T. M. Prevo

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Skills

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

Relevant Experience

Freelance Engineer – Remote in Hood River, OR May 2024 —Present

- Project Manager, FHA 203k Renovation, completed 2 months early and over $16,000 under budget
- Design and deploy websites, containerized applications, and services to various platforms such as Docker, Kubernetes, GCP, AWS for high-availability and easy management
- Operating system replacement & configuration (Ubuntu/Linux/Unix, Windows, iOS, Android)

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

- Led software development initiatives for the Central Gateway across 4 global teams, 130 microcontrollers, and 11 networks, ensuring manufacturing uptime by quickly resolving assembly line issues across North America
- Reduced daily Custom Work Orders by 80% by process automation and root cause analysis of repeat issues
- Used Vector CANalyzer and CANoe to analyze and validate network output to vehicle diagnostic systems

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

- Developed four solid 3D model capillary fluid manifolds in SolidWorks
- 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

Dryden Drop Tower Lab Assistant, URMP Scholar Recipient May 2018 – Jun 2019

- 3 months of training in academic publishing, advanced research, and 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
Internship at Marshall Space Flight Center, Remote Aug 2020 – Dec 2020

- Completed a 16-week project in 1 day, including engineering report on eddy damping uses in exercise equipment
- Designed and machined a test bench to analyze magnetic drag forces in response to dynamic vibrational signals and mechanical variation of physical parameters
- Authored technical reports, guides, and provided calculations on magnetic drag 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

- Referred by the Assistant Chief of the Propulsion Department and was invited back to Huntsville
- Completed a 16-week internship project (complete with report) in 1 day, which explained how eddy damping works and the design parameters used in modern ellipticals and stationary bikes
- 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
Internship at Marshall Space Flight Center Jun 2016 – Aug 2016

- Won 1st place in the intern poster symposium, Engineering Division, for concept development of a magnetically damped check valve and submission of NASA New Technology Report, now Patent #11,098,817
- 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; created assembly and cleaning instructions for a pneumatic actuator

Education

Portland State University – BS in Mechanical Engineering, Latin Honors [3.88] Jun 2020
Portland Community College – Engineering Transfer [3.90] Jun 2017
Genesee High School – Diploma with Honors [3.92] Jun 2017

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 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 by PCC Board for Academic Excellence, 2014, 2015, 2016
- PTK Metal of Honor for Excellence in Leadership from PCC Student Government Advisors, 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.