

COLE ABBOTT

Mechanical Engineer

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PROJECTS

Northwestern Baja SAE

Manufacturing Lead, ECVT Lead

⌚ Fall 2022 - Current

- Designed and manufactured housing for differential gearbox
- Led the design and prototyping of an E-CVT, a new component our team had never made before
- Optimized car performance by integrating sensing and motor control into an E-CVT control system that kept the engine at its peak power

E-skin research project

HAND ERC Northwestern

⌚ Spring 2025

- Wrote firmware for a PIC32MZEF microcontroller using the Harmony development environment for an acoustic E-skin for a robotic hand
- Utilized High-Speed ADC with DMA and USB to send data to a PC
- Delivered functional prototype based on PIC32 development board

Injection Molded Toy Boat

ME 340-2: Computer Integrated Manufacturing II

⌚ Winter 2025

- Designed a toy boat to be injection molded with NX CAD
- Modeled and machined molds on a 3-axis CNC machine.
- Injection molded a production run of 50 parts within tolerance

QuackTrack Robot

EE 327: Electronic System Design II project

⌚ Winter 2024

- Designed and prototyped a robotic duck toy to detect and follow a person
- Used websockets to send an image to a server for processing with openCV
- Achieved smooth and responsive motion by implementing real-time motor control via PID on an IMU feedback loop
- Built a fully functional prototype with a multicolor 3D printed housing and rechargeable Li-ion battery

EDUCATION

B.S. M.S. Combined Degree Mechanical Engineering

Northwestern University

⌚ Expected June 2026

Robotics and Controls Specialization
Cumulative GPA: 3.91

LEADERSHIP ROLES

Shop Trainer

Northwestern University

⌚ Spring 2023 – Current

- Train students on basic tools, Mill, and Lathe
- Provide design and manufacturing advice to student groups, including first year engineering courses, research, and senior capstone projects

Trip Leader

Overland Summers

⌚ Summer 2024, 2025

- Led self-supported, 2 week long hiking trips for 9-13 year olds
- Taught outdoor skills
- Kept students safe and managed risks

Sailing Team Captain

Northwestern University Sailing Team

⌚ Winter 2023 - Fall 2024

- Taught new members sailing basics
- Organized regatta attendance at 27 events for a team of 80 members

SKILLS

Solidworks CAD

NX CAD/CAM/FEA

CNC and Manual Machining

Injection Molding

Rapid Prototyping

C/C++

Embedded Systems

Python

MATLAB