# SHREYAS SANGHVI

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## EDUCATION

**Carnegie Mellon University,** Pittsburgh, PA **Expected. Dec 2025**
Master of Science in Biomedical Engineering - Research Track **GPA: 4.0/4.0**
Award: Biomedical Engineering Department Head's Fellowship, Scholarly Project Funding – Spring 2025

**NIIT University,** Neemrana, India
Bachelor of Technology in Electronics and Communication with *Distinction.* **CGPA: 8.81/10**
Award: Ram Rajinder Malhotra Medal for best all-around graduating student

## SKILLS

**Programming and databases:** C/C++, Embedded C, Java, Python**,** SQL, Neo4J
**Hardware:** Advance: PIC16F family, STM32F1/F4 families; *Beginner*: TI C2000ware, TI F2806x family
**Software:** Eagle CAD, OrCAD, Altium, MATLAB, LTSpice, STM32 Cube, Kiel uVision, Solidworks, Labview, NI DAQmx
**Prototyping:** 3D printing (FDM / SLA), Laser cutting, Laser welding, Wood working

## EXPERIENCE

**R&D Intern |** *IotaMotion, Pittsburgh, PA* **May 2025 - Aug 2025**
- Designed and assembled electro-mechanical system for real-time surgical force feedback, adhering to IEC 60601-1
- Reduced fault recovery time by 20% through optimizing hardware-software feedback control, ensuring ISO 13485 and IEC 62304 compliance
- Automated motor parameter validation with custom test rigs and embedded scripts, boosting testing efficiency by 15%, aligned with IEC 62304 and ISO 13485 compliance

**Founder |** *Phystech Labs Private Limited, Mumbai, India* **Nov 2020 - Aug 2024**
- Raised INR 3 million to develop a feedback system with applications in diabetic foot ulcer management
- Coordinated design and firmware development of graphene-based smart sock for real-time foot pressure monitoring, improving mobility in 150+ patients, compliant with IEC 62304 and ISO 13485 standards
- Engineered real-time pressure feedback algorithms to enable precise offloading guidance, accelerating patient recovery by 25% and optimizing clinical outcomes

**Contract Engineer |** *Jiva Sciences Private Limited, Bangalore, India* **Aug 2022 - Apr 2023**
- Implemented a microfluidics control system using TI-F28069M microcontrollers and OrCAD design software
- Reduced CNC micro-milling control box footprint by 10% through layout optimization

## PROJECTS

**HeartPrinter: A Parallel Wire Robot for Cardiac Intervention | Github** **Aug 2024 - Present**
*Carnegie Mellon University, Pittsburgh, PA*
- Enhancing control loop using NI DAQmx to achieve faster and more accurate sensor feedback, improving system localization and navigation during cardiac procedures
- Integrating real-time navigation capabilities enabling autonomous tracking and compensation for heart motion during beating-heart procedures
- Redesigning the platform base to increase mechanical stability and precision under dynamic operating loads

**FALCON: FoveA LoCalizatiON in En-face OCT Imaging via Explainable B-scan Classification and Transformer-Based Segmentation | Github** **Jan 2025 - Present**
*Carnegie Mellon University, Pittsburgh, PA*
- Proposed a dual pipeline machine learning algorithm as a team of four, with the target of automating fovea localization in En-Face Optical Coherence Tomography (OCT) images
- Leveraging VGG16 based classification on OCT B-Scans and Pretrained MAE autoencoder with U-Net++ decoder to achieve 98.72% accuracy on validation data set of B-Scan OCT images

**Dr. Phix-it** **Oct 2024**
*BioHacks 2024, Nucleate Pittsburgh, PA*
- Led a team of four engineers to design a mobile interface in under 24 hours that demonstrates real-time data augmentation using haptics and audio-visual cues for cochlear implant surgeries
- Secured First place at BioHacks 2024 and received a prize of US$1500