

Marissa D'Souza, M.D.

1500 E Medical Center Dr.
Ann Arbor, MI 48109
(404) 556-2408 | dsmariss@med.umich.edu
Last updated: 10-29-2023

Education

Residency	Neurology	University of Michigan (UM)	2022 – 2025
Internship	Internal Medicine	University of Michigan	2021 – 2022
M.D.		Mercer University School of Medicine (MUSM)	2017 – 2021
B.S.	Computer Science	Georgia Institute of Technology (<i>magna cum laude</i>)	2013 – 2017

Certification and Licensure

Michigan Medical License	2021 –
Michigan Controlled Substances License	2021 –
Advanced Cardiovascular Life Support (ACLS)	2021 –

Professional Memberships and Activities

Alpha Omega Alpha Honor Medical Society	2020 –
American Academy of Neurology	2020 –
American Medical Association	2017 –
Phi Delta Epsilon Medical Society	2017 –

Honors and Awards

Award for Excellence in Service and Advocacy for the Class of 2021 (MUSM)	2021
Award for Student Excellence in Research (MUSM)	2021
Jocelyn A. Rankin Student Excellence in Library Research Honorable Mention (MUSM) <i>Awarded for “Robotic-Assisted Spine Surgery: History, Efficacy, Cost, And Future Trends”</i>	2019
Jocelyn A. Rankin Student Excellence in Library Research Award Honorable Mention (MUSM) <i>Awarded for “Outcomes After Cervical Disc Arthroplasty Versus Stand-Alone Anterior Cervical Discectomy and Fusion: A Meta-Analysis”</i>	2019
Fellow, Neurosurgery Research and Education Foundation Summer Research Fellowship <i>Awarded for “Coordinated Reset-Deep Brain Stimulation for the Treatment of Binge Drinking Disorder”, Stanford University School of Medicine PI: Casey Halpern, M.D.</i>	2018

Work

Algorithm Builder AvoMD Transforming intricate medical guidelines into user-friendly, point-of-care clinical algorithms for optimized decision-making at AvoMD.	2023 –
----------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------

Leadership Roles & Committees

Department

Technology Chair	2023 –
UM Neurology Residency Program	
Committee Member	2023 –
Neurocritical Care Rotation Working Group, UM Neurology Residency Program	
Committee Member	2023 –
Stroke Mortality Task Force, UM Department of Neurology	
Social Media Representative	2022 –
UM Neurology Residency Program	

Health System

House Officers Association (HOA) Appointed Representative	2023 –
MiChart Clinical Advisory Committee, Michigan Medicine	
HOA Appointed Representative	2022 –
House Officer Quality and Safety Council, Michigan Medicine	

University

Student Body Appointed Representative	2019 – 2021
MUSM Liaison Committee on Medical Education (LCME) Steering Committee	
Chair	2019 – 2021
MUSM LCME Accreditation Independent Student Analysis Committee	
Medical School Student Body President	2019 – 2020
MUSM Student Government Association	

Educational Activities

Didactic Sessions

" <i>Beyond Free Will: Neuroscience & the Law</i> ", Resident Lecture Series (1 hr, once)	2023
" <i>Neuroradiology Conference</i> ", Conference Leader (1 hr, biweekly for 6 weeks)	2023
UM Neurology Resident Journal Club (1 hr, twice total)	2023
Neuroscience Block Review Sessions, MUSM Block Review (3 hrs, 2x/yr for 2 years)	2020 – 2021

Small Group Teaching

Small Group Leader, UM Medical Student Teaching (1 hr, weekly, 4 weeks)	2023
Small Group Leader, MUSM Clinical Neurosciences (3 hrs, 3x/week for 4 weeks)	2021
Peer Tutor, MUSM Pre-Clinical Peer Instructors (2 hrs, 2-3x/month for 1.5 years)	2020 – 2021

Current Research Projects

Zambian Cohort of Health Aging and Dementia PI: Melissa Elafros, M.D., Ph.D. A population-based prevalence study of dementia and associated risk factors in Lusaka, Zambia.	2023 –
Cardiac Abnormalities in Stroke Prevention and Risk of Recurrence PI: Christina Lineback, M.D. A multi-center study to explore cardiac and cervical arterial abnormalities as potential embolic sources in 2,000-5,000 cryptogenic stroke patients.	2023 –

Peer-Reviewed Publications

Research Investigations

1. Gendreau JL, Kim LH, Prins PN, **D'Souza M**, Rezaii P, Pendharkar AV, Sussman ES, Ho AL, Desai AM. Outcomes After Cervical Disc Arthroplasty Versus Stand-Alone Anterior Cervical Discectomy and Fusion: A Meta-Analysis. *Global Spine J*. 2020 Dec;10(8):1046-1056. PMID: 32875831, PMCID: PMC7645085, <https://doi.org/10.1177/2192568219888448>
2. **D'Souza M**, Chen KS, Rosenberg J, Elias WJ, Eisenberg HM, Gwinn R, Taira T, Chang JW, Lipsman N, Krishna V, Igase K, Yamada K, Kishima H, Cosgrove R, Rumià J, Kaplitt MG, Hirabayashi H, Nandi D, Henderson JM, Butts Pauly K, Dayan M, Halpern CH, Ghanouni P. Impact of skull density ratio on efficacy and safety of magnetic resonance-guided focused ultrasound treatment of essential tremor. *J Neurosurg*. 2019 Apr 26;132(5):1392-1397. PMID: 31026836, <https://doi.org/10.3171/2019.2.JNS183517>
3. Nguyen L, Bowlds S, Juan D, Thompson A, Clayton E, Spencer C, **D'Souza M**, Bromberg W. Predictors of Pneumothorax (POP) Score: A Statistical Model for Identifying Occult Pneumothoraces after Blunt Chest Trauma That Will Require Intervention. *Am Surg*. 2019 Sep 1;85(9):e470-e472. PMID: 31638542

Reviews, Chapters, Monographs, & Editorials

1. Delaney SL, Gendreau JL, **D'Souza M**, Feng AY, Ho AL. Optogenetic Modulation for the Treatment of Traumatic Brain Injury. *Stem Cells Dev*. 2020 Feb 15;29(4):187-197. PMID: 31559914, <https://doi.org/10.1089/scd.2019.0187>
2. **D'Souza M**, Gendreau J, Feng A, Kim LH, Ho AL, Veeravagu A. Robotic-Assisted Spine Surgery: History, Efficacy, Cost, And Future Trends. *Robot Surg*. 2019;6:9-23. PMID: 31807602, PMCID: PMC6844237, <https://doi.org/10.2147/RSRR.S190720>
3. **D'Souza M**, Macdonald NA, Gendreau JL, Duddleston PJ, Feng AY, Ho AL. Graft Materials and Biologics for Spinal Interbody Fusion. *Biomedicines*. 2019 Sep 26;7(4):75. PMID: 31561556, PMCID: PMC6966429, <https://doi.org/10.3390/biomedicines7040075>
4. Kim LH, **D'Souza M**, Ho AL, Pendharkar AV, Sussman ES, Rezaii P, Desai A. Anterior Techniques in Managing Cervical Disc Disease. *Cureus*. 2018 Aug 14;10(8):e3146. PMID: 30410821, PMCID: PMC6207169, <https://doi.org/10.7759/cureus.3146>
5. Iyer A, **D'Souza M**, Steinberg GK. Embolization before stereotactic radiosurgery for the treatment of brain arteriovenous malformations. *J Neurosurg Sci*. 2018 Aug;62(4):514-518. PMID: 29582980, <https://doi.org/10.23736/S0390-5616.18.04425-9>
6. Kolluru LP, Rizvi SA, **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 Jan;21(1):77-86. PMID: 23036042, <https://doi.org/10.3109/1061186X.2012.729214>

Oral Presentations

1. **D'Souza M**. (Apr 2019). Impact of Skull Density Ratio on Efficacy and Safety of Magnetic Resonance-Guided Focused Ultrasound Treatment of Essential Tremor. Given at the American Association of Neurological Surgeons Annual Meeting, San Diego, CA.
2. **D'Souza M**. (Oct 2018). Optimizing Coordinated Reset within the Nucleus Accumbens to Attenuate Binge Drinking. Given at the Medical Association of Georgia House of Delegates Meeting, Jekyll Island, GA.

3. **D'Souza M**, McGreal A, Akin M. (May 2018). Disparities in Surgical Cancer Care from the Patient-Centered Perspective. Oral presentation given at the Joint Mercer University School of Medicine and School of Pharmacy Research Symposium, Macon, GA.

Volunteer & Community Outreach

Special Pops Tennis and Pickleball Coach Coached tennis and pickleball clinics for individuals with intellectual disabilities	2017 – 2020
COVID-19 Response Team Founder Initiated and led the GA COVID-19 Response Team, coordinating statewide student initiatives such as grocery delivery for the immunocompromised, contact tracing, blood drives, and PPE fundraisers	2020
GA Department of Public Health COVID-19 Volunteer & Contact Tracing Helped develop & implement contact tracing protocols that were ultimately utilized in public health departments state- & nation-wide	2020
Rock n' Roll Savannah Half Marathon Fundraiser & Medical Volunteer Fundraised \$660 in 2019 for St. Jude Children's Research Hospital through running of the 2019 half-marathon, served as a medical volunteer in 2018	2018 – 2019
Spinal Cord and Brain Injury Rehabilitation Hospital Volunteer & Fitness Coach Provided longitudinal fitness support and training to four patients recovering from spinal cord & traumatic brain injury	2016 – 2018
Missionaries of the Poor of Manila Volunteer Undertook responsibilities such as tutoring, meal preparation, and facility upkeep, within the shelter in Manila, Philippines	2017

Creative Projects & Social Media

Social Media for UM Neurology Residency Program Instagram & Twitter @umichneurores	2022 –
Neurology Mobile-Friendly Wiki (<i>in process</i>) Website neurplexd.com	2023 –
Neurology Exam Documenter (<i>in process</i>) Website marissadsouza.com/neuro-exam-documenter	2023 –
Diplopia Calculator (<i>in process</i>) Website marissadsouza.com/diplopia-calculator	2022 –
Social Media for the Savannah COVID-19 Response Team Website sites.google.com/view/musmcovid19 Instagram @gastudentsvscovid	2020
VADERS (Value Analysis Data Extraction Research System) Developed a machine learning-based software to assess the quality of orthopedic reduction for ankle fractures	2017
Food Renewed App at the JP Morgan Chase Hackathon Prototyped an iOS App aimed at closing the gap between retail waste and consumer demand	2016

Programming Languages

Java, Python
HTML, JavaScript
MATLAB, R

Software

CAD
SolidWorks
Adobe Creative Suite

Hobbies and Interests

Healthcare technology	Global neurology & health equity	Clinical informatics
Pickleball & tennis	Mobile technology	User interface and experience