

# Shreya Terala

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## EDUCATION

**Johns Hopkins University** | Baltimore, MD

Expected Dec 2026

MSE in Robotics, Concentration in Medical Robotics, MSE Distinguished Fellow

Relevant Coursework: Computer Integrated Surgery, Haptic Interface Design, Robot Dynamics Kinematics & Control

**Georgia Institute of Technology** | Atlanta, GA

BS in Mechanical Engineering, Minor in Robotics, 2024 Millennium Fellow

Relevant Coursework: Biomedical Instrumentation, Mechatronics, Machine Learning, Intro to Artificial Intelligence, System Dynamics

## EXPERIENCE

**Hardware Engineering Co-op**

Jan 2025 - June 2025

*Amazon Robotics* | Manipulation HW Team | North Reading, MA

- Designed a servo-pneumatic piston and demonstrated position control while initiating benchmarking for future iterations
- Implemented electrical dresspack design and routing along the robotic arm to end-of-arm-tooling (EoATs)
- Fabricated and tested quick turn prototypes for validating design decisions and direction
- Investigated robot collisions modes in the field to define typical collision conditions & derive loading requirements for EoATs

**Mechanical Engineering Intern**

April 2023 - May 2025

*Rockwell Automation* | Low Voltage Drives Mechanical R&D Team | Mequon, WI

- Led thermal simulation efforts using Ansys Icepak with the goal of optimizing cooling and lifetime of electronic components
- Developed new heatsink optimization method to optimize lowering component cost while maintaining optimized cooling
- Designed & fabricated 2 fixtures and 1 mount using Creo and 3D printing to decrease risk of damage to electrical components due to misalignment during manufacturing
- Assisted with thermal and airflow testing of a new product to determine the required volumetric flow rate of the fans, optimal layout of the electronic components, and optimal cooling of power modules
- Developed assembly instructions to bridge the information gap between the mechanical and industrialization teams
- Researched UL IP54 standard specifications to design a compliant cover using Creo Parametric for a new line of drives

**Undergraduate Researcher**

Aug 2022 - Dec 2024

*Georgia Tech EPIC Lab* | Generalized Robotic Assistance for Handling And Manipulation (Department Of Energy/Back Exo Team)

- Led experimental collection, data processing, and shallow machine learning model development to predict ground reaction forces from foot pressure insoles
- Developed a Temporal Convolution Network (TCN) model to provide joint moment & loading estimates to the controller
- Utilized ROS2 to integrate mechatronics and sensing systems into the TCN-informed controller to provide informed torque assistance to exoskeleton users
- Designed and fabricated robust exoskeleton components using SolidWorks, 3D printing, and machining
- Automated startup of load cell data broadcasting to a ROS node using Bash to decrease experimentation setup time

*Georgia Tech EPIC Lab* | Activity-Invariant Human Augmentation (X Team)

- Analyzed sensor data from hip and knee exoskeletons using MATLAB to determine angle, torque, and power profiles of cyclic and non-cyclic daily activities under various exoskeleton conditions for assistance in ML model development

**Project & Technical Lead**

Oct 2021 - Dec 2024

*Georgia Tech Engineers Without Borders* | Nepal Team - Constructing a water supply system for a community in Madhyabindu, Nepal

- Established project basis and consistent communication with mentors, local stakeholders, NGO, and the community

*Georgia Tech Engineers Without Borders* | Malawi Team - Constructing latrines at a primary school in Salima, Malawi

- Established and upheld the direction & timeline of the project and facilitating internal and external project communication
- Led a team of 5-10 technical members in the design and structural integrity testing of the latrines
- Designed the CAD model and contractor drawings for the staff latrines using Autodesk Fusion & AutoCAD
- Coordinated remote construction with the selected local contractor across two Malawi-based NGOs

**Team Member**

Oct 2021 - Feb 2023

*Georgia Tech RoboJackets* | RoboNav Mechanical Team for University Rover Competition

- Assisted in design, CAD modeling in Autodesk Inventor, and fabrication of a rover science module intended to collect soil samples and determine if they contain life

*Georgia Tech RoboJackets* | Battlebots 3lb Team - Insaniti

- Designed the robot chassis, electronic layout, and weapon in Autodesk Inventor
- Used MATLAB to conduct performance analysis based on the robot's characteristics to determine the best weapon motor

## PROJECTS

**breathSense - Haptic Feedback Meditation Device** | Georgia Tech & Emory University

Aug 2024 - Dec 2024

- Collaborated with stakeholders from FaniLab at Emory University to create a breath-synced, vibrotactile vest that will assist their clinical trials, provide real-time feedback of breath profiles, and control over vibration intensity and profiles
- Conducted background market research, derived customer requirements, downselected between various architectures, and developed selected electronics system and packaging to deliver a functional device to the lab

**RUBI - A Self Solving Rubik's Cube**

Sep 2024 - Dec 2024

- Developed an internally motorized Rubik's cube that self-solves after its scrambled state is captured using computer vision
- Spearheaded the development of the code pipeline from computer vision based color identification to algorithm generation to discrete moves to motor commands transmitted via Bluetooth

**Amputee Residual Limb Monitoring Compression Sock**

Oct 2024 - Nov 2024

- Developed a smart, wearable compression sock to monitor the progression of post-amputation limb shrinkage in real-time
- Created a snap-fit housing for the electrical circuit, characterized sensor data, and developed a real-time monitoring system streaming data from an ESP32 via Bluetooth

## SKILLS

**Software:** Creo Parametric, Solidworks, Autodesk Inventor, Autodesk Fusion, C++, MATLAB, Python, Ansys Icepak, Windchill, SAP, Prusa Slicer, Cura Slicer, Git, Java, JavaScript, HTML, CSS, Bash, ROS

**Instrumentation:** FANUC Robotic Arms, CNC Lathe & Mill, Laser Printing, 3D Printing, Soldering Tools, Shop Equipment

**Concepts:** CAD Design, Finite Element Analysis, Design For Manufacturing, Object-Oriented Programming, Closed Loop Control Systems, Linear Algebra, Multivariable Calculus, Differential Equations, Data Structures & Algorithms, Statistics & Probability