Marcus J. Putz

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EDUCATION

The Pennsylvania State University — University Park, PA
Master of Science in Mechanical Engineering; GPA 4.00 — *Aug. 2021 – June 2023*

The Pennsylvania State University — University Park, PA
Bachelor of Science in Mechanical Engineering: GPA 3.72 — *Aug. 2017 – May 2021*

EXPERIENCE

Graduate Research Assistant — August 2021 – Present
The Pennsylvania State University — *University Park, PA*
- Researched metrics of safety for autonomous vehicles in work zones for the Intelligent Vehicle Systems Group (IVSG)
- Served as team leader of 8+ students tasked with retrofitting Ford Transit Connect for means of mapping route for future autonomous vehicle testing
- Assisted in prototype maintenance, focusing on issues regarding interactions between software and hardware
- Designed and built 3 custom encoder boxes to parse encoder signals and provide visual information to aid in troubleshooting
- Utilized machining skills to fabricate aluminum and stainless steel components to meet project requirements

Teaching Assistant — August 2021 – May 2023
The Pennsylvania State University — *University Park, PA*
- Mentored and taught 80+ students in ME 454 (Mechatronics), emphasizing hands-on learning to improve student success
- Formulated assessments and revamped laboratory activities to accommodate increase in class size (from 30 to 200+ students) due to transition from elective to mandatory course

Platform Engineering Intern — May 2021 – July 2021
Wabtec — *Erie, PA*
- Developed and implemented instructions for fixing traction pins using knowledge of materials science, welding, and FEA; resulting in expanded lifetime and saved 100k-200k per platform
- Worked closely with manufacturing teams and engineers internationally to validate and efficiently communicate designs and modifications, guaranteeing efficient production processes

Undergraduate Research Assistant — June 2020 – May 2021
The Pennsylvania State University — *University Park, PA*
- Engineered sensor mounts for 1/5th scale autonomous driving testing platform, leveraging DfAM, DfM, and topology optimization
- Utilized MATLAB and HTML skills to assist in automation of IVSG lab webpage updates, eliminating unnecessary manual labor
- Collaborated with research team to develop MATLAB functions to create digital roadways for autonomous driving simulations

Systems Engineering Intern — May 2019 – August 2019
Faiveley Transport Leipzig — *Leipzig, Germany*
- Conducted research into compressor modulation technology with the criteria of power, weight, and cost; presented findings to systems engineering department and provided recommendations for implementation in future projects
- Designed HVAC systems for clients, balancing customer needs with technological capability

HONORS, AWARDS, AND CERTIFICATIONS

Certified SolidWorks Associate in Mechanical Design (CSWA), Dean's List, Penn State Behrend Honors Program, Eagle Scout Award

TECHNICAL SKILLS

Languages: MATLAB, C++, XML, RoadXML, HTML, R, Java
Design: SolidWorks, Autodesk Inventor, NX, Ansys, nTOP, Fusion 360, Simulink
Manufacturing: Additive Manufacturing, Milling, Lathe, Composites, Sheet Metal, GDT