

# Frederick (Tzujie) Huang

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## EDUCATION

**UNC-Chapel Hill and North Carolina State University**

Research Triangle Park, NC

*Bachelor of Science in Biomedical Engineering*

## PROJECTS

**Anki Remote Controller | *Xtensa, RF Communications***

7/2025 - 8/2025

- Built a 5 button human interface device for medical students navigating Anki's review software.
- Implemented and deployed 200+ lines of code for secure, rapid pairing with personal devices.

**Reaction Time Datalogger | *AVR, PlatformIO***

8/2025 - 7/2025

- Prototyped a dedicated device to measure reaction times across auditory, tactile, and visual stimuli for applications in MBTI diagnostics, ensuring reliability with comparison to consumer-grade software.

**Monitoring Pectus Carinatum | *Prototyping, Risk Analysis, Validation***

8/2024 - 5/2025

- Consulted for UNC Health PM&R, designing and manufacturing a pneumatic-based pectus carinatum treatment with real-time feedback, guided by working experience with ISO 14971, 13485.
- Altered patient Haller index by an average of 0.2, projecting a 30% decrease in treatment time.

**Biospecimen QA/QC in Omic Processing | *GLP, LC/MS, LipidSearch***

8/2024 - 5/2025

- Analyzed degradation pathways during extraction, building SOPs for sample preparation.
- Reduced lipid breakdown in biospecimen processing by up to 22.9% among 1700+ acquired samples.

## WORKING EXPERIENCE

**Incoming Biomaterials Research Associate**

9/2025 - Present

*The University of Texas Health Science Center at San Antonio*

San Antonio, TX

**Teaching Assistant**

12/2024 - 5/2025

*Lampe Joint Department of Biomedical Engineering @ UNC & NCSU*

Chapel Hill, NC

- Instructed 30+ students in multiple lab sections on deformable bodies, materials science, methods of characterization and analysis.
- Graded lab work, held office hours, facilitated review sessions, and proctored exams.

**Process Intern**

8/2024 - 5/2025

*UNC CRITCL Laboratories and School of Medicine*

Chapel Hill, NC

- Ran pilot study with 10+ bat and murine models as part of cross institutional efforts with genomic and proteomic Core facilities to establish algorithms in lipid integrity and a penta-omic extraction method.

**Executive Officer**

5/2022 - 5/2025

*UNC Mens Ultimate Blue—Darkside*

Chapel Hill, NC

- Contracted sponsor agreements with local businesses and managed a \$60,000+ budget from 2023-2025.
- Synthesized efforts with a local organization, Triangle Ultimate, and St. Augustine's University club sports to establish the US's first active HBCU ultimate frisbee team.

## ACHIEVEMENTS AND HONORS

**IPEP Distinguished Scholar, UNC School of Medicine**

2025

**Abrams Scholar, College of Engineering at NC State**

2024

**Dean's List**

2021 - 2025

## TECHNICAL SKILLS AND INTERESTS

- Prototyping: Additive and Subtractive Manufacturing, CAD, Microcontrollers
- Languages: MATLAB, Python, C++,  $\text{\LaTeX}$
- Software: PyMOL, ImageJ, Onshape, Fusion, AutoCAD, LipidSearch, BLAST, FASTA, AutoDock Vina, NI MAX, LabChart, UCSF Chimera, ClusPro, Office Suite
- Laboratory: Aseptic Technique, Cell Culture and Passaging, TEM, Sterilization