

Wielenga Research Scholars

MICHIGAN STATE UNIVERSITY | Honors College



Maisah Akram
Major: Neuroscience
Mentor: Dr. Richard Neubig, Professor of Pharmacology & Toxicology

Maisah is researching GNAO1 encephalopathies and associated movement disorders such as human epilepsy. She is specifically interested in whether RGS proteins regulate gain-of-function GNAO1 mutants.



Mahreen Anwar
Major: Physiology
Mentor: Dr. Kathy Gallo, Professor of Physiology

Mahreen will be working on understanding the signaling pathways that govern cancer progression. The primary focus is understanding the mixed-lineage kinase (MLK) family and their role in cancer invasion and metastasis.



Kaylee Commet
Major: Psychology
Mentor: Dr. Courtney Venker, Assistant Professor of Communicative Sciences & Disorders

Kaylee examines how language acquisition in autistic children compares to typically developing children and what can be done to make learning language easier. The research employs observation of play, parent-child dyads, and eye-tracking data to better understand the phenomenon.



Jacob Crawford
Major: Physics
Mentor: Dr. Norman Birge, Professor of Physics

Jacob studies a specific form of Josephson Junctions that consists of a “sandwich” of two superconducting layers with a thin ferromagnetic barrier in between. The Birge Group aims to maximize the supercurrent running through this junction for use in the memory of supercomputers.



Jorge Emiliano Flores Garcia
Major: Neuroscience
Mentor: Dr. Kimberly Fenn, Associate Professor of Psychology

The Fenn Group examines the relationship between sleep, learning, and memory. Jorge’s most significant involvement is studying the relationship between napping and the consolidation of learning language by interpreting polysomnography data to characterize the learning pathways.



Rujuta Karanjikar
Major: Computer Engineering
Mentor: Dr. Yassid Ayyad, Detector Systems Physicist, Facility for Rare Isotope Beams

Rujuta works on a team improving an existing machine learning (ML) model that analyzes data of the electron/particle detection experiment. The model will reduce the analyzing time drastically (from 2 weeks to 2 hours) furthering the case for using ML for nuclear data analysis.

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Joel Kayser

Major: Music Performance
Mentor: Dr. Leigh VanHandel, Associate Professor of Music Theory

Joel will contribute to research on the effects of different types of rhythmic patterns on how people perceive tempo. The research group operates at the intersection of language and music to study how the brain processes music using techniques from cognitive neuroscience.



Jessica Liu

Major: Microbiology
Mentor: Dr. Neal Hammer, Assistant Professor of Microbiology & Molecular Genetics

Jessica studies *Staphylococcus aureus*, a bacterial pathogen that causes life-threatening infections. Previously she established that the metabolic status of the cell in Cystic Fibrosis patients can augment antibiotic resistance. Now she studies alleles of the *mecR1* gene that regulate *S. aureus* resistance to oxacillin.



Mikayla Joy Lowell

Majors: Social Work, German & Pre-Dental
Mentor: Dr. Xanthippi Chatzistavrou, Assist. Prof. of Chemical Eng. & Material Science

Mikayla is part of the Biomaterials Lab working on the design of the next generation of biomaterials that aim to treat and regenerate diseased tissue. Specifically, her work focuses on bioactive glass nanoparticles and their interaction with cells and bacteria.



Madeline Niblock

Major: Human Biology
Mentor: Dr. David Arnosti, Professor of Biochemistry & Molecular Biology

Last fall, Maddie investigated the insulin receptor regulatory regions in *Drosophila melanogaster*. Now she studies the transcriptional corepressor activity of C Terminal Binding Protein in *D. melanogaster*, using molecular cloning techniques to produce plasmids to inject into larvae for phenotypic analysis.



Emily Parker

Majors: Social Work, German & Pre-Dental
Mentor: Dr. Jason Gallant, Assistant Professor of Integrative Biology

Emily studies speciation in African fish by comparing two regional dialects: a simple (biphasic) and a complex (triphasic) pulse used to attract mates. Understanding these preferences will help explain the evolution of signal preferences and speciation among a group of African fish.



Abhyuday Rastogi

Major: Mechanical Engineering
Mentor: Dr. Harold Schock, Professor, Director of Energy and Automotive Research Labs

Abhyuday's research involves the 3D analysis of gas flow in a piston ring pack of an internal combustion engine. Piston ring packs account for ~35% of an engine's mechanical loss. Improvements will increase efficiency by lowering oil consumption, while decreasing noise and vibrations.

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Chris Sadler
Major: Mechanical
Engineering
Mentor: Dr. Tamara Reid
Bush, Associate
Professor of Mechanical
Engineering

Chris studies the regions of the hand used in different motions by developing orthographic representations of various daily activities. He is collecting these data using Qualysis and MATLAB to produce plots that catalog the regions of the hand activated by each task.



Mariam Sayed
Major: Physiology &
French
Mentor: Dr. Joseph Beatty,
Assistant Professor of
Physiology

Mariam's research team employs neurophysiological, neuroanatomical, and neuropharmacological techniques to study Fragile X syndrome and epilepsy, regulation of neuronal excitability of thalamocortical circuits, and interactions between basal ganglia and thalamic circuits.



Dannie Ward
Majors: Physics &
Mathematics
Mentor: Heiko Hergert,
Assistant Professor of
Physics & Astronomy

Dannie's research interests center around nuclear physics, specifically related to theoretical methods and quantum mechanics. Joining the National Superconducting Cyclotron Laboratory, Dannie will study *Ab initio* (i.e., first-principles) nuclear many-body theory to help characterize and make accessible the nuclei of isotopes.

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