Isaiah Stevens

| 919-855-1551 | stevenszae@gmail.com |

EDUCATION

University of Wisconsin–Madison *Anticipated May 2030*

Ph.D. Educational Psychology

North Carolina State University *December 2024*

B.S. Mathematics, Summa Cum Laude

University Honors

Mathematics Honors

RESEARCH EXPERIENCE

Division of Academic and Student Affairs: NC State University *Fall 2024*

- Developed programs in R Studio to conduct elementary statistical analyses on university administered surveys on student success.
- Created and presented deliverables on student-program satisfaction, highlighting areas of improvement by demographic and student residency status.

Summer Education Research Program: University of Wisconsin-Madison *Summer 2024*

- Conducted research in the Mathematics Education and Development Lab under Dr. Percival Matthews
    - Project I: A Bridge Between Worlds: Domain Specific Representations of Equivalence in Middle School Mathematics and English Classrooms
    - Project II: Understanding of the Development of Knowledge and Interpretation of Equal Sign Representation in Adolescents

National Institutes of Health: NC State University *2023-2024*

Department of Psychology: NC State University *August 2023-December 2024*

- Completed research in the Social Development Lab under Dr. Kelly Lynn Mulvey
    - Project I: Linear modeling of STEM Identity Dynamics in Secondary Students
    - Project II: Novel Differential Equations Modeling of STEM Identity Dynamics in Secondary Students
- Developed neural networks, statistical models, and weighted graphical trees for longitudinal studies with secondary and postsecondary HSLS data.
- Engineered coding and visualization algorithms in MATLAB and Python to create, represent, and optimize linear and differential model parameters.

Department of Biomathematics: NC State University *2023-2024*

- Completed research alongside Dr. Mette Olufsen and Dr. Michelle Bartolo
    - Project I: Computational Methods in Generating Patient Specific Vascular Models
    - Project II: Medical Image Analysis for Hemodynamic Comparisons in Normotensive and Chronic Thromboembolic Pulmonary Hypertension Patients
- Developed fundamental skills in partial differential equations modeling in MATLAB and R Studio programming languages.
- Created visualizations of pulmonary vasculature using one dimensional visualization techniques in MATLAB, Paraview, and 3D Slicer.
- Derived and used one dimensional fluid dynamics models to calculate hemodynamic parameters in normotensive and hypertensive patients.
- Optimized parameters and lesion extraction using qualitative and quantitative analysis methodologies.
- Originated and verified novel techniques for lesion identification in computed tomography (CT) scans.
- Orchestrated training in lesion identification within hypertensive patients, with focus on type differentiation and recognition of characteristic anatomical restructuring.

PROFESSIONAL EXPERIENCE

Mathematics Teaching Assistant, University of Wisconsin-Madison *Fall 2025*

DASA Research Fellow, NC State University *Fall 2024*

- Engineered data visualization code in RStudio on student success statistics for stakeholders in student success initiatives at North Carolina State University.
- Engaged in qualitative analyses, manufacturing and cross-validating code with DASA faculty on over 1500 student data entry points.
- Created "State Stats" to further illustrate areas for improvement of identity and diversity within individual departments on NC State's campus.

Undergraduate Research Assistant, University of Wisconsin-Madison *Summer 2024*

- Interviewed 20+ participants for studies on equivalence knowledge, psychophysical construct maps, and their relative applications to the transitional stages of arithmetic and algebra.
- Manufactured and created multiple deliverables for national conference presentations on research projects conducted within the Mathematics Education Learning and Development Lab at the University of Wisconsin-Madison.
- Highlighted novel perspective on equivalence knowledge development through the lens of mathematical agency, imposing significant shifts on grant-funded research path trajectory by consideration of elements of expectancy value theory.

Undergraduate Research Assistant, NC State University *Fall 2023 - Spring 2025*

- Conducted research in linear model creation and simplex method parameter optimization within the High School Longitudinal Study (HSLS) public access dataset.
- Managed, cleaned, and processed data for vector based function creation in MATLAB software. Developed and validated optimization programs applied to mathematical psychology and biomathematics.
- Generated neural networks using fundamental statistical and probabilistic methods in Python programming language.
- Created compartmental differential equations models in MATLAB to analyze STEM identity within the public access HSLS dataset.

Mathematics Teaching Assistant, NC State University *Fall 2023*

- Increased student comprehension of course material and group assignments through in class personal instruction and developmental methods.
- Provided additional outside assistance with mathematical concepts through office hours and email correspondence.
- Graded course exams, cumulative final exams, and revised grading rubrics for the support of students and assessment of reflected comprehension.

Mathematics Tutor, NC State University *Fall 2022 - Fall 2025*

- Courses tutored: Calculus I, Calculus II, Calculus III, Differential Equations, Introduction to Mathematical Proofs.
    - Provided lessons and instruction to undergraduates in various courses, with emphasis on meaningful learning, retention, and student engagement.
    - Generated visual and physical examples for mathematical interpretation in tutoring session plan development.
    - Increased student class performance by an average of 20 points on the 100 point grading scale from initial session to final session.

HONORS AND AWARDS

UW-Madison EdGRS Fellowship, $135,000 *Fall 2025-Spring 2030*

Blantan Research Award, *$1000* *December 2024*

DASA Fellowship, *$5000* *Fall 2024*

UW-Madison SERP Program, *$5000* *Summer 2024*

TRIO Picart Foundations in Leadership Award *Spring 2024*

NC State University CMI Poster Presentation Competition: 1st Place *Fall 2023*

NIH T34 Research Grant, *$20,000* *Fall 2023 - Spring 2024*

Office of Undergraduate Research Grant, *$5000* *Fall 2023 - Spring 2024*

Cooper McCall Community Scholarship, *$2,000* *Fall 2023 - Spring 2024*

William F. Smith Scholarship, *$3,000* *Fall 2023 - Spring 2024*

TRIO Ronald E. McNair Scholar's Program, *$4,500* *Fall 2022 - Fall 2025*

TRIO Pre-McNair Scholar's Program *Fall 2021- Spring 2022*

Chancellor's Leadership Scholarship, *$5,000* *Fall 2021- Spring 2025*

PRESENTATIONS AND CONFERENCES

UMBC TRIO Ronald E. McNair Scholar's Program Conference *September 2024*

Equal Sign Representation and Mathematical Agency in Adolescents

SERP Research Poster Symposium *July 2024*

Equal Sign Representation and Mathematical Agency in Adolescents

NC State University OUR Symposium *April 2024*

STEM Identity: A Mathematical Approach

U-TEAM T34 Research Presentation *February 2024*

Interdisciplinary Research in Mathematics, Education, and Medicine

U-TEAM T34 Research Presentation

Modeling CTEPH Hemodynamics Using 1D Fluid Dynamics Simulation

Undergraduate Research Slam Invitational (Nomination) *March 2024*

Joint Mathematics Meetings Conference *January 2024*

Uncertainty Quantification in the Pulmonary Vasculature

Undergraduate Research Slam Invitational *October 2023*

The Future of Pulmonary Hypertension

TRIO Ronald E. McNair Scholar's Presentation *October 2023*

A Seminar on Time Management and Flexibility of the Mind

NC State University Comparative Medical Institute Summit *August 2023*

Modeling CTEPH Hemodynamics Using 1D Fluid Dynamics Simulations

UCLA TRIO Ronald E. McNair Scholar's Program Conference *August 2023*

Modeling CTEPH Hemodynamics Using 1D Fluid Dynamics Simulations

NC State University OUR Symposium *July 2023*

Modeling CTEPH Hemodynamics Using 1D Fluid Dynamics Simulations

RESEARCH PUBLICATIONS

Bartolo, M.A. et al. (2024), *Computational framework for the generation of one-dimensional vascular models accounting for uncertainty in networks extracted from medical images. J Physiol, 602: 3929-3954. https://doi.org/10.1113/JP286193*

TECHNICAL SKILLS

Data Analysis and Visualization

MATLAB:

- Linear modeling and parameter optimization using built-in functions.
- Ordinary differential equations modeling and detection using built-in functions.
- Fluid dynamics modeling using built-in partial differential equations functions.

Rstudio:

- Quantitative and statistical methods in the cognitive sciences