Tara Menon Pattilachan

linkedin.com/in/tmenon/
tarapm@vt.edu
taramenon.com
+1 813-385-6580

Education

Virginia Tech Carilion School of Medicine, Roanoke, VA — August 2024–May 2028
– Incoming MD Candidate, MS1

University of Florida, Orlando, FL — August 2023–May 2024
– Post-Baccalaureate coursework in Computer Science
– Awards and Honors: UF BMES Research Travel Award

University of Central Florida, Orlando, FL — August 2019–December 2022
– Founding team member of Nucleate chapter in South Florida
– Bachelor of Sciences (B.S.) in Neuroscience and Biotechnology, with *Honors*
– Awards and Honors: NCWIT Change Lead Scholar, NCWIT-Bloomberg GHC Grant, AARP Freelance Fellowship - NLGJA Convention, Financial Times News Scholar

Steinbrenner High School, Tampa, FL — August 2015 –June 2019
– High School Diploma, GPA 9.04, Valedictorian with *Honors*
– Awards and Honors: Ranked Top 25 Nationally in U.S. Brain Bee, Conrad Spirit of Innovation Challenge Semi-finalist

Experience

AdventHealth Tampa, Clinical Research Assistant, Research Program Coordinator — May 2023–May 2024
– I transitioned to a role as Research Program Coordinator and Clinical Research Assistant to Drs. Ross and Sucandy at AdventHealth's Digestive Health Institute. I led and mentored a diverse group of high school and medical students in the Robotics/MIS HPB Department, overseeing research while making clinical research accessible and enriching. I managed administrative and leadership responsibilities while applying my extensive research background to guide student endeavors and improve departmental projects. In addition to research projects and collaborating on clinical trials and medical device applications, I am co-coordinating and leading the International Women in Surgery Career Symposium alongside my PI, Dr. Sharona Ross. Since joining the research team, I've worked on and submitted 15+ abstracts and manuscripts.

USF Osher Lifelong Learning Institute, Course Instructor — July 2023–August 2023
– Developed and delivered the Summer 2023 course "Gene Therapy 101 – An Introduction to Modern Medicine's Future," providing senior learners with a foundational understanding of gene therapy and immunotherapies. Crafted engaging lesson plans and utilized diverse teaching methods to enhance knowledge transfer within a senior learning environment.

Advanced Pain Care, Medical Assistant and Scribe — December 2022–May 2023
– At APC, an interventional pain clinic, I served as a Medical Assistant and Scribe. I engaged directly with chronic pain patients, meticulously documenting medical histories to inform treatment plans. Additionally, I collaborated with physicians to formulate and implement treatment plans, prepared and assisted with steroid injection administrations, and navigated the complexities of providing care during patients' vulnerable periods.

Razavi Lab at the UCF College of Medicine, Research Assistant — August 2021 –December 2022
– Developed a novel ultrasound shearing-based method for nanobubble synthesis in gene and drug delivery systems for osteoporosis treatment, a technique explored in my thesis: "Novel Ultrasound Shearing-based Fabrication Method for Nanobubble Synthesis in Gene and Drug Delivery Systems". Formulated and optimized ultrasound-stimulated nanobubbles for siRNA gene therapy delivery, utilizing dynamic light scattering and TEM imaging. Conducted *in vivo* testing via tailbone injections in mice and assessed treatment efficacy. Performed phantom vessel tests to evaluate nanobubble contrast imaging properties, demonstrating potential theranostic applications.

Massachusetts Institute of Technology, Researcher   March 2021–June 2021
- Developed image processing pipelines using OpenCV to analyze fMRI data for investigating the functional organization of human vision (Kanwisher Lab, MIT). Techniques included filtering, segmentation, manipulation, and feature detection.

StartUp Health, Journalism Fellow   May 2020–August 2020
- Supported health startup growth through content creation, communications, and research. Activities included: interviewing CEOs, writing blog posts with SEO, managing social media, podcast production, and staying updated on health/science trends in the COVID-19 era.

Northwestern Feinberg Medicine's Machine and Hybrid Intelligence Lab (formerly at UCF CRCV), Research Assistant   October 2019–Present
- Used and tested weakly-supervised deep learning (GRAD-CAM) methods for detecting IPMNs in the pancreas. Also worked on testing and maximizing the accuracy of various data and image augmentation methods in medical imaging outputs, among other projects.

Huffington Post, Science News Contributor   April 2016–December 2019
- Contributed to science and technology journalism by writing articles focused on new research discoveries, particularly within 'The Brain' subsection.

Conductive Education Center of Orlando, Intern   January 2020–January 2021
- Supported individuals with neurodevelopmental and motor disabilities (e.g., Cerebral Palsy, Spina Bifida, Parkinson's) during my CECO internship. Provided educational and therapeutic assistance to both children and adults.

   Other personal projects: neurologic-usa.com

Patents

Nanobubble Synthesis for Gene and Drug Delivery Systems, 2023-045-01   Filed May 26, 2023

Projects

Tampa Difficulty Score - Robotic Hepatectomy Difficulty Scoring System   February 2024
- https://roboticliverresectionscore.com/

Tampa Difficulty Score - Robotic Whipple Difficulty Scoring System   February 2024
- https://roboticwhipplescore.com/

Publications and Abstracts

Huffington Post Science
- The Link Between Autism, Baby Teeth, and Lead Levels - (June 2, 2017)
- How Marijuana Can (Potentially) Help Fight Against Alzheimer's - (June 30, 2016)
- Where The Brain And Panoramic Memory Meet - (September 12, 2016)

IYNA Journal
- Neuropharmacology of Psychosis - (Jan 10, 2017)

NSM Today
- Learning beyond classrooms and into virtual realms - (April 22, 2021)

VRScout
- How AI and Haptics Could Revolutionize VR - (Sept 23, 2019)

Teen Vogue
- My Imposter Syndrome Improved After I Got Comfortable With Failure - (Jan 15, 2020)

StartUp Health - Medium
- Treatment Before Vaccine: How These Two Medical Scientists Hope to Buy Time for COVID-19 Patients - (June 16, 2020)
- Doctor.com launches VirtualVisit, a Free Telemed Platform Backed by Their Big Data Infrastructure - (June 16, 2020)
- How to Build an Adaptable Team During Uncertain Times - (August 18, 2020)

- This Founder Is Fighting Medication Non-Adherence With a Smart Pill Bottle and Mountains of Data - (July 17, 2020)
- How Joint Academy CEO Jakob Dahlberg Is Transforming Osteoarthritis Care - (July 7, 2020)

Academic Publications

- Bubble-Based Drug Delivery Systems: Next-Generation Diagnosis to Therapy, **Journal of Functional Biomaterials, 2023**
- A Critical Appraisal of Data Augmentation Methods for Imaging-Based Medical Diagnosis Applications, **IEEE 2022, ArXiv preprint**
- The Implications of Readmission on Cost and Patient Outcomes Following Distal Pancreatectomy and Splenectomy, **The American Surgeon, November 14, 2023**
- The Robotic-assisted Laparoscopic Approach to Biliary Tract Resection and Reconstruction for Benign Indications: A Single Center Experience, **World Journal of Surgery, December 13, 2023**
- Cost Comparison Between Medicare and Private Insurance for Robotic Transhiatal Esophagectomy, **Journal of Robotic Surgery, January 17, 2024**
- The Effects of Smoking History on Robotic Transhiatal Esophagectomy Patient Outcomes, **Journal of Robotic Surgery, *In print***
- The Weight of BMI in Impacting Postoperative and Oncologic Outcomes in Pancreaticoduodenectomy is Attenuated by a Robotic Approach, **Journal of Robotic Surgery, *In print***
- Weighing the Outcomes: The Role of BMI in Complex Robotic Esophageal and Hepatobiliary Operations, **Updates in Surgery, *In print***
- Effect of Insurance Status on Perioperative Outcomes After Robotic Pancreaticoduodenectomy: A Propensity-Score Matched Analysis, **Journal of Robotic Surgery, *In print***
- Comparison of IWATE, Institut Mutualiste Montsouris, and Southampton Laparoscopic Liver Resection Difficulty Scoring Systems For Predicting Intra and Postoperative Outcomes in Robotic Hepatectomy, **The American Surgeon, *In print***
- Deconstructing the Operative Times of Robotic Pancreaticoduodenectomy, **The American Surgeon, *In print***
- Robotic Biliary Resection for Type I Choledochal Cyst with Dual Hepaticojejunostomy, **The American Surgeon, *In print***
- A Decade of Experience with Minimally Invasive Anti-Reflux Operations: Robot vs. LESS, **Surgical Endoscopy, *In print***
- Is the Robotic Approach the Future of Distal Pancreatectomy with Splenectomy? A Propensity Score Matched Analysis, **Journal of Robotic Surgery, *In print***
- Hospital Readmissions after Robotic Hepatectomy for Neoplastic Disease: Analysis of Risk Factors, Survival, and Economical Impact. A Propensity Score Matched Study, **American Journal of Surgery, *In print***
- The Oncological Stress Test of Neoadjuvant Therapy: A Systematic Review in Outcomes of Neoadjuvant Therapy Compared to Upfront Resection Approach for Borderline Resectable Pancreatic Adenocarcinoma, **The American Surgeon, *In print***
- Effect of IWATE Laparoscopic Difficulty Score on Postoperative Outcomes and Costs for Robotic Hepatectomy: Are Complex Resections More Expensive?, **Journal of Hepato-Biliary-Pancreatic Sciences, *In print***
- Robotic Biliary Stricturoplasty and Roux-en-Y Hepaticojejunostomy After Hepatic Artery Infusion Pump Injury, **Annals of Surgical Oncology, *In print***
- ASO Author Reflections: Application of Robotic Technique For Treatment of Biliary Sclerosis From Hepatic Artery Infusion Pump Chemotherapy, **Annals of Surgical Oncology, *In print***
- Learning Curve Analysis After 500 Robotic Hepatectomies, **Journal of Gastrointestinal Surgery, *In print***
- A Comparative Analysis of Robotic versus Open Pancreaticoduodenectomy in Octogenarians, **Journal of Robotic Surgery, *In print***
- ASO Author Reflections: Expanding Minimally Invasive Options for Perihilar Cholangiocarcinoma. The Use of Robotic Platform in Biliovascular Reconstruction, **Annals of Surgical Oncology, *In print***
- ASO Author Reflections: Technical Approach to Inferior Vena Cava Resection and Replacement During Liver Resection. The Role of Conventional Open Technique in the Modern Era of Minimally Invasive Hepatobiliary

Surgery, **Annals of Surgical Oncology,** *In print*

- Initial Clinical Outcomes of Robotic Resection for Perihilar Cholangiocarcinoma: Is It Safe and Effective?, **Journal of Surgical Oncology,** *In print*
- Does Pre-operative Endoscopic Procedures Impact the Surgical Outcomes of Robotic Pancreaticoduodenectomy?, **Journal of Robotic Surgery,** *In print*
- A Decade of Experience With 530 Minimally Invasive Robotic Hepatectomies From a Single Tertiary Hepatobiliary Center. Analysis of Short-Term Outcomes and Oncological Survival, **Journal of Gastrointestinal Surgery,** *In print*

Abstracts, Poster Presentations and Miscellaneous

- End-to-End Risk Stratification Model to Predict Progression from Barrett's Esophagus to Esophageal Adenocarcinoma, **USCAP 2022**
- Deep Learning Models in the Classification of Intraductal Papillary Mucinous Neoplasms With Visual Explanation Methods to Highlight Areas of Interest for Algorithm Decision Process, **DDW 2022**
- Imaging-based EGFR mutation subtype classification using EfficientNet, **AACR 2022**
- Optimizing the Formulation of Nanobubble-based Therapeutic Delivery Systems, **BMES 2023**
- Enhancement of Ultrasound Imaging via Ultrasonic Sheared Nanobubbles, **TMS 2024**
- A Single Institutional Experience Of Robotic Resections For Perihilar Cholangiocarcinoma **SESC 2024**
- Comparison Of Iwate, Institut Mutualiste Montsouris, And Southampton Laparoscopic Liver Resection Difficulty Scoring Systems For Predicting Intra And Postoperative Metrics In Robotic Hepatectomy **SESC 2024**
- Robotic Redo Large Paraesophageal Hiatal Hernia Repair With Toupet Fundoplication **SESC 2024**
- A Decade Experience Of 500 Robotic Hepatectomies From A Single Tertiary Hepatobiliary Center **AHPBA 2024**
- Validation Of Tampa Robotic Scoring System: Real-time Assessment Of Hepatectomy Outcome Predictions **AHPBA 2024**
- Robotic Biliary Resection for Type I Choledochal Cyst with Dual Hepaticojejunostomy **SAGES 2024**
- Internal Validation of the Tampa Robotic Difficulty Scoring System: Real-Time Assessment of the Novel Robotic Scoring System in Predicting Financial Costs of Hepatectomy **DDW 2024**
- Analysis of Learning Curve After 500 Robotic Hepatectomies **DDW 2024**
- Analysis of Learning Curve After 426 Robotic Pancreaticoduodenectomies **DDW 2024**
- Robotic pancreaticoduodenectomy (PD) for Obstructing Ampullary Mass - Oral Presentation **DDW 2024**
- Outcome Analysis of Caudate Lobe and Posterosuperior Segment Resection Using Robotic Approach: Comparison of Liver Resections in Difficult Locations **DDW 2024**
- Robotic Versus Open Repair of Iatrogenic Bile Duct Injury During Cholecystectomy - A Prospective Follow-up Study Beyond Short-Term Outcomes **SLS 2024**
- Is Pancreatic Cancer Sporadic or Part of the Syndrome? **SLS 2024**
- Today's Experience with 430 Robotic Pancreaticoduodenectomies from a Single High-Volume Institution **SLS 2024**
- Implications Of Subsequent Hepatectomy Through Robotic Platforms: A Propensity Score Matched Study Of Clinical Outcomes **ACS 2024**
- Total Gastrectomy With Roux-en-Y Esophagojejunostomy - Video Presentation **ACS 2024**
- A Comparative Assessment of ACS NSQIP-Predicted and Actual Surgical Risk Outcomes for Robotic Pancreaticoduodenectomies at a High-Volume Institution **SRS 2024**

Notable Speaking Engagements

Invited panelist, UCF AMWA	March 2024
Invited speaker, USF Student Government	February 2024
Invited speaker, USF Minorities in Medicine Workshop	February 2024
Invited speaker, USF Latin Medical Student Association	February 2024
Invited panelist, USF PAMSA Medical Student and Research Discussion Board	January 2024
Featured Interview and Video, UCF Research in 60 Seconds series	October 2023
Speaker at UCFCOM Biionix Seminar - Materials and Devices for Skeletal Disorders	October 2021

Speaker at UCFCOM Biionix Symposium May 2022
– Presented project "Echogenic Nanobubbles for Ultrasound Imaging of Skeletal System" alongside Thomas Hartmann; Dr. Razavi's lab

Speaker at TEDxCocoaBeach March 2019
– Spoke about 'The Future Revolution of Cultural and Social Experiences', covering the influence of VR/AR, AI and the use of neuroscience in these fields for a very revolutionary (and imminent) future.

Interviewed by Broward County podcast, Living Podcariously March 2019

Steinbrenner High School Graduation Ceremony Speech June 2019

Skills

Languages
– English (Native), Malayalam (Native), Spanish (Intermediate)