

Camden Carroll

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EDUCATION

University of Tennessee, Knoxville, TN December 2024
Master of Science in Mechanical Engineering – Thermals & Fluids GPA: 3.68/4.00
Areas of Focus: Experimentation, Plasma, Optics & Laser Diagnostics, Renewable Energy

LeTourneau University, Longview, TX May 2022
Bachelor of Science in Mechanical Engineering GPA: 3.86/4.00
Minor: **Mathematics**
Accolades: President's list, Mason award, summa cum laude

SKILLS

Programs: MATLAB, Ansys, MS Office, Origin Pro, Canva, Open Lab CDS, IBM Maximo

CAD: SOLIDWORKS (GD&T, FEA), On Shape

Engineering: Mechanical System Design, Testing and Development, Collaboration, Compliance with Safety Standards, Hands-On Assembly

EXPERIENCE

Graduate Research Assistant, UT, Knoxville, TN *January 2023 – December 2024*

- Performed inter-disciplinary research through design, fabrication, modification, analysis, and documentation of mechanical systems
- Applied CAD, including SOLIDWORKS, to develop detailed part and assembly models, and used FEA for structural analysis
- Presented technical findings through written documentation and oral presentations to peers, project sponsors, and leadership
- Completed projects on schedule while both leading, mentoring new employees, and supporting multiple on-going efforts

Project Internship, Trinity River Authority, Red Oak, TX *May 2022 – July 2022*

- Improved inventory retrieval time by 20% through integration and optimization of inventory using IBM Maximo
- Implemented automated maintenance scheduling, improving equipment utilization and operational efficiency
- Developed organizational strategies to prioritize and manage critical components for repetitive repairs
- Delivered results under a compressed timeline, demonstrating effective prioritization and problem-solving abilities

PROJECTS

Ammonia Detection System, UT, Knoxville, TN *May 2024 – December 2024*

- Interacted with customer and leadership to understand, design, prototype and evaluate a cost-effective ammonia detection system
- Enhanced detection sensitivity by 150% through laser reflection and modeled assemblies and parts in SOLIDWORKS
- Used hands-on mechanical assembly to fabricate prototype which detected less than 25 ppm of ammonia with reduced physical scale
- Automated data processing through MATLAB code allowing user-friendly and calibration-free concentration measurement

Wind Tunnel Particle Detection, UT, Knoxville, TN *September 2023 – November 2023*

- Designed and optimized an optical detection system for 50-micron sized metal particle detection in wind tunnel flow
- Conducted FEA and collision simulation in SOLIDWORKS to assess wind tunnel safety and component durability
- Collaborated with researchers to implement 532 nm laser, spectrometer, and camera for excitation and detection of particles
- Delivered results and recommendation to the sponsoring organization on schedule, supported by detailed reports and analyses

Rocket Launched Drone, LeTourneau University, Longview, TX *September 2021 – May 2022*

- Supported the design, development, and documentation of a folding drone capable of ejection from a rocket at altitude
- Researched project requirements and guidelines to ensure product aligned with all technical specifications
- Designed and modeled drone components in SOLIDWORKS, performing FEA to identify and address potential failure points
- Contributed to the successful testing and launch of prototype, including documentation through CAD assemblies, BOMs, and presentation

PUBLICATIONS

Carroll, Camden. "Enhanced Ammonia Synthesis in Dielectric Barrier Discharge Plasma via Calcium hydride and Calcium Nitride Catalysts". July 2024: AIAA Aviation & Ascend Conference

CERTIFICATIONS/MEMBERSHIPS

SOLIDWORKS Associate – Mechanical Design, LeTourneau University, ID: C-RE8UNFGYQM May 2022
American Institute of Aeronautics and Astronautics Member – ID: 1597989

RELEVANT COURSEWORK

Machine Design • Manufacturing Processes • Applied Aerodynamics • Heat Conduction • Engineering Project Management