

DAVID GAZZO

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EDUCATION

Ph.D.	The University of Notre Dame (ND), Biological Engineering	In Progress
BS	Montana State University (MSU), Chemical Engineering Dual majored in Biological Engineering	Fall 2020

HONORS AND AWARDS

Biophysics Fellows Research Conference Award – NIH Conference Travel Scholarship and Fellow Awardee	2024
Graduate School Professional Development Award – ND Conference Scholarship	2024
Organs and Origins Fellowship – ND Research Funding	2024
Leahy-Filipi Family Fellowship – ND Research Funding	2023
Graduate School Professional Development Award – ND Workshop Scholarship	2023
Downes Memorial Fund – ND Workshop Scholarship	2023
Outstanding TA Award – ND Teaching Performance	2023
Presidents List – MSU Academic Performance	2019-2020
E.W. Mares Chemical Engineering Award – MSU Academic Scholarship	2019
General Engineering Fund – MSU Academic Scholarship	2018
Deans List – MSU Academic Performance	2016-2018

RESEARCH EXPERIENCE

University of Notre Dame, South Bend, IN Fall 2021-Present

Graduate Researcher, under Prof. Jeremiah Zartman

- Currently studying how calcium signaling functions within developing tissues and its connection to complex gene expression profiles. I strive to answer how small perturbations affect whole organism phenotypic outcomes in relation to neurodegenerative diseases.

Idaho National Laboratory, Idaho Falls, ID Spring 2021

Intern, under Dr. Yoshiko Fujita and Dr. David Reed

- Explored the ability of iron- and sulfur-oxidizing microorganisms to retrieve tellurium (Te) from mine tailings. To do this, constructed microbial consortia were used in batch-leaching experiments to test their ability to solubilize Te.

Idaho National Laboratory, Idaho Falls, ID Summer 2020

Intern, under Dr. Bradley Wahlen

- Worked on discovering the affinity of algae to absorb and/or adsorb rare earth metals from solution.

Idaho National Laboratory, Idaho Falls, ID Summer 2019

Intern, under Dr. David Reed

- Optimized a leaching process to retrieve cobalt from lithium-ion batteries by improving the capabilities of an organic acid produced from *Gluconobacter oxydans*.
- Extensive practice with various laboratory safety including work with a centrifuge, autoclave, SixFors bioreactors, and a Total Reflection X-ray Fluorescence Spectrometer.

TEACHING EXPERIENCE

University of Notre Dame, South Bend, IN Spring 2022 & 2023

Teaching Assistant, Introduction to Cellular and Tissue Engineering

- Covered quantitative cellular and developmental biology principles, cell culturing, and tissue modeling applications.
- Performed grading and assisted students with learning by aiding with content presentation and demonstration.

University of Notre Dame, South Bend, IN Fall of 2021 & 2022

Teaching Assistant, Biotransport

- Introduction to momentum transport with applications to biological and medical systems.

- Performed grading, assisted students with learning, participated in final project creations, and assisted with homework and test question design.

MENTORING EXPERIENCE

University of Notre Dame, South Bend, IN 2023 - Present
Undergraduate Mentor, Research Experience

- Directed the research of a Chinese exchange student within the Zartman Lab.
- Advising on experimental design, setup, execution, and analysis of results and conclusion extrapolation. This also included instruction on presentation/communication of experimental results through slide shows (talks) and posters (conferences).

University of Notre Dame, South Bend, IN Summer 2023/2024
High School Mentor, Research Experience

- Directed the research of a local high school student within the Zartman Lab.
- Taught introductory laboratory skills to foster the growth of experimental design, setup, and execution. This also included instruction in data analysis and conclusion extrapolation, which resulted in a poster presentation at the end of the student's program.

University of Notre Dame, South Bend, IN Summer 2022
Undergraduate Mentor, Research Experience

- Directed the research of a Puerto Rican exchange student within the Zartman Lab.
- Advised on the experimental setup, execution, and analysis of results and conclusion extrapolation. This resulted in a poster presentation at the end of the student's program.

PUBLICATIONS

Published

David Gazzo, Tamara L. Kinzer-Ursem, and Jeremiah J. Zartman. Proteins Clump: Mechanics and Transport during Neurodegeneration. *Biophysical Journal*, June 2024. <https://doi.org/10.1016/j.bpj.2024.06.004>

Mayesha Sahir Mim; Nilay Kumar; Megan Levis; Maria Unger; Gabriel Miranda; David Gazzo; Trent Robinett; Jeremiah Zartman. Piezo regulates epithelial topology and promotes precision in organ size control. *Cell Reports*, June 2024, 43 (7). <https://doi.org/10.1016/j.celrep.2024.114398>

Alipanah, M.; Jin, H.; Zhou, Q.; Barboza, C.; Gazzo, D.; Thompson, V.; Fujita, Y.; Liu, J.; Anderko, A.; Reed, D. Sustainable Bioleaching of Lithium-Ion Batteries for Critical Metal Recovery: Process Optimization through Design of Experiments and Thermodynamic Modeling. *Resources, Conservation and Recycling*, November, 2023, 199, 107293. <https://doi.org/10.1016/j.resconrec.2023.107293>.

Accepted

David V. Gazzo, Jeremiah J. Zartman. Calcium Imaging in *Drosophila*. Calcium Signaling; Methods in Molecular Biology; Springer Nature, March 2024. Pre-print available at Protocol Exchange [<https://doi.org/10.21203/rs.3.pex-2630/v1>]

PROFESSIONAL TRAINING

SACChE Certification, AICChE

- Managing Process Safety Hazards Spring 2020
- Hazard Identification and Risk Analysis Spring 2020
- Process Safety Fall 2019

CONFERENCES, SYMPOSIUMS, AND WORKSHOPS

Organs and Origins Conference, Notre Dame

- Fellow awardee Spring 2024

Berthiaume Institute for Precision Health Symposium, Notre Dame

- Poster Presenter Spring 2024
 - David Gazzo, Pablo Cisternas, Yiduo Liu, and Jeremiah Zartman, “A Novel High Throughput Behavioral Platform for Characterization Of Neurodegeneration in *Drosophila melanogaster*”
- Attendee Spring 2022 & 2023

National Science Foundation, Biology Integration Institutes 2024 Awardees Meeting, NSF Headquarters, Alexandria, VA

- Poster Presenter Spring 2024
 - David Gazzo, Pablo Cisternas, Yiduo Liu, and Jeremiah Zartman, “A Novel High Throughput Behavioral Platform for Characterization Of Neurodegeneration Through the Lens of Protein-Protein Interactions”

Harper Cancer Research Day, Notre Dame

- Attendee Spring 2022, 2023, 2024

Colleges of Science and Engineering Research Horizons Symposium, Notre Dame

- Poster Presenter Fall 2023
 - David Gazzo, Pablo Cisternas, Yiduo Liu, and Jeremiah Zartman, “A Novel High Throughput Behavioral Platform for Characterization Of Neurodegeneration”

BIPH Advisory Board Meeting, Notre Dame

- Poster Presenter Fall 2023
 - David Gazzo, Pablo Cisternas, Yiduo Liu, and Jeremiah Zartman, “A High Throughput Behavioral Platform to Elucidate Protein-Protein Interactions in Neurodegeneration”

Midwest *Drosophila* Conference, Bloomington

- Poster Presenter Fall 2023
 - David Gazzo, Pablo Cisternas, Yiduo Liu, and Jeremiah Zartman, “Leveraging *Drosophila* Locomotion Assays to Elucidate Protein-Protein Interactions in Neurodegeneration”

CBE Engineering Graduate Research Symposium, Notre Dame

- Poster Presenter Fall 2023
 - David Gazzo, Pablo Cisternas, Yiduo Liu Jeremiah Zartman, “*A Behavioral Assay Elucidating The Dynamic Interaction Between Ion Channels: Piezo and SERCA*”
- Attendee Fall 2021 & 2022

EMBRIO Annual Retreat, Purdue

- Oral and Poster Presenter Summer 2024
 - David Gazzo, Pablo Cisternas, Jeremiah Zartman, “*In Vivo Molecular Interactions Between SERCA and Piezo*”
- Poster Presenter Summer 2023
 - David Gazzo, Pablo Cisternas, Jeremiah Zartman, “*A Dynamic Interaction Between Ion Channels: Piezo and SERCA*”
- Attendee Summer 2022

Analytical and Quantitative Light Microscopy Workshop, Woods Hole

- Student Summer 2023

Quantitative Biology Retreat, Notre Dame

- Attendee Spring 2022 & 2023

PROFESSIONAL AFFILIATIONS

Chemical and Biomolecular Graduate Student Organization (CBE GSO)

- Treasure Chair 2023-2024
- Assistant Social Chair 2021-2023

BioImaging North America

2023-Present

Emergent Mechanisms in Biology of Robustness, Integration & Organization (EMBRIO)

- Research Member 2021-Present
- Student Council: President 2024-Present
- Student Council: Professional Development Chair 2022-2023

American Institute of Chemical Engineers

2019-Present

Tau Beta Pi Honors Society

2019-Present

COMMUNITY SERVICE

FIRST LEGO League

Volunteer Project Judge, Bozeman MT,

January 2019 & 2020

- To provide an early introduction to STEM fields, teams consist of elementary and middle school students. Their design projects focus on a new theme each year. They identify problems and design extensive solutions that may even include building small models or reaching out to their local communities. Judges evaluate and give feedback.

Forest Service Work

Volunteer Trail Worker, Bob Marshall Wilderness MT,

Summer 2014

- Participated in trail work on the Continental Divide Trail (CDT) in the Bob Marshall Wilderness where trails and bridges were repaired and trees were removed that obstructed paths or had the potential of blocking paths.

COMPUTER SKILLS

General Applications: Proficient in Microsoft Excel and BioRender

Image Processing: Proficient in using and modifying Fiji, an image processing software