tuned mass technology to offshore wind energy industries by assisting with technical specifications for a scaled demo
- Designed a scalable system of mechanical amplifiers and fractional factorial experiment with aliasing using R

Propulsion Engineering Assistant to James A. Richard, NASA – Huntsville, AL (10 weeks)
Internship at Marshall Space Flight Center Jun 2016 – Aug 2016

- Won first place in the Marshall Space Flight Center's intern poster symposium for concept development of a magnetically damped check valve and submission of NASA New Technology Report, now Patent #11,098,817
- Presented findings via technical report, poster, and keynote speech to the Oregon Space Grant Consortium
- Designed a prototype in Creo Parametric and submitted drawings to NASA internal machine shop for production
- Assisted engineers with other projects including writing a hazard & risk assessment for flow testing a 48-port valve with 500 gallons of cryogenic liquid nitrogen, collected hydrostatic pressure and flow test data on a manifold, cleaned & assembled pneumatic actuator flight hardware, volunteered at NASA in the Park

Education

Portland State University – BS in Mechanical Engineering, Latin Honors [3.88] June 2020
Genesee High School – Diploma with Honors [3.92] June 2008

Projects

Satellite Thermal Analysis & Testing, Portland State Aerospace Society (Link to Report) July 2019 – June 2020

- Secured $8,000 NASA UTEAP funding to perform deep thermal analysis on a PCB in Low Earth Orbit conditions to provide recommendations for battery insulation to maintain operability in hot & cold cases

Liquid Fuel Engine Test Stand, Portland State Aerospace Society (Link to Report) May 2014 – May 2015

- Secured $7,000 NASA UTEAP funding to develop a cryogenic test stand for a LOX/Ethanol liquid fuel rocket engine
- Alongside a team, created a plumbing and instrumentation diagrams, specified and ordered parts, created hazard analysis and risk mitigation documentation for transporting and handling cryogenics

Volunteer

Pacific Crest Trails Association & Washington Trails Association, Trail Worker 2017 – Present
DTNA Cares, 2021 – 2024 (Deaf Dogs of Oregon, Portland Public Schools)
PTK Honor Society Interim President (2016), Secretary (2015)

- Raised chapter ranking from 2-Stars to 4-Stars by spearheading the Hallmarks Project, Winter Food Drive, and creation of a scholarship program to cover membership fees

Awards

Professional Recognition 2016 – 2024

- Bravo! Award – Recognition from ADAS Team Management, Daimler 2024
- Bravo! Award – Recognition from Product Validation Engineering Management, Daimler 2023
- MSFC Internship Program Volunteer Recognition, NASA 2017
- 1st Place in Engineering, Intern Research Symposium, NASA & Lockheed Martin, 2016

Portland State University 2017–2020

- OSGC Undergraduate Team Experience Award, Portland State Aerospace Society, 2019
- President's List or Dean's List, Unbroken Streak 2017 – 2020

Portland Community College 2014 – 2016

- Certificate of Recognition, Academic Excellence, 2014, 2015, 2016
- OSGC Scholarship Recipient, 2014, 2015, 2016
- Patty Jeanne Semura Scholarship, 2016
- PTK Metal of Honor for Excellence in Leadership, 2016
- OSGC Undergraduate Team Experience Award, 2015
- Fred & Lena Meijer Scholarship Recipient, 2015
- President's List or Dean's List, Unbroken Streak 2014 – 2016

Publications

Prevo, T. M., "Omni-gravity Hydroponics System for Spacecraft" (2019). Undergraduate Research & Mentoring Program. 37.

Prevo, T. M., "Concept Analysis & Design of a Magnetically Damped Check Valve," OSGC 2016 Student Symposium Proceedings, Nov. 2016, p. 10.

Dechant, B., Musil M., Prevo, T., Tiller, J. "Oregon State University. Portland State Aerospace Society Liquid Fuel Engine Test Stand (LFETS)." Oregon NASA Space Grant Consortium Student Symposium Proceedings, 9 Nov. 2017, LaSells Stewart Center.