Jacob A. Pomerantz

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Education

Northwestern University Evanston, IL

B.S. Mechanical Engineering, Segal Design Certificate *Expected Graduation: June 2026*

- **Concentrations:** Manufacturing, Design
- **Cumulative GPA:** 3.55
- **Relevant Coursework:** Heat Transfer, Computer Integrated Manufacturing, Machine Elements, Advanced Solid Modeling, Comp. Methods for Engineering Optimization, Mechatronics, Programming in Python, Industrial Design I & II

Skills

Design and Manufacturing: GD&T, FEA, Metal and Resin/Plastic 3D Printing, Topology Optimization, Lightweighting, Manual & CNC Machining, Welding, Material Selection
Software: CREO, SolidWorks, Inventor, Siemens NX, nTopology, Python, MATLAB, HTML, CSS, Ansys Workbench, FeatureCAM, Embedded Programming, Arduino, Microsoft Office, Git/Github
Communication: Competitive Benchmarking, Grant & Report Writing, Technical Documentation

Technical Experience

DMG Mori Chicago, IL

Additive Solutions Research & Development Intern *Jun 2025 – Sep 2025*

- Modeled demo kit parts in CREO and optimized them in nTopology to highlight additive manufacturing (AM) capabilities.
- Prepared 3D prints with Oqton 3DXpert and operated selective laser melting machine to produce showcase-ready parts.
- Leveraged data acquisition hardware and Python to analyze factory floor temperature fluctuations.
- Conducted competitive benchmarking of 2D and 3D laser scanning systems, analyzing key performance metrics for AM technology strategy and development. Documented in Excel, presented in Powerpoint.
- Coordinated showroom display to exhibit AM technology to industry partners.

U.S. Department of Energy | Argonne National Laboratory Lemont, IL

Sustainable Aviation Fuels Research Intern *Jun 2024 – Sep 2024*

- Developed fast-acting sampling system for intermediate chemical species extraction during rapid compression machine experiments, enabling precise GC-MS analysis by reducing sampling delays.
- Designed precise gas-tight pneumatic sequencing valve to improve chamber evacuation reliability.
- Performed stress analysis and FEA on valve, validating performance up to 450 psi with safety factor >3.

Northwestern Ford Engineering Design Center Evanston, IL

Shop Trainer *Sep 2023 – Present*

- Trained and supervised 100+ students per quarter in safe use of CNCs, mills, lathes, and other shop tools.
- Aided academic and independent projects while maintaining shop safety and equipment readiness.

McCormick School of Engineering Evanston, IL

Research Assistant – Automated Manufacturing *Sep 2023 – Sep 2024*

- Collaborated with faculty to design and manufacture machine to produce HIV medical implants.
- Led redesign of prototype, including sourcing parts; fabricating custom components; and testing integrated cutting, sealing, and implanting processes. Revised Bill of Materials and manufacturing plan to accurately reflect machine design.

McCormick School of Engineering Evanston, IL

Research Assistant – Additive Manufacturing *Dec 2024 – Jun 2025*

- Diagnosed and resolved gas leak and powder flow issues on laser powder-bed fusion (LPBF) machine.
- Operated LPBF machine for aluminum powder parameter development, supporting research on process control.

Northwestern Formula SAE Racing Evanston, IL

Accumulator Container Project Manager *Oct 2022 – Jun 2024*

- Directed 6-person team to design and manufacture accumulator container and mounts for competition EV.
- Applied CAD, FEA, and CAM tools to enhance performance by reducing cost and weight; produced components using CNC and waterjet machining. Reduced weight of mounts by 50% using topology optimization.
- Supported chassis fabrication, assisting chief engineer with welding and assembly.

Projects & Additional Experience

Select Projects: X-ray positioning device; Electric skateboard (12s3p battery); Topology optimized suspension uprights
Additional Experience: Hilton breakfast line cook; EMR; Colorado-licensed business owner; Sunday school teacher