

Susanna M. Aufrechtig

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EDUCATION

Cornell University, College of Engineering - Ithaca, NY

Class of 2028

- Bachelor of Science, Mechanical Engineering . GPA: 3.9
- Rawlings Cornell Presidential Research Scholar (~1% of accepted students)
- Relevant Coursework: Statics and Mechanics, Dynamics, Thermodynamics, Linear Algebra, Differential Equations

EXPERIENCE

Cornell Baja Racing Suspension Member - Ithaca, NY

November 2024 - Present

- Collaborate to build off-road racecar with 50 peers to withstand 4 hour endurance race and dynamic events.
- Responsible for design of rear suspension upright for 2026 car using FEA for load analysis.
- Designed and manufactured engine kill switch and brake light wire harnesses for 2025 competition vehicle.

Paly Robotics Mechanical Designer - Palo Alto, CA

August 2020 - May 2024

- Team Captain (2023-'24): Led project timelines, outreach, and events for 80-member team. Managed prototyping, design, and assembly of a pivoting disk-shooting robot. First FIRST World Championship qualification since 2020.
- Design Captain (2022-'23): Managed 20-member subteam in designing a triple-jointed arm robot; sketched robot geometry, led CAD reviews, and oversaw subsystem integration. Trained students in CAD and robotic design.
- Research Lead for FIRST Innovation Challenge (2021): Oversaw development of AI and camera-based assistive device to help blind individuals navigate sidewalks. Project ranked top 3 globally out of 800+ teams.

RESEARCH

SDU Medical Robotics Lab Research Intern - Odense, Denmark

May 2025 - August 2025

- Developed a micro SmartProbe as a laryngoscope tool to aid throat cancer diagnosis for the EU AIRCARE project; designed in CAD, prototyped, and iterated for manufacturability feasibility.
- Performed MATLAB-based kinematic modeling of probe mechanics to validate workspace and compute probe extension length and angular orientation for defined target points.

Boston University Morphable Biorobotics Lab Research Intern - Boston, MA

July 2023 - August 2023

- Designed and fabricated MR fluid-based soft robotic glove prototype using laser-cut TPE layering, developing accordion joint structures and iterating designs for durability, manufacturability, and fluid channel integrity.
- Conducted Instron tensile tests, demonstrating tunable stiffness control via electropermanent magnet integration.

Stanford Systems Neuroscience and Pain Lab Research Intern - Palo Alto, CA

June 2023 - July 2023

- Programmed scripts in E-Prime to measure hand dexterity in patients with degenerative cervical myelopathy.
- Developed REDCap formulas to calculate health measures from patient survey results.

KEY SKILLS

- **Programs:** SolidWorks, Fusion360, Onshape, Ansys, MATLAB, Java, Python, E-Prime, Google Suite, Office Suite
- **Hardware:** 3D printing, manual mill, manual lathe, general shop tools, hand soldering
- **Languages:** English (Native), French (Proficient)

PUBLICATIONS

- Gaeta LT, Albayrak MD, Kinnicutt L, Aufrechtig S,, & Ranzani T. [A magnetically controlled soft robotic glove for hand rehabilitation](#). In Device p. 100512 (2024)
- Oliva V, Bédard S, Smith AC, Kaptan M, Pfyffer D, Chy B, Aufrechtig S,, & Weber KA. Mapping Hand Function in the Brain and Spinal Cord with Simultaneous Brain-Spinal Cord Functional MRI, [ISMRM 2025](#)
- Oliva V, Bédard S,, Pfyffer D, Chy B, Aufrechtig S,, & Weber KA. [Mapping Hand Function in the Brain and Spinal Cord with Simultaneous Brain-Spinal Cord Functional MRI](#), Imaging Neuroscience (in revision) 2025
- Wu D, Aufrechtig S, Savarimuthu TR., and Cheng Z. Micro Smartprobe for Cancer Detection in the Upper Aerodigestive Tract, [A Micro Smartprobe for Cancer Detection in the Upper Aerodigestive Tract](#)