

Lalith Roopesh

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Passionate leader aiming to be at the forefront of clinical, research, and educational initiatives.

Education

University of South Florida (USF) - Tampa, FL

Doctor of Medicine (M.D.) at Morsani College of Medicine

Anticipated May 2028

- Accepted and planning on matriculation in July 2024, concurrent with B.S.

Bachelor of Science (B.S.) in Biomedical Sciences

Anticipated May 2025

- Judy Genshaft Honors College and 7-year B.S./M.D. program graduate
- Awards:** 2023 Sigma Xi inductee, Dean's List (all semesters), USF Benacquisto Scholar

GPA: 3.97/4.0, MCAT: 524

Research Experience

Research Assistant (Ullah Lab at USF Department of Physics)

Mar. 2023 - Present

- Devising computational pipelines to model neural "inflammaging" due to calcium signaling in SARS-CoV-2 infection
- Designing differential gene analysis using single cell RNAseq and downstream pathway analysis to model cellular changes
- Optimizing protocol on supercomputing clusters to cut down computing time by 1-2 days per task

Research Coordinator (Uversky Lab at Morsani College of Medicine)

Oct. 2022 - Present

- Modeled 4 neurotransmitter receptors across 76 species and conducted molecular docking to predict social behaviors
- Created and directed 9 person USF team by writing protocol in Python and Bash for SLURM-based supercomputing clusters
- Analyzing proteomic environment of late stage Alzheimer's Disease via computational methods for a thesis

Research Assistant (Tsai Lab at Moffitt Cancer Center)

Feb. 2023 - Feb. 2024

- Culturing mammalian and human cell lines of cuSCC and MCC tumors by designing media and passing cells
- Conducting literature review across 80+ articles to identify gaps in research and devise projects
- Organizing lab equipment and samples since 2018 and built protocols that all lab members use

Research & Discovery Intern (Eli Lilly & Company)

Jun. 2021- Jul. 2021

- Conducted on big data genome sequencing and error analysis in R and Bash using Lilly supercomputers
- Designed novel Bash scripts optimized for space and time complexity to reduce resource use
- Presented on techniques and skills learned as part of the program at the 2021 Project STEM Research Symposium

Data Analyst Intern (Regenstrief Institute)

Jun. 2020 - Jul. 2020

- Analyzed factors leading to ICU admittance of Indiana COVID-19 patients using INPCR data from 100+ healthcare entities
- Developed and optimized Python scripts for supercomputer use to clean and analyze medical records quickly and accurately
- Presented conclusive research for medical use at the 2020 Project STEM Research Symposium

Chemical Engineering Intern & Team Lead (DNOVA Institute)

Jun. 2019 - Jul. 2019

- Designed novel air filter to trap chemical particles linked to neurodegeneration using AutoCAD and CFD simulations
- Recruited and managed team of 5 interns through all the steps of the research and design process
- Presented project to multiple panels of experts at Eli Lilly, Cummins Engineering, and IUPUI

Publications

- Sil, M., Nawn, D., Hassan, S. S., ... **Roopesh, L.**, Wu, E., Lundstrom, K. Uversky, V. N. (2023). Biology of Coital Behavior: Looking Through the Lens of Mathematical Genomics. bioRxiv. doi:10.1101/2023.04.12.536521

* Accepted and under peer review in the International Journal of Biological Macromolecules

Presentations & Speaking

- Roopesh, L.**, Wu, E., He, J., Nguyen, L., Srikanth, S., Mohammad, S., Lanclos, N., Uversky, V. N. (2023, November 11). *An In Silico Comparative Study of Interspecies Variability in Neurotransmitter Ligand-Receptor Interactions* [poster]. International Forum of Research Excellence by Sigma Xi, Long Beach, CA, United States.
- Roopesh, L.** (2023, November 7). *The Motivations Behind (Research) Excellence* [keynote lecture]. SABER Conference at USF, Tampa, FL, United States.
- Roopesh, L.**, Wu, E., He, J., Nguyen, L., Srikanth, S., Mohammad, S., Lanclos, N., Uversky, V. N. (2023, March 4). *An In Silico Comparative Study of Interspecies Variability in Neurotransmitter Ligand-Receptor Interactions* [poster]. Raymond N. Castle Conference, Tampa, FL, United States.
- Roopesh, L.**, Garcia, M., Lanclos, N., (2022, November 22). *Bioinformatic Analysis of Host Interactions in Merkel Cell Polyomavirus* [lecture]. Undergraduate Research Society Year-End Seminar, Tampa, FL, United States.

5. **Roopesh, L.,** Mendonca, E. (2020, July 24). *Examination of Factors Leading to Hospitalization, ICU Admittance, and ICU Outcomes due to COVID-19* [lecture]. Indiana CTSI Project STEM Research Symposium, Indianapolis, IN, United States.

Leadership Experience

Bulls Science Olympiad at USF

- **President and Founder** **Aug. 2022 - Present**
 - Pioneered a Science Olympiad tournament at USF with 900+ students across 80 schools, handling over \$6,000
 - Working closely with the State and National board to create local STEM outreach programs

International Society of Computational Biology RSG SE-USA

- **President** **May 2023 - Present**
 - Supporting ISCB student groups through the southeastern US by organizing events with international attendees
 - Obtained funding, created strategic partnerships, and managed a team to advance this goal

SASE - Society of Asian Scientists and Engineers

- **Research Symposium Co-Lead (National)** **Aug. 2023 - Present**
 - Interfaced with the National Programming team and other chapters to host the NC's first Research Symposium
 - Inducted into the SASE Science Committee as the first undergraduate member to direct science initiatives
- **Vice President Internal (USF Chapter)** **Mar. 2023 - Dec. 2023**
 - Overseeing 2 committees via one-on-one meetings and delegating tasks, responsible for the club running smoothly
 - Supporting club operations by interfacing with faculty and student government to obtain funds
- **SASE Intern (USF Chapter)** **Nov. 2022 - Feb. 2023**
 - Practiced one-on-one skills and developed internal protocols to increase executive board retention by 30%
 - Organized and hosted SASE event with over 80+ attendees by creating a new intern team

Nucleate

- **Tampa Regional Co-Lead** **Jul. 2023 - Present**
 - Coordinating biotech events and networking with an international community to build a chapter based in Tampa
 - Developing the Nucleate Activator, a no-equity accelerator pipeline that has created numerous biotech companies

Engineering Biology Core at USF

- **Senior Advisor** **Dec. 2023 - Present**
 - Trained and advised all current executive board members on student organization financial practices
 - Maintained partnerships with USF and international-scale organizations to provide opportunities
- **Vice President** **Jan. 2023 - Nov. 2023**
 - Oversaw all club and event operations for one of USF's largest student-run research organizations
 - Obtained over \$30,000 total funding at USF and managed multiple teams and strategic partnerships at a national level
- **Co-Founder, Financial Director (Journal of Interdisciplinary Sciences & Technology)** **Feb. 2023 - Nov. 2023**
 - Planning, garnering support for, and managing financials for a new undergraduate journal launched by USF students
 - Recruited 10+ faculty reviewers and 15+ student editors to ensure high quality submissions and output
- **Planning Committee Chair** **Sep. 2022 - Dec. 2022**
 - Oversaw event planning and marketing for one of USF's largest student-run research organizations
 - Pioneered annual end-of-year research seminar event with 80+ attendees and faculty presentations that still runs

Judy Genshaft Honors College at USF

- **Peer Mentor Lead** **Nov. 2022 - Nov. 2023**
 - Selected and trained a cohort of 35+ peer mentors to teach 600+ students in a required class for all honors students
 - Developed curriculum, programming, and evaluation to ensure student success and evaluate USF strategic initiatives
- **Peer Mentor** **Jun. 2022 - Oct. 2022**
 - Led a class of 15 first-year students through a 10-week seminar while fostering an inclusive environment
 - Developed and executed interactive lesson plans and experiential learning activities to enhance student engagement

Settle Out Club at USF

- **Co-Founder, Treasurer** **Sep. 2021 - Jan. 2023**
 - Obtained over \$6,000 total funding for new student organization dedicated to helping international students
 - Managed budget and interfaced with Student Government to purchase items and follow procedures for 20+ events

Volunteering

Event Supervisor (Science Olympiad at MIT, UCB, Stanford, Caltech, UPenn)

Aug. 2021 - Present

- Developing college-level exams, supervising events, and designing interdisciplinary curricula for 29+ high-profile competitions
- Worked with student-made Arduino builds to ensure legality and functionality at tournaments

Peer Mentor (Judy Genshaft Honors College at USF)

May 2022 - Nov. 2023

- Taught total of 20 students for 10 weeks, in charge of planning out lessons and developing curriculum to match student needs
- Trained in student intervention measures such as SOCAT or Title IX referrals to better support students

Radiology Department Volunteer (Moffitt Cancer Center)

May 2022 - Dec. 2022

- Developing college-level exams, supervising events, and designing interdisciplinary curricula for 29+ high-profile competitions
- Worked with student-made Arduino builds to ensure legality and functionality at tournaments

Construction Worker (Habitat for Humanity - Hillsborough)

Apr. 2022 - May 2022

- Cut wood, laid out beams, used power tools, and physically built houses for a low-cost neighborhood project near USF
- Worked seamlessly as part of a 12 person team alongside the future homeowners to create high-quality homes

Residential Mayor (Juniper Hall Council at USF)

Sep. 2021 - May 2022

- Organized and executed 10+ day activities and decorations for Juniper Hall at USF, garnering 400+ total attendance
- Worked closely with Resident Assistants and the Residence Life Coordinator to create a welcoming experience

Skills

Technological: Python, R, Bash, Java, JavaScript, NodeJS, HTML, CSS, MATLAB, Microsoft Office (certified), Autodesk Inventor, PCB making and general circuitry skills, Arduino, Proteomic software (Autodock Vina, PyMol, Alphafold, MGLTools), SC and Bulk RNA-seq, GSEA, SNP calling, GWAS, Machine learning

Laboratory: Mammalian cell culture, PCR, Western blot, DNA/RNA-seq, Specimen dissection, General chemistry, Organic chemistry, Bacteria culture, Related necessary techniques