Aaron Gothard

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Education

Vanderbilt University | Nashville, TN *Expected May 2025*

Bachelor of Engineering, Mechanical Engineering

Major GPA**:** 3.51/4.00, Dean's List (5 of 6 Semesters), James A. Clark Scholarship (1 of 10 recipients)

Skills

- **Design:** SOLIDWORKS, Certified CATIA V5 Mechanical Designer, ANSYS FEA/CFD, 3DEXPERIENCE, AutoCAD, LabVIEW
- **Fabrication:** Machining, Component Selection for Structural Loads, 3D Molding and Casting, Welding (MIG, TIG, Stick)
- **Professional:** GD&T, DFM, Lifecycle Management, Proposal Writing, Project Management, GMP, Statistical Analysis
- **Certifications:** Solidworks Associate (CSWA)-Mechanical Design, ENOVIA Collaborative Designer, CATIA Mechanical Designer, 3DEXPERIENCE Mechanical Designer & Collaborator

Relevant Coursework

Design and Manufacture, Energetics Laboratory, Heat Transfer, Mechanics of Materials, Machine Analysis and Design, Dynamics

Experience

Graham Packaging | Bowling Green, KY *June 2023 - August 2023*

Manufacturing Intern

- Installed and troubleshot 2 new blow-molding lines, each capable of producing over 200,000 bottles per day
- Performed product profiling and qualification using Good Manufacturing Processes (GMP)
- Collaborated with industry professionals to optimize manufacturing processes for Valvoline, BP, OWI, Idemitsu bottles
- Assembled technical documents, interface control sheets, and value stream maps for manufacturing processes

The Wond'ry | Nashville, TN *May 2022 - Present*

Makerspace Technician

- Design fixtures and tooling for simulation media for bone biopsy training in VUMC
- Facilitate personal and professional projects for Vanderbilt Faculty and 400+ Students
- Mentor and advise senior and student design teams through the iterative design process
- Orchestrate workshops to teach design principles, rapid prototyping, laser cutting, 3D printing to students and faculty

Projects

Nissan NextGen Vehicle Buck

A fully adjustable ergonomic buck for market research

- Led the design and fabrication of a full-scale automotive buck with 14 points of articulation
- Collaborated with engineers at Nissan North America to ensure adjustability encompassed 4+ future vehicle platforms
- Created free body diagrams and evaluated safety factors using Ansys Workbench
- Conducted market research with 100+ consumers, identifying key design preferences that informed Nissan's future vehicle platforms

Vanderbilt Formula SAE

An international engineering competition to design the best car

- Designed an open wheel formula car fit for competition using SolidWorks, Fusion360
- Led machining of critical powertrain components, chassis brackets using Fusion360 CAM
- Collaborated with RedBull Racing to diagnose engine response at high RPMs, identified faulty mass air flow sensor
- Placed 3rd in Efficiency out of 110+ competitors in the FSAE Michigan 2024 competition

Bone Biopsy Phantom

A substitute for human tissue for training medical staff to perform bone biopsies

- Designed molds for trilayer limb stand-ins using Solidworks
- Casted individual parts using materials fitting their real-world properties
- Collaborated with VUMC Doctors to refine materials and design for optimal tactile feedback
- Filed provisional and utility patent applications for our design (US Utility Application No. 18/309,362). Patent pending.