

Mirage Modi

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EDUCATION

The Ohio State University College of Medicine Doctor of Medicine (M.D.)	Columbus, OH Anticipated May 2031
The Ohio State University Biomedical Sciences Graduate Program Doctor of Philosophy (Ph.D.), Biomedical Sciences	Columbus, OH Anticipated May 2029
Northwestern University Bachelor of Arts in Neuroscience Minor in Computer Science Cumulative GPA: 3.97 / 4.00 , <i>magna cum laude</i>	Evanston, IL June 2022

PUBLICATIONS & PRESENTATIONS

- Modi M**, Hampton G, Palumbo J, Rozowski M, Bouhrara M, Czaja W, Spencer RG. Improved Biexponential Decay Parameter Estimation from Input-Layer Regularization of a Neural Network. Oral presentation: American Physical Society April Conference; April 27, 2023; Minneapolis, MN.
- Johari K, Riccardi N, Malyutina S, **Modi M**, Desai RH. HD-tDCS of primary and higher-order motor cortex affects action word processing. *Frontiers in Human Neuroscience*. 2022; 16. doi:10.3389/fnhum.2022.959455
- Johari K, Riccardi, N, Malyutina S, **Modi M**, Desai RH. HD-tDCS over motor cortex facilitates figurative and literal action sentence processing. *Neuropsychologia*. 2021; 159: 107955.

RESEARCH EXPERIENCES

- The Ohio State University Ning Lab** | *Lab Rotation* Columbus, OH | May 2023 – Present
PI: Dr. Xia Ning, Ph.D.
- Building a novel generative neural network architecture to design primary mRNA sequences given desired mRNA secondary structure
- National Institute on Aging, LCI** | *IRTA Postbac Researcher* Baltimore, MD | July 2022 – Present
PI: Dr. Richard Spencer, M.D./Ph.D.
- Designing a novel neural network architecture with input-layer stability to map myelin from magnetic resonance signals.
 - Developed a Tikhonov regularization parameter-selection neural network that increased the myelin-mapping accuracy by 26% over conventional and current neural network approaches.
- University of South Carolina DeLab** | *Research Assistant* Columbia, SC | June 2020 – July 2022
PI: Dr. Rutvik Desai, Ph.D.
- Created LME models in R, showing significant interaction ($p = 0.004$) between stimulation and sentence type
 - Modeled interaction between ATL and TOC brain regions on perceptual action systems
- Lurie Comprehensive Cancer Center** | *Research Assistant* Chicago, IL | Oct 2019 – June 2022
PI: Dr. Leonidas Plataniias, M.D./ Ph.D.
- Found Azacitidine and novel ULK1 inhibitor drug combination therapies on MV411 and U937 cell lines induced sensitization to Acute Myeloid Leukemia chemotherapy.
- The Ken & Ruth Davee Department of Neurology** | *Research Assistant* Chicago, IL | Oct 2018 – June 2019
PI: Dr. Jason Ong, Ph.D.
- Investigated the effectiveness of CPAP usage and CBT-I on insomnia and comorbid obstructive sleep apnea

HONORS AND ACHIEVEMENTS

The Ohio State University MSTP Scholar	May 2023
Stanford MSTP BOOST Scholar	April 2022
Wolfenstein Scholarship , Northwestern University	January 2022
Academic Year Undergraduate Research Grant , Northwestern University	January 2022
Benjamin A. Gilman International Scholar , U.S. Department of State, Bureau of Educational and Cultural Affairs	June 2019

SKILLS

Medical: Proficient in western blotting, tissue culture and assays, drug aliquots, and taking patient vitals
Language: Fluent in Gujarati, proficient in Hindi, conversational in Spanish
Technical: Proficient in Python, C/C++, and R.

LEADERSHIP AND ACTIVITIES

ProjectX 2021 | *Genetics* | *Northwestern Team* | *Lead Architect* University of Toronto | September 2021 – January 2022

- Constructed a GAN model to generate likely SARS-CoV-2 mutations to feed into Alphafold v2.0 to form the 3-dimensional viral structure to predict COVID-19 infection severity based on ACE2 binding affinity
- Trained the Seq2Seq GAN framework on the COVID-19 Data Portal dataset

Phi Delta Epsilon IL Gamma | *President* Oct 2018 – June 2022

- Hosted Richard T. Crane High School students to learn more about the Northwestern pre-medical experience
- Organized sustained dialogue workshops with Northwestern SJE to improve equity in medicine

SHARE Healthcare | *Co-Founder & Secretary of Education* June 2020 – June 2022

Spreading Healthcare Awareness through Reciprocal Education

- Nationally discussed social determinants of health journal articles to become well-informed healthcare professionals and influence policy reform
- Planned a cancer mapping workshop with Dr. Richard Barrett using the NCI Cancer Atlas with a 50-member turnout

Northwestern Raas | *Co-Captain* April 2019 – June 2022

- Choreographed and trained 15 team members to compete against other universities in traditional Indian dance
- Successfully organized \$100 per member fundraising opportunities to reduce membership fees

OM at Northwestern | *Co-President* April 2019 – June 2022

- Hosted Hinduism discussions and dialogues
- Founded Hindu Chaplain position at Northwestern University

CLINICAL EXPERIENCE

Lurie Children's Hospital | *Emergency Department Volunteer* | 80 Hours Chicago, IL | Feb 2020 – June 2022

- Provided comfort to ED patients by playing board games, coloring, and laughing together
- Screened patients and staff for COVID-19 symptoms

Northwestern Medicine Physician Shadowing Program | 32 Hours Glenview, IL | Oct 2021 – Dec 2021

- Observed Dr. Eimer in Cardiology, Dr. Palmer in Ophthalmology, and Dr. Shastri in Facial Plastic Surgery

Webshadowers | *Virtual Shadowing* | 11 Hours

St. Alexius Medical Center | *Volunteer* | 200 Hours Hoffman Estates, IL | March 2017 – Sept 2018

- Transported patients and delivered medication from pharmacy to patient floors
- Guided visitors and trained new volunteers

NONCLINICAL EXPERIENCE

Learn to Be Tutoring | Science and English | *Volunteer* | Current: 65 Hours June 2020 – June 2022

Devon Clinic | IMACF Free Clinic | Hindi and Gujarati | *Translator* | Current: 9 Hours June 2020 – July 2020

Get Me PPE Chicago | *Volunteer DIY PPE Caller* | 27 Hours April 2020 – February 2021

PROFESSIONAL EXPERIENCE

Northwestern Peer-Guided Study Group Senior Facilitator | *Biology* | 130 Hours September 2020 – June 2022

St. Francis Health Care Services | *Sustainable Development Volunteer* Njeru, Uganda | June 27 – Aug 19, 2019

- Improved adherence to antiretroviral therapy and other drug regimens for children
- Commercialized an agribusiness with *Jaja* community to increase food security