Grendel Gardiner

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Education

Georgia Institute of Technology | Atlanta, GA, USA *Expected* May 2026

Bachelor of Science in Mechanical Engineering, GPA 3.7/4.00

- *Relevant Coursework: Machine Design, Design for Manufacturing, Thermodynamics, Heat Transfer, Fluid Mechanics, and Intro to Engineering Graphics w/ Solidworks*
- *Expected (Spring 2026): Mechatronics, Control of Dynamic Systems, Modeling and Control of Motion*

Experience

Tendonova, Atlanta, GA Jan 2025 – Present

R&D Intern

- Spearheaded design and development of modular end-effector for minimally invasive bone marrow extraction procedures from concept; using Onshape CAD, FEA, and 3D printing, periodically ensuring optimization of fabrication cost, application load, and integration into clinical environment.
- Assist with FDA compliance and maintaining parts; design circuit to eliminate need for encoders, sourcing outdated parts for existing PCB, gathering experimental data on motors, and creating procedure-based development pipelines.

Kickr Design, Atlanta, GA Aug 2024 - Jan 2025

Mechanical Engineer Intern

- Engineered multipurpose safety clip with 6 sigma design methodology in SolidWorks through lead designer's guidance.
- Designed multiple jigs and tool holders to streamline calibration stand fabrication and streamline work flow.

Self-learning Projects

Weed Removal Robot | *Personal* Jul 2025 – Present

In-progress – Small Sized personal robot to detect and remove weeds with the roots.

- Designed various on-market removal tools to actuate robotically, started with 2DOF robot arm, but then transitioned to lead screws for higher force output and tangling capabilities.
- Trained weed image recognition model with yoloV11, roboflow, public datasets, and some photos from home.
- Designed planetary gearbox and worm gear to pierce soil and tangle roots for removal.

Back-Brace | *Team Lead* Feb 23rd 2025

Built Active Posture Tracking Wearable to Prevent Back Pain in Rowers – Won 1st place in MedTech Hackathon @ Georgia Tech

- Designed electrical housing and strap integration for ease of use, additionally created a makeshift strain sensor using hall-effect sensors, and partially completed EMG sensor for lat muscle activation detection.

Activities

BM2 Lab – Modular Self-reconfigurable Continuum Robot Aug 2025 – Present

Undergraduate Research Assistant

- Assist with design of V2 to increase locomotion and manipulation capabilities with tunable stiffness in Onshape
- Use of ANSYS FEA (for joint geometry optimization), MuJoCo (for tendon simulation and potentially machine learning) to create complex controls for the robot, and Matlab (to confirm MujoCo behavior with kinematics).

Medical Robotics Team Jan 2024 – Present

Industrial Co-Lead

- Led team of 10 members in literature review, design, and testing of magnetically actuated robot to eliminate blood clots in the lungs.
- Built current amplifier, battery pack, electro-magnet, and magnetostatic simulations for proof of concept.
- Currently in development of high feedback prosthetic tendon driven thumb while leading a team of 8 through R&D process from Tendonova.

Skills

Technical: Rapid Prototyping, Design for Injection Molding, FEA (Dynamic and Static), General Machining, Woodworking

Tools: FDM, SLS, CNC, Oscilloscope, function generator, soldering
Programming: Python, Java, MATLAB, Git
Software: Linux, Solidworks, OnShape, Arduino IDE, RPi, Yolo, Roboflow, Ansys Workbench, MiniTab
Languages: English (native), Japanese (fluent)
Interests: Robotics, Jumping (both myself and mechanisms), Biomimicry