

ANDREW FRIEDMAN

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EDUCATION

University of Illinois at Urbana-Champaign

Urbana, IL

Bachelor of Science in Mechanical Engineering

Expected May 2030

GFX Research Scholar

Relevant Coursework: ME 170 (Computer-Aided Design), MATH 231 (Calculus II), PHYS 211 (Physics Mechanics), ME199

The Lawrenceville School

Lawrenceville, NJ

High School Diploma, Cum Laude; High Honors, 12 terms | GPA: 3.9/4.0

May 2026

TECHNICAL SKILLS

CAD: Fusion 360, Onshape, Rhino, SOLIDWORKS

Languages: Python

Fabrication: CNC Milling, Lathe, Waterjet, Laser Cutting, 3D Printing, Soldering

EXPERIENCE

FIRST Tech Challenge — Team 11166, Big Red Robotics

Lawrenceville, NJ

Lead Designer (2024–2026); Lead Driver (2023–2024)

August 2022 – May 2026

- Led mechanical design of the team's competition robot across four competition seasons and two offseasons
- New Jersey State Championship division semifinalists; Control Award (2023); Motivation Award, 3rd place (2024)

FIRST Robotics Competition — Team 6369, Mercenary Robotics

Lawrenceville, NJ

Designer & Outreach Member

August 2025 – May 2026

- Built the CAD model for the offseason REEFSCAPE robot and a spur differential gearbox alongside team members
- 120 hours of robotics outreach; volunteered for Every Child Valued and Princeton Nursery School

Undersea Technology Apprentices Program (UTAP)

Newport, RI

Apprentice, Naval Undersea Warfare Center Division Newport

Summer 2023

- Selected as 1 of 24 high school apprentices nationwide for a competitive U.S. Navy research program
- Worked with scientists and engineers on hands-on underwater robotics projects for unmanned submersibles

PROJECTS

Custom Billet Swerve Drive

Summer 2024

- Independently designed, sourced, funded, and fabricated a fully custom billet swerve drivetrain for FIRST Tech Challenge
- Published gear ratio research, including an explanation of the coaxial effect with full CAD documentation to the FTC community
- Started and funded a CAD competition to encourage adoption of swerve drivetrains in FTC
- Donated a complete swerve drive to an FTC team in Arizona, including billet parts, CAD files, and carbon fiber plates

Auto-Aiming Ball Launcher & Differential Claw

August 2024 – January 2026

- Designed and fabricated an auto-aiming launcher with a turret, auto-adjusting hood, and counter-rollers
- Designed and fabricated a double differential claw mechanism with 5 independent degrees of freedom

LEADERSHIP & ACTIVITIES

Organizations & Clubs — University of Illinois

August 2026 – Present

- American Society of Mechanical Engineers (ASME), product development team researching mechanical walkers
- Illini Micro Tech (Hackerfab)
- Illini Formula SAE, chassis ergonomics sub-team

Competitive Chess — United States Chess Federation

2016 – Present

- Expert class (2,000+ USCF), 3x State Champion, 3-Category Top 10 nationally at Supnationals
- Won the North American Scholastic Championship (126 entrants)
- Tied for 2nd, U2100 section, North American Open (129 entrants)

Varsity Crew — Coxswain

2022 – 2024

- Led an eight coaching catch and release form, timing, stroke rate, and pace; motivated the crew in practices and races
- Back-to-back Mid-Atlantic Prep League champion eight