

Alec Hamson

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EDUCATION

Binghamton University, State University of New York, Thomas J. Watson College of Engineering and Applied Science
Bachelor of Science in Mechanical Engineering
Cumulative GPA: 3.24/4.00 | Dean's List: Fall 2022
Expected May 2026

TECHNICAL SKILLS

Software: Fusion 360 CAD/CAM, SOLIDWORKS, Microsoft Office, FlowPath, Microsoft GP, Creo, Ansys APDL, ANSYS Fluent
Languages: C++, MATLAB
Additional: MIG/TIG welding, 5s methodology, Arduino, Waterjet, Lathe, Mill, GD&T, Press brake
Certifications: Computer-Aided Design with Fusion 360

PROJECT EXPERIENCE

Motorcycle Electronic Fuel Injection (EFI) Conversion, Engineer | Fitchburg, MA **June 2025 – Present**

- Design a custom EFI intake manifold for Honda Shadow VT600C to take advantage of Helmholtz resonance and wave tuning
- Produce manufacturable design adaptable to 3D printing, flexible resin casting, CNC machining, and TIG welding
- Assembled handlebar mounted Arduino DAQ, programming in C++, to extract simultaneous rpm and intake pressure data
- Generated intake pressure data file using MATLAB to be applied as boundary conditions in transient CFD simulation
- Iterated plenum geometry for near-perfect mass flow rate balance, reducing simulated flow disparity to 2.17%

SAE Baja Lightweight Knuckle Design, Lead Manufacturing Engineer | Binghamton, NY **August 2024 – May 2025**

- Engineered a modular knuckle in Fusion 360 with bolt-on heim or ball joint mounts to maximize travel and turning radius
- Performed ANSYS static structural analysis using load data gathered via Michigan Scientific wheel force transducer
- Reduced weight by 60% compared to the previous knuckles, decreasing unsprung weight and improving response

Potting Material Study – Amphenol IPC, Manufacturing Intern | Endicott, NY **June 2024 – July 2024**

- Conducted adhesion and HIPOT tests on various potting compounds and epoxies to improve open edge bus bar insulation
- Produced prototype edge sealed bus bar coupons favoring higher volume resistivity and environmental seal
- Systematized manufacturing procedures by acquiring equipment, proving out processes, and writing work instructions
- Implemented a pneumatic potting compound injection system, reducing lead time by eliminating slow syringe injection

Power Lug RCCA and Rework – Amphenol IPC, Manufacturing Intern | Endicott, NY **August 2024 – November 2024**

- Evaluated process variation and integrated pre-lamination CNC surface treatment to enhance hot lamination process
- Implemented Paco Pads used in PCB production to decrease the impact of material variation on hot laminated part quality
- Wrote procedures for reduction of FOD via ultra-sonic cleaning of delicate features, decreasing product fallout by 50%
- Supplemented in-house metrology tools with custom height gauge probes achieving accurate measurements of up to 0.0005"

PROFESSIONAL EXPERIENCE

Amphenol IPC, Manufacturing Process Engineering Intern | Endicott, NY **October 2023 – Present**

- Manufacture custom fixturing for production of low inductance cables, laminated bus bars, and laminated power lugs
- Utilize water jet, CNC machining, 3D printing, and press-brake to manufacture prototypes and design process improvements
- Perform R&D responsibilities and defined new processes to improve existing products and develop new ones
- Develop manufacturing drawings in SOLIDWORKS following design engineering and customer GD&T

Watson College of Engineering, Fabrication Lab Apprentice | Binghamton, NY **February 2023 – Present**

- Develop expertise in common processes including manual machining, CNC machining, and sheet metal fabrication
- Maintain and service CNC and manual mill/lathe, waterjet, welders, and 3d printers and organize the lab using a 5S system
- Assist in manufacture of projects for SAE Formula, SAE Baja, Aero-Bing rocketry, Mars Rover, senior capstone, and research
- Educate and present to tours of K-12 students, fostering awareness and enthusiasm for STEM

Jetcool Technologies, Co-op Engineer | Littleton, MA **June 2025 – August 2025**

- Prototyped pressure testing fixtures for cold plate systems to evaluate surface area optimization geometries
- Worked in team for next generation in-rack coolant distribution unit and developed housing for liquid level sensor
- Streamlined design-to-production workflow in Fusion 360 enabling 2-day turnaround for design, CAM, and manufacturing

LEADERSHIP AND INVOLVEMENT EXPERIENCE

Theta Tau Professional Engineering Fraternity, Member | Binghamton, NY **May 2024 – Present**

- Support fellow members' professional growth by sharing career resources and helping peers secure engineering internships
- Develop professional and technical skills, learning from experienced members and sharing knowledge with new members

Binghamton University Mini-Baja Team, Lead Manufacturing Engineer | Binghamton, NY **August 2024 – Present**

- Drive manufacturability-focused design and fabrication of suspension components and other complex manufacturing tasks
- Guide new members through CAD, CAM, and machining fundamentals and simulation-based validation workflows