Andrew James Barham
Mechanical Engineer | Mechanical Design & Product Development
SolidWorks • CAD Design • Mechanism Design • Mathcad • Python
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EDUCATION

Louisiana Tech University | Ruston, LA | September 2022 – Present
B.S. Mechanical Engineering – Expected Graduation: August 2026
GPA: 3.43/4.00
Honors: Pi Tau Sigma Mechanical Engineering Honor Society
Relevant Coursework:

Advanced Fluid Mechanics • Heat Transfer • Thermodynamics • Thermal Design • Dynamics • Capstone Design
Machine Element Design • Advanced Mechanics of Materials • Numerical Analysis • Basic Measurements

ENGINEERING EXPERIENCE & PROJECTS

Senior Capstone Design – Industry Sponsored (Intralox) | Harahan, LA | September 2025 – Present
Mechanical Designer and Team Leader:

- Led a multidisciplinary team designing a device to roll, transport, and safely unroll a modular conveyor belt, reducing required labor from 3–4 people to 1
- Owned concept selection and system layout, defining functional requirements, safety constraints, and key design parameters
- Performed engineering analysis to size major components (shaft/roller, frame, bearings, drive/ratchet or brake mechanism), checking strength and deflection
- Built CAD models and detailed assemblies in SolidWorks/Onshape and produced drawings and BOM content
- Created supporting calculations in Mathcad (torque/loads/dynamics) and documented assumptions and results clearly for design reviews
- Coordinated schedules, meetings, and deliverables; ensured on-time submissions and consistent communication

Assistive Mechanical Device Design – Automatic Page Turner | Ruston, LA | March 2023 – May 2023
Mechanical & Electrical Designer:

- Conceived and developed a device to automatically turn book pages as a freshman year final design project
- Designed mechanical mechanisms for page lifting and turning using two stepper motors: one driving a lifting wheel and one actuating a rotating arm
- Designed and wired circuitry including an Arduino microcontroller, IR motion sensor, power switch, motors
- Developed and debugged control logic to coordinate sensing and motor actuation; performed iterative testing optimization to improve reliability
- Selected as the top project in the course and awarded the Freshman Design Project Award

PROFESSIONAL EXPERIENCE

HHNT Environmental Consultants | Little Rock, AR | May 2025 – August 2025
Project Engineering Intern:

- Completed design work in Civil 3D, stormwater planning, grading layouts, and volume/financial calculations
- Supported project managers through site visits, contractor meetings, technical research, and vendor coordination
- Completed engineering tasks including surveying property lines, collecting site data, and marking grading areas

Handshake | Remote | December 2025 – Present
AI Model Evaluation Contractor:

- Simulated and evaluated multi-turn AI interactions involving text, audio, and media to support model training
- Compared AI-generated outputs factuality, style, effectiveness, and prompt adherence using structured criteria

TECHNICAL SKILLS

CAD & Modeling: SolidWorks (Part & Assembly • Drawings • Motion • Thermal • CFD) • Autodesk Civil 3D • Onshape
Engineering Analysis: Free-body Analysis • Stress & Deflection Analysis • Dynamics
Engineering Computation: Mathcad Prime (Solvers Blocks • Graphing) • Python • Excel (Engineering Application)
Design Practices: Trade studies • Decision Matrices • Technical Documentation

Certifications: Certified SolidWorks Associate (CWSA)