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 **Expected May 2026**
Cumulative GPA: 3.29/4.00 | **Dean's List:** Fall 2022

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, carbon fiber, 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
- Prepare interactive examples of engineering concepts for children at community events such as rubber band and ballon cars

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