

# Marissa D'Souza

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## EDUCATION

### Mercer University School of Medicine

*Doctor of Medicine*

August 2017 - May 2021

### Georgia Institute of Technology, College of Computing

*Bachelor of Science in Computer Science*

*Certificate in Entrepreneurship*

August 2013 - May 2017

*Magna Cum Laude*

Overall GPA: 3.5/4.0 | Major GPA: 3.9/4.0

## EXPERIENCE

### Department of Neurosurgery, Stanford University School of Medicine

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 Halpern and Dr. Allen Ho in the Halpern-Malenka Lab
- Utilizing MATLAB and video analysis to determine the characteristic brain wave prior to onset of binge-drinking behavior.

### Department of Surgery, Memorial Health 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 Neurosurgery, Stanford University School of Medicine

Nov 2017 - Present

*Remote Research Assistant*

- 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 Spinal Cord and Brain Injury 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

- **D'Souza M**, Ho AL, Halpern CH. Frameless, stereotactic robot-assisted MR-guided laser interstitial thermal therapy for intractable epilepsy. *Epilepsy and Behavior Case Reports*. Manuscript in revision.
- **D'Souza M**, Pendharkar AV, Chow KH, Sussman ES, Iyer A, Ho AL. Optogenetics and its implications in facilitating stroke recovery. *Cell Transplantation*. Manuscript in revision.
- 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 LP, Rizvi SAA, **D'Souza M**, D'Souza MJ. Formulation development of albumin based theragnostic nanoparticles as a potential delivery system for tumor targeting. *J Drug Target*. 2013;21(1):77-86. DOI:10.3109/1061186X.2012.729214

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## BOOK CHAPTERS

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- 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

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## PRESENTATIONS

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- Juan D, Spencer C, **D'Souza M**, Clayton E, Bromberg W. (May 2018). *Management of Occult Pneumothorax in Blunt Trauma: When to Intervene?* Poster presentation.
- **D'Souza M**, McGreal A, Akin M. (May 2018). *Disparities in Surgical Cancer Care from the 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**, Atri L, Rao T, Bale P, Hammond W, Tuteja H. (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.

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## LEADERSHIP

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<b>Neurosurgery Interest Group   Mercer University School of Medicine</b> <i>President</i>	<b>Apr 2018 - Present</b>
<b>Neurology Interest Group   Mercer University School of Medicine</b> <i>President</i>	<b>Apr 2018 - Present</b>
<b>General Surgery Interest Group   Mercer University School of Medicine</b> <i>Vice President</i>	<b>Apr 2018 - Present</b>
<b>Student Council   Mercer University School of Medicine</b> <i>Student Body Secretary</i>	<b>Nov 2017 - Present</b>
<b>Phi Delta Epsilon International Medical Fraternity, Inc.   Epsilon Mu Chapter</b> <i>Vice President of Recruitment</i>	<b>Dec 2017 - Present</b>
<b>Student Council   Mercer University School of Medicine</b> <i>Class Secretary</i>	<b>Nov 2017 - Apr 2018</b>
<b>Multicultural Greek Council (MGC)   Georgia Tech</b> <i>Executive Vice President</i>	<b>Jan 2015 – Dec 2015</b>
<b>Sigma Sigma Rho Sorority, Inc.   Nu Chapter</b> <i>Vice President of Communications, Philanthropy Chair, Marketing Chair, Recruitment Chair</i>	<b>Jan 2014 – Dec 2015</b>
<b>Biomedical Engineering Society   Georgia Tech</b> <i>Secretary</i>	<b>Jan 2014 - May 2015</b>

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## PROJECTS

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### **VADERS (Value Analysis Data Extraction Research System) | Software**

- 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 | iOS 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 | Android and iOS 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 | iOS App**

- Designed and prototyped 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

### **Multicultural Greek Society | Website: [mgc.gtorg.gatech.edu](http://mgc.gtorg.gatech.edu)**

- Re-designed the Georgia Tech MGC website [mgc.gtorg.gatech.edu/](http://mgc.gtorg.gatech.edu/) in efforts to spread MGC's name throughout campus and promote diversity awareness

### **Sigma Sigma Rho Sorority, Inc. | Website: [gtsigsi rho.com](http://gtsigsi rho.com)**

- Increased intake by 150% through the use of effective marketing strategies including photography, flyers, and the redesign of the website

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## SKILLS/INTERESTS

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

**Software:** Epic, 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, Greenbriar Children's Center (Savannah)