

AHMET KAAAN AYDIN

Ph.D. Student [ahmetkaana.github.io](https://github.com/ahmetkaana)

e-mail: aydin1@umbc.edu Phone: +1 (270) 996-6074

[Google Scholar](#) | [Linkedin](#) | [Researchgate](#)

EDUCATION

Ph.D. in Applied Mathematics | University of Maryland, Baltimore County | 2022 – Present

- **Awards:** Outstanding Graduate Teaching Assistant

M.Sc. in Applied Mathematics | University of Maryland, Baltimore County | 2024

- Earned en-route to Ph.D.

M.Sc. in Mathematics | Western Kentucky University | Bowling Green, KY | 2020 – 2022

- Thesis “Robust Sensor Design for the Novel Reduced Models of the Mead-Marcus Sandwich Beam Equation”
- **Awards:** [John D. Minton Award](#) | Outstanding Graduate Student Award

Pedagogical Formation | Istanbul University | Istanbul, Turkey | 2018 – 2019

B.Sc. in Mathematics | Yildiz Technical University | Istanbul, Turkey | 2015 – 2019

- Senior Project “Affine, and Projective planes”

PUBLICATIONS

- **A.K. Aydin**, J. Li, A Nonlinear Model Reduction based Stochastic Galerkin Solver for the Unsteady Navier-Stokes Equations, in preparation.
- **A.K. Aydin**, B. Sousedik, [A Mean-Informed Low-Rank Monolithic Stochastic Galerkin Solver for the Unsteady Navier-Stokes Equations](#), arXiv:2608.07526, 2026.
- **A.K. Aydin**, A.Ö. Özer, J. Waltherman, [Robust Model Reductions for the Boundary Feedback Stabilization of Magnetizable Piezoelectric Beams](#), **Evolution Equations and Control Theory**, vol. 21, pp. 244-276, 2026.
- A.Ö. Özer, **A.K. Aydin**, R. Emran, [Exponential Stability and Optimization of Sensor Feedback Amplifiers for Fast Stabilization of Magnetizable Piezoelectric Beam Equations](#), **IEEE Transactions on Automatic Control** vol. 70, pp. 1374-1379, 2025.
- **A.K. Aydin**, Md Z. Haider, A.Ö. Özer, [A New Finite Difference Approximation Preserving Uniform Boundary Observability for a Fully Clamped Euler-Bernoulli Beam](#), **IEEE Control Systems Letters**, vol. 8, pp. 2955-2960, 2024.
- A.Ö. Özer, **A.K. Aydin**, [A novel sensor design for a cantilevered Mead-Marcus-type sandwich beam model by the order-reduction technique](#), **ESAIM: Control, Optimization, and Calculus of Variations**, 2023.
- **A.K. Aydin**, A.Ö. Özer, J. Waltherman, [A Novel Finite Difference-based Model Reduction and a Sensor Design for a Multilayer Smart Beam with Arbitrary Number of Layers](#), **IEEE Control Systems Letters**, vol. 7, 1548-1553, 2023.
- A.Ö. Özer, **A.K. Aydin**, [Uniform boundary observability of filtered finite difference approximations of a Mead-Marcus sandwich beam equation with only one boundary observation](#), 61st IEEE Conference on Decision and Control (CDC), Cancun, Mexico 2022.

RESEARCH EXPERIENCE

Graduate Assistant | University of Maryland, Baltimore County | Baltimore, MD | July 2022 – Present

- Design iterative numerical solvers for optimal control problems governed by the Navier-Stokes equations.
- Develop MATLAB tools for stochastic Galerkin finite element methods in fluid dynamics, incorporating low-rank approximation techniques such as tensor train decomposition.

Intern | Wolfram | Champaign, IL (Remote) | June 2023 – August 2023

- Created mathematics content for Wolfram|Alpha engine in the subject of Linear Algebra.
- Developed step-by-step solutions and implemented them into the Wolfram|Alpha. The projects include determining the dimensions of a matrix, finding the Kronecker Product of two matrices, and matrix decomposition techniques such as LU, Cholesky, and QR.

Research Assistant | Western Kentucky University | Bowling Green, KY | September 2021 – June 2022

- Supported by the National Science Foundation done research on robust boundary sensor design for finite/infinite dimensional laminated beam models.
- Supervised a team of undergraduate students from Dr. Özer’s research group to develop Wolfram Demonstration Projects (WDP) describing vibrations on multi-layer beams.

INVITED TALKS

- **SIAM Conference on Uncertainty Quantification (UQ26)**, Minneapolis, Minnesota, March 2026.
- **Joint Mathematics Meeting (JMM)**, Washington, DC, January 2026.
- **Mid-Atlantic Numerical Analysis Day**, Philadelphia, Pennsylvania, November 2025.
- **Finite Element Circus**, Arlington, Virginia, October 2025.
- **American Control Conference**, Denver, Colorado, July 2025.
- **AMS Western Sectional**, San Luis Obispo, California, May 2025.
- **WKU AMS Graduate Student Chapter talk**, Virtual, April 2025.
- **AMS Central Sectional Meeting**, Milwaukee, Wisconsin, April 2024.
- **62nd IEEE Conference on Decision and Control**, Singapore, December 2023.
- **Mid-Atlantic Numerical Analysis Day**, Philadelphia, Pennsylvania, November 2023.
- **SIAM Central States Section**, Lincoln, Nebraska, October 2023.
- **SIAM Conference on Control and Its Applications (CT23)**, Philadelphia, Pennsylvania, July 2023.
- **AIMS Conference on Dynamical Systems, Differential Eqs. and Applications**, Wilmington, NC, June 2023.
- **SIAM Southeastern Atlantic Section**, Blacksburg, Virginia, March 2023.
- **Joint Mathematics Meeting (JMM)**, Boston Massachusetts, January 2023.
- **61st IEEE Conference on Decision and Control, Cancun**, Mexico, December 2022.
- **AMS Southeastern Sectional Meeting**, Chattanooga, Tennessee, October 2022.
- **SIAM Pacific Northwest Section**, Vancouver, Washington, May 2022.
- **Joint Mathematics Meeting (JMM)**, April 2022.
- **Kentucky Section of the Mathematical Association of America Annual Meeting**, Virtual, April 2022.
- **WKU Student Research Conference**, Bowling Green, Kentucky, March 2022.
- **41st WKU Mathematics Symposium**, Bowling Green, Kentucky, February 2022.
- **Kentucky Academy of Science Annual Meeting**, Virtual, November 2021.

LEADERSHIP

[IEEE Next-Com](#) | December 2023 – Present

- **General Activities Co-chair** | 2025 – Present
- **Virtual Ambassador** | 2023 – 2025
- Next-Com is founded in 2023 “[Empowering the Next Generation of CSS Leaders: From NextCom to ExCom.](#)”

Graduate Student Association (GSA) | University of Maryland, Baltimore County | July 2024 – Present

- **President** | July 2026 – Present
- **Vice President** | July 2025 – July 2026
- **Senator** | College of Natural and Mathematical Sciences | July 2024 – July 2025

University Steering Committee | University of Maryland, Baltimore County | July 2025 – Present

Classroom Committee | University of Maryland, Baltimore County | July 2024 – July 2025

Graduate Student Organizations Committee | University of Maryland, Baltimore County | July 2024 – July 2025

Graduate Assistant Advisory Committee (GAAC) | University of Maryland, Baltimore County | July 2024 - July 2025

SIAM Student Chapter | September 2020 – May 2024

- **President** | University of Maryland, Baltimore County | 2022 – 2024
 - Awarded SIAM Student Chapter Certificate of Recognition
- **President** | Western Kentucky University | 2020 – 2022
 - Awarded SIAM Student Chapter Certificate of Recognition

The Graduate Council | Western Kentucky University | September 2021- June 2022

Student Research Grants Committee | Western Kentucky University | September 2021 – June 2022

HONORS & AWARDS

- Outstanding Graduate Teaching Assistant | University of Maryland, Baltimore County | 2026
- SIAM Student Chapter Certificate of Recognition | University of Maryland, Baltimore County | 2024
- John D. Minton Award | Western Kentucky University | 2022
 - The highest university-wide award given to the single graduate student.
- The Outstanding Graduate Student Award | Western Kentucky University | 2022
- Kentucky NSF EPSCoR SuperCollider best presentation award | 2022
- SIAM Student Chapter Certificate of Recognition | Western Kentucky University | 2022
- Dr. James H. Stuteville Scholarship | Western Kentucky University | 2022
- Hugh F. and Katherine A. Johnson Mathematics Scholarship | Western Kentucky University | 2021

TEACHING EXPERIENCE

Graduate Assistant | University of Maryland, Baltimore County | Baltimore, MD | July 2022-Present

- Completed Center for the Integration of Research, Teaching and Learning
 - Teaching certification at Scholar and Practitioner levels

Orientation Advisor | University of Maryland, Baltimore County | Baltimore, MD | March 2024-Present

- Advised incoming undergraduate students

Teaching Assistant | Western Kentucky University | Bowling Green, KY | September 2020 - July 2021

- Tutored at the Mathematics Testing Center for the summer of 2021.
- Completed Graduate Teaching Assistant Institute (GATI) modules I & II.
- Awarded with 2021 Summer assistantship position. Received an offer to be a Graduate Instructor.

Mathematics Teacher | Haydar Akin Vocational High School | Istanbul, Turkey | December 2018- June 19

- Taught 9th and 10th-grade mathematics courses for a semester with the supervision of a Mathematics teacher and a pedagogical expert.

Instructor of Record | University of Maryland, Baltimore County

- MATH 120 | Introduction to Contemporary Mathematics | Fall 2026
- MATH 150 | Precalculus | Summer 2026
- MATH 152 | Calculus II | Spring 2026
- MATH 221 | Introduction to Linear Algebra | Winter 2026
- MATH 106 | Algebra and Elementary Functions | Fall 2025
- MATH 152 | Calculus II | Summer 2025
- MATH 151 | Calculus I | Summer 2024

WORKSHOPS

- CIRTl Teaching-as-Research Project Summer 2025
Project Title: Enhancing Students' Symbol Sense with Targeted Practice
- 62nd IEEE Conference on Decision and Control, Singapore, December 2023.
Modern Adaptive Control and Estimation: From Theory to Applications.
- SIAM Mathematical Problems in Industry Workshop, New Jersey 2023.
Project Title: Bubbles in flow streams and porous media.
- SIAM Graduate Student Mathematical Modeling Camp, Delaware 2023.
Project Title: Modeling of Drying Process in Porous Media.

WOLFRAM DEMONSTRATION PROJECTS

[Wolfram Demonstration Projects](#) are interactive wolfram notebooks that explore complex mathematical concepts.

- J. Waltherman, **A.K. Aydin**, A.Ö. Özer, [Stabilization of a Smart Beam with a Tip Mass](#), 2024.
- J. Waltherman, **A.K. Aydin**, A.Ö. Özer, [Rapid Stabilization of Heat and Structure Interactions with Boundary Feedback Controllers](#), 2024.
- J. Waltherman, **A.K. Aydin**, M. Poynter, A.Ö. Özer, [Stabilization of the Wave Equation by the Direct Fourier Filtering](#), 2022
- J. Waltherman, **A.K. Aydin**, S. Leveridge, A.Ö. Özer, [Dynamics of a Longitudinal Piezoelectric Beam](#), 2023.
- **A.K. Aydin**, M. Poynter, A.Ö. Özer, [Vibration Suppression on a Hinged Three-Layer Sandwich Beam](#), 2022.
- **A.K. Aydin**, M. Poynter, A.Ö. Özer, [Feedback Sensor Design for a Cantilevered Three-Layer Sandwich Beam](#), 2022.
- M. Poynter, L. Stewart, **A.K. Aydin**, A.Ö. Özer, [Boundary-Feedback Control of Vibrations on a String with and without Filtering](#), 2022.

SERVICE

- Nonlinear analysis. Real world applications | 2026 – Present | Reviewer
- American Control Conference (ACC) | 2025 - Present | Reviewer
- AMS Mathematical Reviews / MathSciNet | 2025 – Present | Reviewer
- IEEE Control Systems Letters | 2024 – Present | Reviewer
- IEEE Conference on Decision and Control (CDC) | 2024 – Present | Reviewer