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Benjamin Atawiah

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Department of Mathematics
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EDUCATION

- **The University of Alabama, Tuscaloosa, AL** — Aug. 2026 (expected)
  Ph.D. in Mathematics
  - **Advisor**: Dr. Zheng Sun
- **The University of Alabama, Tuscaloosa, AL** — April 2025
  MA. in Mathematics
  - **Advisor**: Dr. Zheng Sun
- **African Institute for Mathematical Sciences, Ghana** — June 2020
  Msc. in Mathematical Sciences
  - **Advisor**: Dr. Mohamed Mbehou
- **The University of Ghana** — June 2018
  Bachelor of Arts in Economics and Mathematics
  - **Advisor**: Mr. Antwi Asare

RESEARCH INTERESTS

- **Numerical Analysis**: Discontinuous Galerkin Finite Element Methods (DG – FEM)
- **Fourier Analysis on DG Methods**: Accuracy and Stability
- **Time Integration Methods**: Strong Stability Preserving (SSP) Runge Kutta Methods, Local Time Marching, Total Variation Diminishing (TVD) Runge Kutta Methods
- **Energy Estimate and Analysis on DG Methods**: Error and Stability

RESEARCH EXPERIENCE

- **The University of Alabama**
  Graduate Research Assistant
  - **Stability via Energy Method**: Summer 2025
  - **Local Time Marching on DG method**: Spring 2025
  - **Optimal CFL number for DG Methods with damped Polynomial Coefficients**: Fall 2024
  - **Error Analysis of Discontinous Galerkin Methods with modal values**: Summer 2024
- **African Institute for Mathematical Sciences–Ghana**
  Masters Thesis
  - **Dynamical Analysis of Strange Attractors in a Climate Related Model**: June 2019

TEACHING EXPERIENCE

- **The University of Alabama**
  Instructor of Records — *Aug. 2022 - Present*
  - **Math 238, Applied Differential Equations I**: Spring 2024, Spring 2025, Fall 2025
  - **Math 126, Calculus 2**: Fall 2024
  - **Math 227, Calculus 3**: Fall 2023
  - **Math 125, Calculus 1**: Spring 2023
  - **Math 115, Algebra & Trig.**: Fall 2022
- **The University of Alabama**
  Tutor — *Jan. 2022 - Present*
  - **Math 125, 126, 227**: Summer 2022, 2023, 2024
- **University of Ghana**
  Teaching Assistant — *Aug. 2018 - Jul. 2019*
  - **Taught Math 123, Vectors and Geometry**: Fall 2018
  - **Tutor for Math 122, calculus 1**: Spring 2018

Conferences and Presentations

- **Third Joint Alabama–Florida Conference on Differential Equations, Dynamical Systems, and Applications, University of Alabama at Birmingham**: Poster presentation, May 20–22, 2025
- **2025 Southeast Applied and Computational Mathematics Student Workshop**: Oral presentation, April 5–6, 2025
- **SIAM-SEAS 2025, University of Tennessee, Knoxville**: Oral presentation, March 21–23, 2025
- **Winter School: Reduced-Order Modeling for Complex Engineering Problems – From Analysis to Practical Implementation**: Hosted by IMSI, University of Chicago, January 29–31, 2025
- **Mathematical Modeling of Biological Interfacial Phenomena**: Hosted by IMSI, University of Chicago (attended online), December 9–13, 2024

Research Output

- **Paper: On the Effects of Flux Filtering in Runge–Kutta Discontinuous Galerkin Methods: Fourier Analysis for the Second-Order Case**: manuscript in preparation
- **Paper: Stability of DG methods via Energy method**: current work

Honors and Awards

- Summer Research Fellowship, Department of Mathematics, The University of Alabama — Summer 2025
- Graduate Student Travel Funding, JAF DEDS Conference, University of Alabama at Birmingham — May 2025
- Travel Award, 2025 Southeast Applied and Computational Mathematics Student Workshop — April 2025
- Travel Award, 2025 SIAM SEAS Conference at the University of Tennessee, Knoxville (UTK) — March 2025
- Graduate Student Travel Award, Graduate School, The University of Alabama - 2025
- Graduate Student Travel Award, College of Arts and Sciences, The University of Alabama - 2025
- Full Scholarship, IMSI Winter School on Reduced Order Polynomial Modeling
- Edith & Richard Ainsworth Endowed Scholarship, The University of Alabama, summer 2022 & 2023
- Funding to attend Probability, Analysis, and Applications (PAA), AIMS Ghana, 2020
- AIMS Ghana Fellowship, $ 25,000, 2019-2020

Community Involvement

- **Judge, SIMODE (SCUDEM X 2025)**
  Reviewed students submissions and provided feedback on modeling with differential equations. 2025
- **SIAM, MathWorks Math Modeling (M3) triage judge**
  Judged SIAM M3 Challenge, evaluating 20+ teams of students from the U.S., England, and Wales. 2025
- **Research Judge, Undergraduate Research and Creative Activity Conference** Tuscaloosa, AL
  Served as a judge for undergraduate research presentations. Aug. 2019 – Jul. 2020
- **Volunteer Grader, MathCounts Competition** Tuscaloosa, AL
  Evaluated and scored student submissions during the middle school mathematics competition. Feb. 2022-2024
- **Event Support, 1st SEC Geometry–Topology Workshop, University of Alabama** Tuscaloosa, AL
  Served as an event support staff; assisted participants with registration and related activities. May 2023
- **Mathematics Tutor, Korleman Educational Outreach** Korleman, Ghana
  Tutored junior high school students in mathematics on weekends. Aug. 2019 – Jul. 2020

Computer Programming Skills

- **Languages**:   Python, Matlab, Mathematica, Firedrake

Professional Memberships

- American Mathematical Society (AMS), 2022-Present.
- Society of Industrial and Applied Mathematics (SIAM), 2022-Present.

References

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  The University of Alabama
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