Charles Linder

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Education

Duke University | Durham, NC — Graduation: May 2026

B.S.E in Mechanical Engineering | *Minor in Economics* — **GPA:** *3.82/4.00*

- **Relevant Coursework:** Thermodynamics, Heat & Mass Transfer, Fluid Mechanics, Control Systems, Materials Science, Dynamics, Statics, Design I-IV | *Spring 2026: Senior Design, Compressible Fluid Flow*

Experience

Duke University Motorsports (Formula SAE) — **August 2022 - Present**

Mechanical Engineer and Project Team Lead — *Durham, NC*

- Designed electric shifter and clutch mechanism informed by FEA to reduce weight by 32% and shifting time by 80%, while collaborating with drivers to improve accessibility and ease of use
- Optimized exhaust manifold with engine and fluid simulations, increased power by 8%
- Applied machining skills to design for manufacturability and independently manufacture systems
- Oversaw and mentored team of five other students within powertrain subsystem
- Facilitated cross-functional collaboration to integrated powertrain components into larger assembly

Merz Aesthetics – Ultherapy — **May 2025 – Aug 2025**

Mechanical Engineering Intern — *Raleigh, NC*

- Developed reliability testing fixture for ultrasound therapy devices, iterated with 3D printed prototypes, and independently manufactured final assembly
- Designed manufacturing alignment fixture, reduced assembly time by 35% and tolerance by 50%
- Authored comprehensive documentation and SolidWorks CAD packages, facilitating technical communication and allowing future at-scale implementation of the two fixtures

WSP USA — **May 2024 – Aug 2024**

Mechanical Engineering Intern — *New York, NY*

- Utilized thermal load simulations to build HVAC equipment selection strategies, cut client's equipment costs by 23%, and modeled solution schematics in AutoCAD
- Mastered and deployed unfamiliar tools and new software to support design and project deliverables

Duke University Mechanical Engineering — **Dec 2024 - Present**

Teaching Assistant – Mechatronics and Control Systems (EGR224) — *Durham, NC*

- Mentored students through laboratory projects using MATLAB, LabVIEW, and control theory

Projects

Walkie^2: Smart Trekking Pole — **August 2025 – December 2025**

- Designed a lightweight, visually refined product integrating a radio and flashlight without adding bulk
- Created compact electronics mounts and UI hardware using GD&T to guarantee desired fit and feel
- Built, validated, and CNC machined a durable magnetic interchangeable tip system
- Coordinated clear communication throughout to ensure smooth electromechanical integration
- Presented at Duke's Product Design Showcase, highlighting features and pitching to potential users

Wind Turbine for Industrial Exhaust — **August 2023 – May 2024**

- Developed a small-scale wind turbine for exhaust outlets capable of powering lighting fixtures
- Collaborated and closely communicated with a team of engineering, economics, and policy students to transform the prototype into an economically and environmentally viable product

Skills

Software: SolidWorks CAD + FEA | CATIA | Fusion360 | Python | MATLAB | LabVIEW | Microsoft Office

Fabrication: 3D Printing, Rapid Prototyping, GD&T, CNC Machining, Turning, Milling, Laser cutting