

Luke Fontan
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Education

B.S. in Mathematics - University of Southern Mississippi May 2025

M.S. in Mathematics - University of Florida Expected May 2027

Ph.D in Mathematics - University of Florida Expected May 2030

Undergraduate Research

University of Southern Mississippi Mathematics Department

Advisor: Dr. Karen Kohl August 2023 – May 2024

Research Topic: Symbolic Integration

- Utilized SageMath and Mathematica to compute integrals of Legendre Polynomials and find their recurrences
- Hypothesized generalized solutions to the integrals, which were then verified through multidimensional inductive proofs.

Advisor: Dr. Qingguang Guan August 2024 – May 2025

Research Topic: Deep Learning in Mathematical Biology

- Computed solutions of an ODE to determine open state probabilities of calcium cell ion channels
- Designed and trained a deep neural network to make accurate approximations of these solutions

Relevant Work Experience

- Learning Assistant: University of Southern Mississippi Mathematics Department, Hattiesburg, MS August 2023 – May 2024
 - Held office hours and graded assignments for MAT100S (Quantitative Reasoning Support Class) at USM.
- Volunteer Tutor: University of Southern Mississippi Mathematics Department, Hattiesburg, MS, August 2024 – May 2025
 - Offered support for first year undergraduate math courses

Presentations

- The University of Southern Mississippi Undergraduate Research Symposium April 2024, April 2025

Leadership Experience and Activities

- USM School of Mathematics and Natural Sciences August 2024 – May 2025
Newsletter Advisor
- Kappa Mu Epsilon Gamma Chapter Treasurer January 2024 – May 2025