

ZACHARY H. PRATHER

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EDUCATION

Bachelor of Science in Mechanical Engineering, Colorado State University, Fort Collins, CO. May 2018

ENGINEERING EXPERIENCE

Hexagon Digital Wave LLC. November 2018 – Present
MAE Test Engineer

- Specialize in a nondestructive test method for composite pressure vessels known as Modal Acoustic Emission.
- The MAE test uses piezoelectric transducers to detect fiber fractures, delamination, and matrix cracking.
- Have conducted tests for Space X, natural gas companies, and fire fighter breathing air tanks (SCBA).
- Bond/couple transducer onto the pressure vessels necessary for detecting composite failures.
- Monitor MAE tests that follow the test protocol and permit requirements during pressure cycle.
- Have tested, requalified and even life extended composite pressure vessels for a wide range of customers.

Senior Design Project August 2017 - May 2018
Suspension Team Manager, Ram Racing (Formula SAE)

- Formula SAE is a collegiate competition to design, build, and race a formula-style race car.
- Designed and optimized a pushrod actuated suspension system that met all the Formula SAE rules.
- Used Autodesk Inventor to design and create an assembly for visualization and for design reviews.
- Performed finite element analysis (FEA) to ensure no failure during testing and competition.
- Mitigated bonding issues between carbon fiber and aluminum by going with 4130-steel tubing.
- Eliminated suspension geometry binding and heim joint interference with the chassis.

Composite Product Development August 2017 – December 2017
Mech 533 Student, Composite Step Stool Project

- Learned how to develop composite parts from making a master and then making a mold to layup in.
- Developed parts using carbon fiber and fiberglass wet layup, carbon fiber prepregs, and resin infusion.
- Manufactured a complex geometry composite step stool that would hold up to 500 pounds.
- Tested the masters paint and mold release interaction to guarantee that the mold would release from the master.
- Built laminates in Autodesk Heliux Composite to obtain laminate properties for loading calculations.
- Was the first group to successfully overcome all the manufacturing difficulties of the step stool project.

WORKING EXPERIENCE

Wild West Motorsports & Greeley Harley-Davidson May 2013 – January 2018
Parts Consultant

- Organized and managed inventory.
- High-quality product and accessory knowledge.
- Communicated with customers and parts vendors.

SKILLS

Software Proficiencies: Microsoft Office, PTC Creo, Solidworks, Autodesk Inventor & Heliux Composite, MathCAD, Java programming, Ansys Workbench, Fluent

Manufacturing: End mills, lathes, injection molding, sand casting, 3D printing & other general shop equipment

Other: Welding (MIG), control systems, mechanics, plumbing, design proposals & reviews, presentations, DFMEA, Gantt charts

LEADERSHIP & INVOLVEMENT

Event Coordinator, Ram Racing Club, Fort Collins, CO. March 2017 – May 2018

- Set up events to showcase the car to sponsors and recruit new members.
- Established sponsorship through the CSU bookstore and received free custom team polos.