Christian T. Austin

Graduate Assistant – Department of Mathematics, University of Florida
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I am a PhD candidate at the University of Florida studying applied mathematics under the advisory of Dr. Sara Pollock. Stemming from my undergraduate background of computer science and cybersecurity, I have a special affinity for interdisciplinary studies, and this has led me to officially studying the numerical simulation of non-Newtonian fluid flow for my doctoral research. I have a true love of learning which is not confined to mathematics, and a strong desire to inspire others and instill in them this same enthusiasm.

Education

PhD in Mathematics Expected August 2025
University of Florida; Gainesville, FL
Advisor: Dr. Sara Pollock

MS in Mathematics May 2022
University of Florida; Gainesville, FL

BS in Mathematics; BS in Computer Science May 2020
Methodist University; Fayetteville, NC
Minor in Cybersecurity & Digital Forensics
Major GPA: 4.00; Overall GPA: 3.96
Summa Cum Laude

Research Experience

Graduate Research Assistant May 2022 – Present
Department of Mathematics, University of Florida; Gainesville, FL

- Performed numerical analysis on methods for non-Newtonian fluids
- Applied momentum methods to the eigenvalue problem
- Analyzed the optimal control of a continuous stirred tank reactor

Undergraduate Researcher May 2019 – July 2019
NSF Sponsored REU, University of North Carolina Wilmington
Program Directors: Dr. Cuixian Chen and Dr. Yishi Wang

- Participated in REU in Statistical Data Mining and Machine Learning
- Cleaned, organized, and analyzed ECG data
- Detected atrial fibrillation from said data using machine learning algorithms

Industry Experience & Internships

Data Gathering, Analysis, and Process Optimization Intern June 2018 – August 2018
NASA Johnson Space Center; Houston, TX

- Cleaned and analyzed large datasets related to the file system structure
- Utilized network analysis software to examine and visualize relational data

Supervisory Control and Data Acquisition (SCADA) Technician Intern May 2017 – August 2017
Fayetteville Public Works Commission; Fayetteville, NC

- Assisted in maintaining, refining, and improving the citywide SCADA network
- Managed point-of-delivery (POD) and substation software both remotely and on-site

Teaching & Tutoring Experience

Teaching Assistant August 2020 – Present
Department of Mathematics, University of Florida; Gainesville, FL

- Led discussion sections, wrote quizzes, graded, and proctored exams for
    - Precalculus Algebra
    - Analytical Geometry & Calculus, II
    - Analytical Geometry & Calculus, III
- Tutored Trigonometry; Precalculus; Calculus I, II, & III; Statistics; and Linear Algebra

Supplemental Instruction (SI) Supervisor August 2019 – May 2020
Writing & Tutoring Center, Methodist University; Fayetteville, NC

- Managed scheduling of, logged hours for, and trained supplemental instructors
- Simultaneously maintained position as Supplemental Instructor and Peer Tutor

Supplemental Instructor and Peer Tutor August 2017 – May 2020
Writing & Tutoring Center, Methodist University; Fayetteville, NC

- Assisted in and observed lectures, and aided in student instruction for
    - Intro to College Algebra
    - Applied Statistics
- Tutored Precalculus; Calculus I-IV; Linear Algebra; Statistics; General Physics I & II

Skills and Certifications

Technical Skills

- Working knowledge of Python, especially the NumPy, Matplotlib, Gmsh, and FEniCS libraries
- Working knowledge of MATLAB, R, and Java
- Experience programming in C++, Visual Basic, Haskell, and MIPS Assembly
- Experience with SQL and database management
- Experience with Microsoft Excel, including formulas and macros
- Experience in Windows and Linux environments and virtualization
- Experience with scientific and high-performance computing

Soft Skills

- Public speaking, presentation, and oral communication skills
- Ability to learn quickly and the desire to always learn more
- Experience working collaboratively and independently
- Natural problem-solving, strategic-thinking, and conflict-resolution mindset

Previously Held Certifications	**Date earned**
• MTA Security Fundamentals	November 2014
• MTA Networking Fundamentals	November 2014
• CompTIA A+	May 2014
• MOS Microsoft Office Excel 2010	May 2013

Leadership Roles

Society for Industrial and Applied Mathematics (SIAM), Local Chapter Member August 2022 – Present
SIAM Gators President August 2024 – Present
SIAM Gators Vice President August 2023 – May 2024
University of Florida; Gainesville, FL

Supplemental Instruction Supervisor August 2019 – May 2020
Methodist University; Fayetteville, NC

Math Club President August 2018 – May 2020
Methodist University; Fayetteville, NC

Conference and Seminar Presentations

Numerical Simulation of Certain Oldroyd Models for Non-Newtonian Fluids April 19, 2024
Conference Presentation; The Finite Element Circus
Brown University; Providence, RI

Numerical Simulation of Certain Oldroyd Models for Non-Newtonian Fluids April 12, 2024
Seminar Presentation; Applied and Numerical Analysis Seminar
University of Florida; Gainesville, FL

Numerical Simulation of Certain Oldroyd Models for Non-Newtonian Fluids April 5, 2024
Poster Presentation; Southeast Applied and Computational Math Student Workshop
Georgia Institute of Technology; Atlanta, GA

Using Statistical Models and ML Algorithms to Detect Atrial Fibrillation November 2, 2019
Poster Presentation; UNCG Regional Mathematics and Statistics Conference
University of North Carolina Greensboro; Greensboro, NC

Publications

Austin, C., Pollock, S., & Zhu, Y. (2024). Dynamically accelerating the power iteration with momentum. *Numerical Linear Algebra with Applications*, 31(6), e2584. doi:10.1002/nla.2584.

Awards

The 2021 Joseph A. Alfred Mathematics Excellence Award April 2022
University of Florida; Gainesville, FL

The Balaez-Ambrose Mathematics Award 2019-2020 April 2020
Methodist University; Fayetteville, NC

The Outstanding Computer Science Student Award 2017-2018 April 2018
Methodist University; Fayetteville, NC

2019 Math Jeopardy Contest – 4th Place Overall March 2019
MAA Southeastern Section 2019 Conference; Lee University; Cleveland, TN

2018 Math Jeopardy Contest – 2nd Place Overall March 2018
MAA Southeastern Section 2018 Conference; Clemson University; Clemson, SC

Community Involvement

Choir Member and Cantor April 2023 – Present
St. Augustine Catholic Church; Gainesville, FL

Baked Goods Ministry Organizer August 2022 – August 2023
St. Augustine Catholic Church; Gainesville; FL

Guitar Accompanist December 2016 – August 2020
St. Elizabeth Ann Seton Catholic Church; Fayetteville, NC

Community Outreach Volunteer May 2018 – August 2018
NASA Johnson Space Center; Houston, TX