

Sonika Nallapu

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Multilingual biomedical engineer with industry experience in translational research and medical device development, including intraoperative tool design and clinical collaboration. Skilled in qPCR, 3D tissue culture and creating innovative solutions for cardiovascular surgery in partnership with healthcare professionals. Seeking a Clinical Specialist or R&D role to support the advancement and application of medical technologies that improve patient outcomes.

EDUCATION

Bachelor of Science in Biomedical Engineering

2025

University of Alabama at Birmingham, Minors: Mathematics, Engineering World Health

- **Relevant Coursework:** Mechanobiology, Biostatistics, Tissue Engineering, Biocomputing, Physiology, Electrical Systems
- **Skills:** Hydrogel, 3D Tissue Engineering, Cell Culture, qPCR, MATLAB, SolidWorks, JMP, Autodesk Inventor, AutoCAD.

WORK EXPERIENCE

Scientist I, CerFlux (Birmingham, AL)

2024 - Present

- Synthesized 5+ 3D colorectal tumor organoids weekly with the goal of creating efficient drug screening protocols.
- Developed patient and cell line culture techniques on 2D flasks to ensure increased confluency and decreased contamination.
- Process and analyze patient tumor tissue to ensure that it is viable to be processed for cell isolation.
- Isolate cells from the patient's tumor tissue to create 3D tumor organoids.
- Collaborated cross-functionally with research and clinical teams to ensure timely processing of patient-derived samples.
- Performed administrative tasks such as organizing lab supply organizations to ensure efficient lab flow.

Template Production Associate, BioGX (Birmingham, AL)

2023 - 2024

- Created, tested, packaged, and shipped 5+ PCR-positive controls weekly, so that customers get effective products.
- Tested materials' stability and wrote reports to determine the lifespan of the positive controls.
- Generated plasmids for use by R&D, QC, and Bead Production.
- Streamlined record/bookkeeping processes through strategic planning and execution to enhance workplace efficiency.
- Supported downstream teams including customer-facing QC to ensure product consistency and regulatory compliance.

Medical Office Assistant, Snellville Pediatrics (Snellville, GA)

2021

- Managed HIPAA-compliant medical records, technical library, and correspondence files, for insure and care purposes.
- Gained direct experience in a fast-paced clinical environment, communicating with medical staff and patients.

Marketing and Data Analysis, GCURV Technologies (Duluth, GA)

2020 - 2021

- Compiled statistics from the source material, such as product sales records or online sources, to create marketing material.
- Compiled reports, charts, and graphs to assist management in helping clients maintain sustainability.

PROJECTS

AdjustiFlow - Adjustable Flow Sensor for ECMO (Birmingham, AL)

2024 - 2025

- Identified a cost inefficiency with the current ultrasonic flow sensors used during ECMO procedures at Children's of Alabama, aiming to reduce surgical expenses by creating an adjustable flow sensor.
- Defined design requirements based on input from a perfusionist at Children's of Alabama to support the 3 different tube sizes.
- Designed and developed an adjustable flow probe using Onshape, iterating through 20+ CAD versions to improve usability.
- Conducted interviews and design feedback sessions with perfusionists to understand intraoperative workflows and usability. Demonstrated working prototypes and gathered clinical feedback to iterate design.
- Conducted verification and validation testing, ensuring mechanical stability and flow measurement accuracy within 5% error.
- Device is projected to reduce ECMO sensor costs up to 60%, saving over \$10,000 by using an adjustable flow sensor.

EXTRACURRICULAR

Kappa Delta Sorority (Birmingham, AL)

2023 - 2025

- Recruitment Team - Round Coordinator
- Volunteer with the Girl Scouts to raise confidence in young girls and further their charitable causes.
- Raise money for Prevent Child Abuse America to supply resources to young families in the Birmingham community.

Assistant Tae Kwon Do Instructor, USA Tae Kwon Do Academy (Lawrenceville, GA)

2018 - 2020

- Coached kids on new techniques, based on their strengths and weaknesses.