Zion Felder

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EDUCATION

Rice University | Houston, TX *Expected Graduation: May 2025*
Bachelor of Science, Mechanical Engineering | Engineering Design Minor | GPA: 3.32

Pertinent Courses: *Engineering Design (2 years), Fluid Mechanics, Fundamentals of Control Systems, Heat Transfer, Industrial Processes, Prototyping and Fabrication, Rigid Body Dynamics, Statics and Materials, Stress Analysis, Advanced Mechanical Design*

Campus Involvement*: Publicity Chair, National Society of Black Engineers | Athletic Liaison, Rice Black Men's Association*

SKILLS

- Collaboration
- Communication
- Teamwork
- Time-Management
- Leadership
- CAD (AutoCAD, Fusion 360, Rhino, SolidWorks)
- Manufacturing Processes:
  - 3D Printing (FDM/SLA)
  - Laser/Waterjet Cutting & CNC machining
- Light Microscope (VHX-7000)
- Graphic Design
  - Adobe Creative Suite
  - 2D Animation
- Web. Development (Wix, Editor X)
- FEA (Ansys, Solidworks)

ACADEMIC PROJECTS

Five Axis Printer Attachment | Mechanical Engineering Lead *Aug 2024 - Present*
Senior Design Capstone Project
- Designing an extruder mechanism that attaches to an existing 3D printer, adding two additional rotational axes to convert a commercial FDM printer into a five-axis system.

Water Leak Detection | Team Lead & CAD Designer *Jan 2023 - May 2023*
Engineering Design II
- Collaborated to design water leak detection and alert system—providing preventative solutions to Rice University FE&P staff
  - Developed alert system with Arduino code, calculated thresholds for FSR, acoustic, and flow rate sensors
- Designed and fabricated 3D-printed components integral to the production of the final product with Solidworks
- Presented at Engineering Design showcase and won Best Environment and Sustainability Design Award

Finite Element Analysis | Individual Project *Sep 2022 - Dec 2022*
Mechanical Engineering Design Tools
- Completed and presented a three-part project on finite element analysis (thermal, structural, vibrational)
  - Employed CAD Software (SolidWorks) to create parts of assemblies and tested using FEA

WORK EXPERIENCE

Mechanical Engineering Design Consultant | Aurelia Vitals Inc. *Sep 2024 - Present*
- Created an enclosure for NICU wearable sensor electronics
- Utilized tolerancing practices to ensure the proper fit for the enclosure when integrating with electronics (custom PCB and batteries)
- Design for Manufacturing (DFM): Optimized product design for 3D printing, significantly reducing overall production costs.

NSF - REU Unmanned Aerial Systems Intern | University of Oklahoma *May 2024 - July 2024*
- Created a lightweight drone design to enhance performance and affordability
  - Designed and iterated drone frames and arms (SolidWorks)
  - Performed finite element analysis (SolidWorks and Ansys), created and analyzed simulations (Ansys)
- Engineered 3D-printed drone arms with fabrication and manufacturing processes
  - Conducted research and performed comparative analysis on material strength, arm structures, and attachments
  - Tested six filament types (three-point bending tester) and analyzed crack propagation (light microscope)
- Developed a database with optimal drone arm designs and material properties
- Compiled Bill of Materials (BOM) and performed cost-benefit analysis to optimize resource allocation and budgeting

CEO & Lead Designer | Digital Palette LLC *May 2022 - Present*
- Founded Digital Palette LLC, a design consultancy made for creators
- Digitally design graphics, logos, and websites for individuals and small companies to help start and maintain their businesses

Engineering Design Mentor (TA) | Rice University *Aug 2023 - Present*
- Managed four teams through the engineering design process; leading meetings, resolving disputes, teaching design principles, answering design-related questions, and hosting CAD workshops