

# AFEEZ ADEMOLA BADMUS

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## EDUCATION

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**University of Kansas**, Lawrence, Kansas, KS **Expected in May 2026**

**PhD Civil Engineering** GPA: 3.97/4.0

Focus: Structural Engineering and Natural Hazard Risk Assessment

Dissertation: Reducing Tornado Losses Through Enhanced Residential Building Design and Shelter Access

**University of Kansas**, Lawrence, Kansas, KS

**May 2023**

**MS Civil Engineering** GPA: 4.0/4.0

Focus: Structural Engineering and Natural Hazard Mitigation

Thesis: Wind Performance for Sheathing-to-rafter Connections in Wind Zone 2 HUD Code Homes

Relevant Courses: Matrix Analysis of Structures, Advanced Steel Bridge Design, Experimental Stress Analysis, Fracture Mechanics, Dynamics and Vibrations, Structural Mechanics, and Advanced Steel Buildings Design

**Federal University of Technology, Akure, Nigeria**

**Nov. 2018**

**BS in Civil Engineering** GPA: 4.8/5.0

Thesis: Effect of Increase of Cement of the Initial Mix Ratio of 1:2:4 Concrete on its Characteristics Strength

## RESEARCH INTEREST

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Tornado hazards, multi-hazard resilient infrastructure, experimental testing and monitoring of structural systems, lifecycle benefit-cost analysis, resilience-based design of structural systems, community resilience, hazard mitigation and policy, disaster reconnaissance.

## PEER REVIEWED PUBLICATIONS

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**Badmus, A.A.**, Marquez, P., Sutley, E.J., Collins, Dao, T., W.N., Chowdhury, A.G., Zisis, I., Elawady, A. (n.d.) Light Frame Wood Sheathing-to-Rafter Connections: Experimental Capacity and Cyclic Behavior Analysis. *Int. J. Ind. Wind and Aerodynamics*. Under review

**Badmus, A. A.** and Sutley, E.J (n.d.) Lifecycle Benefit-cost Analysis of Designing Wood-frame Residential Buildings to Withstand Tornado Hazards. *Journal of Struct. Eng.* Under review

Dao, T., **Badmus, A.A.**, Sutley, E.J., Collins, W.N., Chowdhury, A.G., Zisis, I., Elawady, A., Onyia, V., Do, V.N.V. (2025). A General Hysteresis Model for Applications at Structural Dynamics. *ASCE Journal of Struct. Eng.* <https://doi.org/10.1061/JSENDH.STENG-14315>

**Badmus A. A.** and Sutley E. J. (2025) State-of-the-art Review on Reducing Residential Buildings' Risk to Tornado Hazards. *Front. Built Environ.* 11:1543800. <https://doi.org/10.3389/fbuil.2025.1543800>.

**Badmus, A. A.**, and Ojurongbe, T. A. (2020). Effect of Increase of Cement of the Initial Mix Ratio of 1:2:4 Concrete on its Characteristics Strength. *International Journal of Innovative Science and Research Technology* 5(1), pp. 946-950.

## CONFERENCE PUBLICATIONS

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**Badmus, A. A.** and Sutley, E. (2025). Risk-based Lifecycle Benefit-cost Analysis for Tornado Hazard Mitigation for Wood-frame Residential Buildings. 14<sup>th</sup> International Conference on Structural Safety and Reliability (ICOSSAR), Los Angeles, CA.  
<http://dx.doi.org/10.23967/icossar.2025.007>.

Yusuf, S., Adindu, C., **Badmus, A.** and Muhammed, H. (2021), Curbing the Effect of Covid-19 Pandemic in the Nigeria Construction Industry through Digitalization of Operations and Processes. 5<sup>th</sup> CU Construction Conference; Exploring Contemporary Issues and Challenges in the Construction Industry: (CCC2021), Coventry, United Kingdom.

Yusuf, S., Musa M. A., Diugwu. I., Adindu, C. and **Badmus, A. A.** (2021), A Systematic Literature Review Approach on the Role of Digitalization in Construction Infrastructure and Sustainable City Development in Developing Countries. 8th Zero Energy Mass Custom Housing (ZEMCH) International Conference, United Arab Emirates University Ain, Dubai, UAE.  
<http://irepo.futminna.edu.ng:8080/jspui/handle/123456789/29618>

## TECHNICAL REPORTS

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Collins, W., Bennett, C., Li, J., **Badmus, A.**, Mojidra, R. and Cobos, J. (2023). Automated Bridge Inspection Using Digital Image Correlation and Other Vision-Based Methods – Phase IV  
[https://rosap.nrl.bts.gov/view/dot/77896/dot\\_77896\\_DS1.pdf](https://rosap.nrl.bts.gov/view/dot/77896/dot_77896_DS1.pdf)

## WORKING MANUSCRIPTS

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**Badmus, A.**, Faghirnejad, S, Graham, M., Sutley, E. Bergtold, J. (n.d.). Integrating Human Behavior into Infrastructure Planning to Improve Shelter Access During Tornadoes.

**Badmus A. A.** and Sutley E. J. (n.d.). A New Paradigm for Prioritizing Residential Buildings in Community Resilience.

## PRESENTATIONS

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### *Oral*

**Badmus A. A.** and Sutley E. J. (2025) Risk-based Lifecycle Benefit-cost Analysis for Tornado Hazard Mitigation for Wood-frame Residential Buildings. 14<sup>th</sup> International Conference on Structural Safety and Reliability (ICOSSAR), Los Angeles, CA.

**Badmus A. A.** and Sutley E. J. (2025) Evaluating the Lifecycle Economic and Safety Benefits of Tornado-Resistant Construction for Residential Buildings. 15<sup>th</sup> American Conference for Wind Engineering (ACWE), St Louis, MO.

Elaina, S., Hankins, J., **Badmus, A.**, Collins, W., Zisis, I., Metwally, O., Chowdhury, A., Erwin, J., Elawady, A., Dao, T. and Onyia, V. (2024), Quantifying the Wind Performance of

Manufactured Homes. 7<sup>th</sup> Residential Building Design and Construction Conference (RBDCC), Pennsylvania, PA.

*Poster*

**Badmus, A. A.** and Sutley, E. J. (2025), Lifecycle Benefit-Cost Analysis of Designing Wood-frame Residential Buildings to Withstand Tornado hazards. 70<sup>th</sup> KU Annual Structural Engineering Conference.

**Badmus, A. A.** and Sutley, E. J. (2024), Evaluating the Benefit-Cost Trade-offs of Extending Tornado Load Provision to Residential Building. 49<sup>th</sup> Natural hazards Workshop.

**Badmus, A. A.** and Sutley, E. J. (2024), Evaluating the Benefit-Cost Trade-offs of Extending Tornado Load Provision to Residential Building. 69<sup>th</sup> KU Annual Structural Engineering Conference.

**Badmus, A. A.**, Hankins, J, Sutley, E. J. and Collins, W. (2023), Wind Performance of Common Connections in Wind Zone 2 HUD Code Homes. 68<sup>th</sup> KU Annual Structural Engineering Conference.

## **AWARDS AND HONORS**

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Travel award for NSF-NHERI RAPID Intensive Workshop at the University of Washington, Seattle	<b>Jul. 2025</b>
SEI Futures Fund Student Scholarship Award	<b>Apr. 2025</b>
Selected among hundreds of applicants to represent the University of Kansas, Lawrence at the Capitol Graduate Research Summit	<b>Mar. 2025</b>
1 <sup>st</sup> place – Best Poster Award at 70 <sup>th</sup> KU Annual Structural Engineering Conference	<b>Mar. 2025</b>
National Council of Structural Engineers Association (NCSEA) Diversity in Structural Engineering Scholarship Award	<b>May 2024</b>
The William Averette Anderson Fund Fellowship	<b>Oct. 2023 – Present</b>
Hoglund Fellowship, School of Engineering, University of Kansas	<b>Oct. 2023 - Present</b>
2 <sup>nd</sup> place – Best Poster Award at 68 <sup>th</sup> KU Annual Structural Engineering Conference	<b>Mar. 2023</b>
EducationUSA Opportunity Funds Programs (OFP)   U.S Embassy Nigeria	<b>May 2020</b>
University Prize for the Best Student in the Civil Engineering Department, Federal University of Technology Akure	<b>Nov. 2018</b>
Prof. and Prof. (Mrs.) Ola Award for the Best Student in Geotechnical Engineering in Civil Engineering Department, Federal University of Technology Akure	<b>Nov. 2018</b>
Dean’s List Award	<b>2013 – 2018</b>
Abdulkabir Aliu Foundation Scholarship for Undergraduates	<b>2014 - 2018</b>

## **TEACHING EXPERIENCE**

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### **Graduate Teaching Assistant**

*University of Kansas, Lawrence, Kansas*

*Aug. 2022 – Dec. 2022*

Taught course: Statics and Dynamics (CE 260)

Supervisor: Professor Bob Lyon

- Assisted faculty with critical tasks, lectured to students, and led group activity sessions

- Provided 3-hour office sessions per week, working one-on-one with students on course topics and assisting with their homework
- Prepared homework and exam solutions for students
- Proctored exams and provided grades according to university standards
- Managed class website

## **RESEARCH EXPERIENCE**

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### **Graduate Research Assistant**

*Sutley Research Group*

*Jun. 2023 – Present*

Research Supervisor: Dr. Elaina Sutley

- Conducting research on risk assessment, benefit-cost analysis, and structural vulnerability under extreme wind events
- Developed tornado hazard impact framework using probabilistic models and fragility curves for residential buildings
- Collaborated with a multidisciplinary team to develop a framework to community shelter access during a tornado
- Conducting lifecycle benefit-cost analyses for tornado mitigation strategies
- Mentored junior lab members and coordinated team-based data collection and simulation tasks

### **Graduate Research Assistant**

*Fatigue and Fatigue Laboratory, Civil Engineering, University of Kansas, Lawrence, Kansas*

*Aug. 2021 – May 2023*

Research Supervisor: Dr. William Collins

- Conducted fatigue testing on cantilever overhead sign structures (COSS) to analyze fatigue behavior at box and mast-arm connections
- Utilized Digital Image Correlation (DIC) technology to detect and monitor fatigue cracks in steel structures

### **Graduate Research Assistant**

*Structural Testing Laboratory, Civil Engineering, University of Kansas, Lawrence, Kansas*

*Jan. 2022 – May 2023*

Research Supervisor: Dr. Elaina Sutley and Dr. William Collins

- Designed and drafted structural test fixtures, preparing detailed drawings for fabrication
- Performed monotonic and cyclic tests on sheathing-to-rafter connections in manufactured homes, evaluating performance under extreme wind conditions

### **Graduate Assistant**

*Department of Project Management Technology, Federal University of Technology, Minna, Nigeria.*

*May 2019 – Mar. 2020*

Supervisor: Dr. Ikechukwu Diugwu

- Led tutorials on construction and concrete technology for undergraduate students
- Assisted faculty members in proctoring and grading assignments/exams
- Supported department operations under the guidance of the department chair

## WORK EXPERIENCE

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### **Assistant Site Engineer**

*Royal Builders Limited, Lagos, Nigeria*

*Dec. 2018 – Mar. 2019*

- Supervised roof gutter construction for a proposed chapel for Maryland Comprehensive Secondary School, Nigeria
- Interpreted technical drawings on-site to ensure construction alignment with design specifications.
- Coordinated workforce activities and enforced strict safety measures.

### **Civil Engineering Intern**

*Royal Builders Limited, Lagos, Nigeria*

*Jun. 2017- Oct. 2017*

- Assisted in the preparation, casting, and testing of concrete cubes for strength determination using a universal compression machine
- Supervised pad foundation construction for a classroom block at Maryland Comprehensive Secondary School, Nigeria
- Participated in carrying out a non-destructive test using Ultrasonic Pulse Velocity (UPV) machine on concrete columns at the construction site of the proposed block of classrooms, Maryland Comprehensive Secondary School, Nigeria

## RELEVANT SKILLS

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Proficient in using AutoCAD and SAP 2000 for structural analysis and design

Proficient in using Python, MATLAB, QGIS and Microsoft office suite

Proficient in using LabView and Data acquisition system (DAQ)

## SELECTED SERVICE

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### **StEER Network**

Tier 1 member of StEER Network

**Aug. 2024 - Present**

### **The William Averette Anderson Fund**

**Member Council, Culture Committee**

**Nov. 2024 - Present**

**Member Council, Programming Committee**

**Nov. 2023 – Oct 2024**

- Assisting in organizing and executing professional development webinars for over 100 participants, analyzing and implementing community feedback

### **Graduate Engineering Ambassador (GEA)**

**University of Kansas, Lawrence, KS**

**Sep. 2023 – Present**

- Organize professional development training workshops for graduate students in the School of Engineering
- Participate in community service events that inform and benefit the University and local community.

### **i-Scholar Initiative (iSI)**

**Talent Development & Mentoring Manager**

**May 2022 – Present**

- Assisting in organizing and executing graduate school application webinars for over 300 participants
- Assisting in making payment for standardized tests for scholars applying to graduate school

- Participating in strategic planning meetings and workshops to develop future goals for the initiative

**NSBE Mentorship Program**

**University of Kansas, Lawrence, KS**

**Sep. 2022 – Present**

Assisted mentees in planning their academic goals and tracking their progress in school

**Get Education, Get a Skill (GEGAS)**

**May 2019 - Present**

I take part in voluntary activities through visitation to primary and secondary schools across some selected states in Nigeria, educating and sensitizing about child abuse, pedophilia, drug abuse, and destitution.

**PROFESSIONAL AFFILIATIONS**

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American Society of Civil Engineers/ Structural Engineering Institute (ASCE/SEI)

American Association for Wind Engineering (AAWE)

American Institute of Steel Construction (AISC)

National Society of Black Engineers (NSBE)

The Nigerian Society of Engineers (NSE)