Marissa D'Souza

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EDUCATION

Mercer University School of Medicine   **August 2017 - May 2021**
Doctor of Medicine

Georgia Institute of Technology, College of Computing   **August 2013 - May 2017**
Bachelor of Science in Computer Science   *Magna Cum Laude*
Certificate in Entrepreneurship   *Overall GPA: 3.5/4.0 | Major GPA: 3.9/4.0*

EXPERIENCE

Department of Neurological Surgery, Stanford University Medical Center   **May 2018 - Present**
2018 Neurosurgery Research and Education Foundation/American Association of Neurological Surgeons Medical Student Summer Research Fellow
- Establishing a novel mice model for the treatment of binge-drinking disorders using Deep Brain Stimulation, Responsive Neurostimulation, and Coordinated Reset in collaboration with Dr. Casey Harrison Halpern and Dr. Allen Ho.
- Utilizing MATLAB to determine the characteristic brain wave prior to onset of binge-drinking behaviors.

Department of Surgery, Memorial University Medical Center   **Dec 2017 - Present**
Clinical Research Assistant
- Collaborating with Dr. Christopher Senkowski on a grant from the Patient Centered Outcomes Research Institute to host a conference to address the disparities present in cancer surgical care from a patient-centered perspective
- Collaborating with Dr. David Juan to identify factors that predict conservative management failure of occult pneumothoraces

Department of Neurological Surgery, Stanford University Medical Center   **Nov 2017 - Present**
Remote Research Assistant
- Collaborating with Dr. Aditya Iyer and Dr. Gary Steinberg on a literature review analyzing the effect of embolization prior to radiosurgery for the treatment of brain arteriovenous malformations
- Collaborating with Dr. Brandon Bentzley and Dr. Allen Ho on a systematic review to determine the threshold success rate that deep brain stimulation would require in order to be the preferred mode of treatment for alcoholism and alcohol abuse disorders

Georgia Tech Cognitive Neuro Motor Control Lab   **Jan 2015 - May 2017**
Research Assistant
- Examined differences in force modulation between healthy adults and adults with spinal cord injury in order to come up with unique neuro-rehabilitation strategies in collaboration with Dr. Lewis Wheaton (GT) and Dr. Deborah Backus (Shepherd Center)
- Ran and analyzed MRI and EEG data through the use of Excel, SPSS, MATLAB, and R

Shepherd Center Rehabilitation Hospital   **Jan 2016 - May 2017**
ProMotion Fitness Buddy
- Provided fitness support for community members in the ProMotion gym facility and assisted members with their fitness plans

Center for Advanced Brain Imaging   **May 2014 – Jan 2015**
Research Assistant
- Investigated the effects of brain games and training on one's cognitive skills under Dr. Eric Schumacher
- Used MATLAB and E-Prime software to conduct experiments, record results, and analyze data

Department of Pathology and Laboratory Medicine, Emory University School of Medicine   **Jun 2011 - Aug 2011**
Summer Research Assistant
- Researched the part folic acid receptors have to play in nanoparticle vaccination delivery under Dr. Periasamy Selvaraj

Department of Immunology, Mercer University   **May 2011 – May 2016**
Research Assistant
- Determined the effects of nanoparticle formulation as a potential tumor targeting and imaging delivery system

Johns Creek Tennis Academy   **May 2011 - Aug 2014**
Tennis Coach
- Taught kids aged 5-15 strokes how to play tennis along with the rules of the game and good behaviors on the court

JOURNAL PUBLICATIONS

- Iyer A, **D'Souza M**, Steinberg GK. Embolization before stereotactic radiosurgery for the treatment of brain arteriovenous malformations. *J Neurosurg Sci.* 2018 Mar 26. DOI: 10.23736/S0390-5616.18.04425-9
- Kolluru, L., Rizvi, S., **D'Souza, M.** (2013). Formulation development of albumin based theragnostic nanoparticles as a potential delivery system for tumor targeting. *Journal of Drug Targeting,* 77-86.

BOOK CHAPTERS

- Braz Gomes K, D'Sa S, Jin Z, Bejugam N, **D'Souza M**, et al. *Nanoparticle Vaccine Delivery Systems*. 1 ed. D'Souza MJ, editor. Singapore: Pan Stanford Publishing Pte. Ltd.; 2015. Chapter 1, Introduction; p.1-11.
- D'Souza M, Gala RP, Abale RV, D'Souza B, **D'Souza M**, et al. *Novel Approaches and Strategies for Biologics, Vaccines and Cancer Therapies*. 1 ed. Singh M, Salnikova M, editors. Online: Elsevier; 2015. Chapter 5, Trends in Nonparenteral Delivery of Biologics, Vaccines and Cancer Therapies; p.89-122.
- Chiriva-Internati M, **D'Souza M,** Chablani L, Akalkotkar A, Tawde SA, et al. Molecular Vaccines. 2 ed. Giese M, editor. Online: Springer; 2014. Chapter 19, *Nanotechnology in Vaccine Delivery*; p.727-742

PRESENTATIONS

- **D'Souza, M.** (May 2018). *Disparities in Surgical Cancer Care from a Patient-Centered Perspective.* Oral presentation given at the 2018 Joint Mercer University School of Medicine and School of Pharmacy Research Symposium, Macon, GA.
- **D'Souza, M.** (Mar 2014). *Curbing Prescription Drug Abuse through the Creation of Digital Pill Cap.* Poster presentation submitted to the Georgia Tech Grand Challenges Poster Conference, Atlanta, GA.

LEADERSHIP

Neurosurgery Interest Group | Mercer University School of Medicine   **Apr 2017 - Present**
President
General Surgery Interest Group | Mercer University School of Medicine   **Apr 2017 - Present**
Vice President
Student Council | Mercer University School of Medicine   **Nov 2017 - Present**
Student Body Secretary
- Sending school-wide correspondence in addition to taking minutes and assessing the needs of the student body

Phi Delta Epsilon International Medical Fraternity, Inc. | Epsilon Mu Chapter   **Dec 2017 - Present**
Vice President of Recruitment
- Producing marketing material and planning events to encourage growth and membership within the chapter
- Collaborating with other executive officers for various logistics associated with establishing a chapter

Student Council | Mercer University School of Medicine   **Nov 2017 - Present**
Class Secretary
- Sending class correspondence in addition to making and updating the class calendar with upcoming deadlines, dates, and important reminders to help keep the class organized

Multicultural Greek Council (MGC) | Georgia Tech   **Jan 2015 – Dec 2015**
Executive Vice President
- Corresponded with the President of MGC as well as the Presidents of other Greek councils to organize campus-wide events to help students get together and give back to the campus
- Re-designed the Georgia Tech MGC website in efforts to spread MGC's name throughout campus and promote diversity awareness

Sigma Sigma Rho Sorority, Inc. | Nu Chapter   **Jan 2014 – Dec 2015**
Vice President of Communications, Philanthropy Chair, Marketing Chair, Recruitment Chair
- Managed logistics and crucial marketing/delegating critical tasks to ensure success of all events
- Increased intake by 150% through the use of effective marketing strategies including photography, flyers, and the redesign of the website: gtsigsigrho.com

Biomedical Engineering Society | Georgia Tech   **Jan 2014 - May 2015**
Secretary
- Encouraged the use of technology within the club through extensive collaboration with the web developer and other board members

PROJECTS

VADERS (Value Analysis Data Extraction Research System)
- Collaborated with Dr. Bruce Ziran, Director of Orthopaedic Trauma at the Gwinnett Medical Center, on a software that utilized image recognition to analyze fracture reductions
- Incorporated machine learning and classification algorithms (k-Nearest Neighbors) to combine reduction quality with time and cost of surgery to objectively determine the quality of a given surgery

"Food Renewed" App
- Collaborated with Feed the Children and JP Morgan Chase to create an iOS application and web based mobile site that matches individuals in the Supplemental Nutrition Assistance Program with grocery stores and restaurants that are about to throw away food
- Utilized Material Design for front end development and Django for back end development

"Shopping With Friends" App
- Created an Android and iOS application for shoppers to post information about various items' prices, locations, and availability to share with friends

"When I Grow Up" App
- Designed and protoyped an iOS app using Axure which features a board game designed to help users determine the career fields that match their interests and to manage a career from entry level to retirement

SKILLS/INTERESTS

Languages: MATLAB, CSS, HTML, SPSS, Java, JavaScript, jQuery, Python, R, Django, Material Design, Swift

Software: SolidWorks, Adobe Creative Suite, AFNI Neuroimaging, Microsoft Office Suite, LaTeX, Android Studio, Xcode, Axure

Coursework: Applied Combinatorics, Computational Photography, UI Design, Computer Graphics, Data Structures and Algorithms, Computer Organization and Architecture, Information Visualization, Industrial Design Computing II, Real Estate Development, Marketing Management, Object Oriented Programming

Volunteer: Fulton County Animal Shelter, Georgia SPCA, Habitat for Humanity, Hands On Atlanta