

Dr. Shweta U. Dabetwar

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Education

Doctor of Philosophy

(Advisor: Professor Stephen Ekwaro-Osire)

Mechanical Engineering - Texas Tech University, USA - GPA: 3.86/4.0 8/2015 - 12/2020
(Dissertation: Fatigue damage classification and prognostics of composites using Artificial Intelligence methods for experimental data (December 2020))

Bachelor of Engineering

Mechanical Engineering - University of Mumbai, India - GPA: 4.0/4.0 9/2011 - 8/2014

Research Interests

Structural Health Monitoring, Prognostics, Diagnostics, Artificial Intelligence, Machine Learning, Deep Learning, Signal Processing, Damage Detection, Computer vision, Fracture and Failure Analysis, Photogrammetry, Infrared Imaging, Structure from motion

Academic Appointments and Collaborations

❖ Research

Assistant professor in Mechanical Engineering at the University of Arkansas at Little Rock

7/2023- Present

- PI of the Material Intelligence and Prognostics lab on campus for conducting research activities along with three students
- Battery diagnostics and prognostics using physics-based artificial intelligence
- Researching fuel cell technology through the lens of artificial intelligence and prognostics
- Damage detection of wind turbine blade samples and other composites using experimental data as well as artificial intelligence
- Multiclass classification of brain tumors using transfer learning methods
- Additive manufacturing for composites
- Remote sensing and non-destructive evaluation of complex systems
- Infrared thermography for diagnostics of plants

Postdoctoral research associate, Department of Mechanical Engineering, University of Massachusetts, Lowell

3/2021- 7/2023

- Developing a methodology incorporating unmanned aerial vehicle-based infrared imaging and artificial intelligence for automatic damage detection and energy audit of energy infrastructure and buildings using data processing and augmentation

- Formulating a system for damage and heat loss localization and quantification using image segmentation, edge detection, and object detection for experimental data collected from energy infrastructure and buildings
- Executed a framework for photogrammetry and structure from motion based on infrared imaging and remote sensing experiments for structural monitoring and energy efficiency characterization of energy infrastructure (Project funded by the Office of Naval Research)

Other collaborations

1/2021 - Present

- Collaboration with Dr. Yimesker Yihun from North Carolina Agricultural and Technical University for AI based self-directed learning readiness and project based learning in classroom (educational research)
- Collaborating with Dr. Tatiana Wolfe from University of Arkansas Medical Sciences BIRC for studying brain MRI scans incorporating artificial intelligence to detect brain anomalies
- Working on a systematic review of Fuel cells (collaboration with Dr. Ekwaro-Osire, TTU, Dr. Fisseha Alemayehu, WTAM, USA and Dr. Matthias Faes, University of Dortmund, Germany)
- Developing a probabilistic prognostics framework to determine the remaining useful life using Bayesian inference from the experimental dataset using artificial intelligence for Li-Ion batteries (collaboration with Dr. Ekwaro-Osire, TTU and Dr. Fisseha Alemayehu, WTAM)
- Created and implemented a diagnostics framework based on the rotation speed of wind turbine rotors to detect mass imbalance (collaboration with Dr. Pinhero and Dr. Franchi, Universidade Federal de Santa Maria, Brazil)

Graduate research assistant at Product design and development lab, TTU

9/2016 - 8/2019

- Created prognostics framework for remaining useful life prediction for experimental data of carbon fiber-reinforced polymer composites
- Performed signal processing on Lamb wave signals to locate fault signatures for efficient damage detection of composite materials using machine learning
- Formalized data fusion framework by performing image encoding using MATLAB and image analysis using CNN for efficient classification of multiple damage states of composites using distinct types of fault signatures
- Created and implemented a scheme for data sufficiency and quality using a Generative adversarial network for data augmentation as well as data fusion in the application of damage diagnostics of CFRP using CNN
- Generalized the double linear damage rule for cumulative fatigue damage to accommodate the probabilistic approach for sparse data using the maximum entropy principle
- Performed probabilistic analysis and uncertainty quantification and propagation for the reliability of ocean wave energy conversion system

❖ Teaching

Assistant professor in Mechanical Engineering at the University of Arkansas at Little Rock

7/2023- Present

- Primary instructor of courses MEEG 3371 (Dynamics I), MEEG 3373 (Mechanics of Materials I), MEEG 4376/5376 (Mechanics of Materials II), MEEG 3370 (Vibrations), and MEEG 3379 (Elements of Mechanical Design)
- Responsible for developing class materials, exams, assignments, class adaptation, and syllabus
- Implemented scientific teaching techniques such as active learning techniques, backwards design, and logic model in the classroom

Postdoctoral research associate, Department of Mechanical Engineering, University of Massachusetts, Lowell

3/2021- 7/2023

- Guest lecturer for 'MECH 5195 - Principles and Applications of Sensors for Engineering'

Graduate Teaching Assistant at Texas Tech University

9/2019 - 12/2020

- Responsible for teaching a lab of 'ENGR 1330 - Computational thinking with data science in Python' to about 100 students. Tasks included: teaching fundamentals of programming, developing quizzes to assess students' learning, conducting review and help sessions
- Developed teaching materials, such as syllabi, visual aids, answer keys, supplementary notes, and presentations for the graduate class 'ME 5352 – Probabilistic design' to assist the primary instructor
- Responsible for evaluating projects, keeping records of the class, and proctoring the final presentations for the undergraduate class 'ME 4345 – Probabilistic mechanical design'
- Evaluated and graded examinations, assignments, projects, and recorded grades for the undergraduate class of 300 students, 'ME 2322 – Engineering thermodynamics I'

Teaching Interests:

Undergraduate Level:

Material Science, Engineering Design, Mechanics of Solids, Statics, Dynamics, Vibrations, Manufacturing Processes

Graduate Level:

Probabilistic Design, Elasticity, Advanced Dynamics, Fracture and Failure Mechanics, Advanced Engineering Design, Materials

Grant Experience

- PI INBRE Summer Manuscript Support (2026, Funded)
- Co-PI for NSF-IUSE (2026, PI: Dr. Billy Spann, in process)
- Co-PI for USDA (2025, PI: Dr. Swayamjit Ray, in process)
- PI Signature grant (each for Syed Azfar Rahman and Marcus Branton, 2025, funded)
- PI for ARDOT (2025, not funded)
- PI for INBRE pilot proposal (2025, not funded)

- Co-PI for NSF-ERISE submitted in 2025 (PI: Dr. Noureen Siraj, in process)
- Co-PI NSF-IUSE submitted 2025 (PI: Dr. Yimesker Yihun, in process)
- Co-PI NASA EPSCoR for battery technology submitted 2025 (PI: Dr. Noureen Siraj, not funded)
- PI for Arkansas INBRE instrumentation grant (2024, funded)
- Two Signature grant awards, each for Hannah Jones and Aditi Barua, in October 2024 (funded)
- Co-PI on NSF MRI grant submitted 2024 (PI: Dr. Sujun Ghosh, not funded)
- Senior personnel on NSF MRI submitted 2024 (PI: Dr. Fumiya Watanabe)

Publications

Peer-reviewed Journal Publications

- [1] Zokoro, P., Sharma, A. M., Dabetwar, S., “Biomass Gasification Modeling and Prediction: From Mechanistic Approaches to Machine Learning.” under review
- [2] Jones, H., Dabetwar, S., Barua, A., “Uncertainty Informed AI framework for Identification of Barely Visible Damage in Wind Turbine Blade Samples using Experimental IR dataset.” *ASME Journal of Risk Uncertainty Part B*, under review
- [3] Barua, A. and Dabetwar, S., “Uncertainty-Aware AI Framework for IR-Based Defect Identification and Localization in Composite Structures.” *ASME Journal of Risk Uncertainty Part B*, under review
- [4] Lopez-Salazar, C., Ekwaro-Osire, S., Dabetwar, S., and Alemayehu, F. M., “A comprehensive framework for estimating the remaining useful life of Li-ion batteries under limited data conditions with no temporal identifier.” *Reliability Engineering and System Safety*, October 2024. <https://doi.org/10.1016/j.ress.2024.110517>.
- [5] Dabetwar, S., Padhye, R., Kulkarni, N. N., Niezrecki, C., and Sabato, A., “Performance evaluation of deep learning algorithms for heat loss damage classification in buildings from UAV-borne infrared images.” *Journal of Building Engineering*, May 2023. <https://doi.org/10.1016/j.jobbe.2023.106948>
- [6] Sabato, A., Dabetwar, S., Kulkarni, N. N., and Fortino, G., “Noncontact sensing techniques for AI-aided structural health monitoring: a systematic review.” *IEEE Sensors Journal*, vol. 23, no. 5, March 2023, pp. 4672-4684. <https://doi.org/10.1109/JSEN.2023.3240092>
- [7] Dabetwar, S., Kulkarni, N. N., Angelosanti, M., Niezrecki, C., and Sabato, A., 2022, “Sensitivity Analysis of Unmanned Aerial Vehicle-borne 3D Point Cloud Reconstruction from Infrared Images.” *Journal of Building Engineering*, August 2022; p. 105070. <https://doi.org/10.1016/j.jobbe.2022.105070>
- [8] Kulkarni, N. N., Dabetwar, S., Benoit, J., Yu, T., and Sabato, A., 2022, “NDT and E International Comparative Analysis of Infrared Thermography Processing Techniques for Roadways ’ Sub-Pavement Voids Detection.” *NDT E International*, 129. July 2022; p. 102652. <https://doi.org/10.1016/j.ndteint.2022.102652>
- [9] Dabetwar, S., Ekwaro-Osire, S., Dias, J. P., Hübner, G.R., Franchi, C.M., and Pinheiro, H., (June 2, 2022). “Mass Imbalance Diagnostics in Wind Turbines Using Deep Learning With

- Data Augmentation.” ASME. *ASME Journal of Risk Uncertainty Part B*. March 2023; 9(1): 011201. <https://doi.org/10.1115/1.4054420>
- [10] Yüce, C., Gecgel, O., Doğan, O., Dabetwar, S., Yanik, Y., Kalay, O. C., Karpat, E., Karpat, F., and Ekwaro-Osire, S. (February 16, 2022). “Prognostics and Health Management of Wind Energy Infrastructure Systems.” ASME. *ASME Journal of Risk Uncertainty Part B*. June 2022; 8(2): 020801. <https://doi.org/10.1115/1.4053422>
- [11] Dabetwar, S., Ekwaro-Osire, S., and Dias, J. P. (August 23, 2021). “Fatigue Damage Diagnostics of Composites Using Data Fusion and Data Augmentation With Deep Neural Networks.” ASME. *ASME Journal of Nondestructive Evaluation*. May 2022; 5(2): 021004. <https://doi.org/10.1115/1.4051947>
- [12] Dabetwar, S., Ekwaro-Osire, S., and Dias, J. P. (January 22, 2021). “Damage Classification of Composites Based on Analysis of Lamb Wave Signals Using Machine Learning.” ASME. *ASME Journal of Risk Uncertainty Part B*. March 2021; 7(1): 011002. <https://doi.org/10.1115/1.4048867>
- [13] Dias, J. P., Ekwaro-Osire, S., Cunha, A., Dabetwar, S., Nispel, A., Alemayehu, F. M., and Endeshaw, H. B., 2019, “Parametric Probabilistic Approach for Cumulative Fatigue Damage Using Double Linear Damage Rule Considering Limited Data.” *International Journal of Fatigue*. June 2019; 127(1): pp. 246–258. <https://doi.org/10.1016/j.ijfatigue.2019.06.011>

Conference Proceedings

- [1] S. Dabetwar and S. A. Rahman, “A Study of the Effect of Unbalanced Dataset and Pretraining on the Multiclass Classification of Brain Tumors Using MRI Scans.” Paper accepted in Proceedings of the 2025 ASME International Mechanical Engineering Congress & Exposition, Memphis, Tennessee, United States, Nov 16–20, 2025.
- [2] H. Jones, A. Barua, and S. Dabetwar, “Optimization of Experimental Infrared Image Dataset for the Identification of Barely Visible Damage in Wind Turbine Blade Samples Using Transfer Learning.” Paper accepted in Proceedings of the 2025 ASME International Mechanical Engineering Congress & Exposition, Memphis, Tennessee, United States, Nov 16–20, 2025.
- [3] Y. Yihun, A.C. Swinton, S. Dabetwar, F. Alemayehu, “Designing Generative AI Scaffolds to Enhance Critical Thinking and Self-Directed Learning.” ASEE Midwest Section Conference, Sept 2025.
- [4] A. Barua and S. Dabetwar, “Identification and Localization of Areas of Damage in Composite Materials Using Infrared Thermography and Artificial Intelligence,” Proceedings of the 2024 ASME International Mechanical Engineering Congress & Exposition, Portland, Oregon, United States, Nov 17–21, 2024.
- [5] S. Dabetwar and H. Jones, “Classification of Damage States in Carbon Fiber Reinforced Composites Using Transfer Learning,” Proceedings of the 2024 ASME International Mechanical Engineering Congress & Exposition, Portland, Oregon, United States, Nov 17–21, 2024.
- [6] R. M. Reck, Y. Li, S. R. Thompson, N. Danielle Jackson, and S. Dabetwar, “Preparing Women in STEM for Faculty Careers through a Job Search Workshop Series,” Paper

- presented at 2023 ASEE Annual Conference & Exposition, Baltimore, Maryland. 10.18260/1-2—43959.
- [7] S. Dabetwar, N. N. Kulkarni, C. Niezrecki, and A. Sabato, "Implementation of a structure from motion approach using UAV-borne infrared images on a virtual reality platform," *Proceedings of the 14th International Workshop on Structural Health Monitoring (IWSHM)*, Stanford University, California, United States, September 12-14, 2023.
- [8] S. Dabetwar, C. Niezrecki, and A. Sabato, "Application of mask RCNN for localizing and quantifying areas of energy leak in buildings using infrared images," *SPIE Smart Structures + Nondestructive Evaluation*, Long Beach, California, United States, March 12-16, 2023.
- [9] A. Sabato, C. Niezrecki, S. Dabetwar, N. N. Kulkarni, F. Bottalico, and T. Nieduzak, "Advancements in Structural Health Monitoring Using Combined Computer-Vision and Unmanned Aerial Vehicles Approaches," *European Workshop on Structural Health Monitoring*, Palermo, Italy, Lecture Notes in Civil Engineering, vol 254. Springer, Cham. July 4-7, 2022.
- [10] F. Bottalico, N. A. Valente, S. Dabetwar, K. Jerath, Y. Luo, C. Niezrecki, and A. Sabato, "A sensor-based calibration system for three-dimensional digital image correlation," *SPIE Health Monitoring of Structural and Biological Systems XVI*, Long Beach, California, United States, April, 2022.
- [11] G.R. Hubner, L. Dias, C.E. de Souza, H. Pinheiro, C.M. Franchi, S. Ekwaro-Osire, J.P. Dias, and S. Dabetwar, "Wind Turbine Rotor fault diagnostics using CNN," *Proceedings of the Science of Making Torque from Wind (TORQUE 22) conference*, Delft, The Netherlands, Jun 1-3, 2022.
- [12] L.D. da Rosa, C.M. Franchi, H. Pinheiro, C.E. de Souza, G.R. Hubner, R.B. Morim, S. Dabetwar, S. Ekwaro-Osire, and J.P. Dias, "Diagnostics of Leading-Edge Blade Erosion and Rotor Imbalance Using Machine Learning," *Proceedings of the 14th Americas Conference on Wind Engineering*, Lubbock, Texas, United States, May 17- 19, 2022.
- [13] S. Dabetwar, N. N. Kulkarni, M. Angelosanti, C. Niezrecki, and A. Sabato, "Assessment of the 3D model reconstructed from Infrared images using a Structure from Motion approach," *Proceedings of the 13th International Workshop on Structural Health Monitoring (IWSHM)*, Stanford University, California, United States, March 15-17, 2022.
- [14] M. Angelosanti, S. Dabetwar, E. Curra, and A. Sabato, "3D-DIC analysis for BIM-oriented SHM of a lab-scale aluminium frame structure," *In Journal of Physics: Conference Series*, vol. 2041, no. 1, p. 012009. IOP Publishing, 2021.
- [15] S. Dabetwar, S. Ekwaro-Osire, and J.P. Dias, "Damage Detection of Composite Materials using Data Fusion with Deep Neural Networks," *Proceedings of the 2020 ASME Turbomachinery Technical Conference & Exposition*, Virtual Conference, Online, Sept 21 - 25, 2020.
- [16] S. Dabetwar, S. Ekwaro-Osire, and J.P. Dias, "Damage Classification of Composites Using Machine Learning," *Proceedings of the 2019 ASME International Mechanical Engineering Congress & Exposition*, Salt Lake City, Utah, United States, Nov 11-14, 2019.
- [17] C.M. Franchi, H. Pinheiro, L.D. da Rosa, G. Hübner, S. Ekwaro-Osire, J.P. Dias, T.P. Pereira, S. Dabetwar, and C.E. de Souza, "A Deep Learning Algorithm for Fault Imbalance

Diagnostics in Wind Turbine Rotors Using Electrical Generator Signals,” *Proceedings of the 2019 Wind Science Conference*, Cork, Ireland, Jun 17–20, 2019.

- [18] J.P. Dias, S. Ekwaro-Osire, A. Cunha Jr., F.M. Alemayehu, S. Dabetwar, A. Nispel, and H.B. Endeshaw, “Parametric Probabilistic Approach for Limited Data in Non-Linear Cumulative Fatigue Damage,” *Proceedings of the 2018 International Conference on Fatigue Damage of Structural Materials*, Hyannis, Massachusetts, United States, Sep 16–21, 2018.
- [19] S. Ekwaro-Osire, F.M. Alemayehu, J. Chapman, O. Gecgel, S. Dabetwar, J.P. Dias, and H.B. Endeshaw, “Probabilistic Approach to Determine the Efficiency of Wave Energy Conversion System,” *Proceedings of the 2016 ASME International Mechanical Engineering Congress & Exposition*, Phoenix, Arizona, United States, Nov 11– 17, 2016.
- [20] J. Chapman, O. Gecgel, J.P. Dias, S. Dabetwar, and S. Ekwaro-Osire, “An Integrated Ocean Wave and Subsea Energy Storage Power System,” *Proceedings of the 2016 IEEE Power & Energy Society General Meeting*, Boston, Massachusetts, United States, Jul 17–21, 2016.

Technical Report

- A. Sabato, T. Yu, N. N. Kulkarni, and S. Dabetwar, “Detecting Subsurface Voids in Roadways Using UAS with Infrared Thermal Imaging.” *Massachusetts department of transportation*, 2022.

Seminars and Presentations

Invited Talks

- “Material Intelligence and Prognostics (MIP) lab” presented in DCSTEM research symposium (March 13, 2026)
- “AI in Mechanical Engineering” presented in Tech Talks (one of the 12 out of 18 selected speakers) UA Little Rock (April 24, 2025)
- “Health/condition monitoring of engineering materials with the help of Artificial intelligence” presented at Material Research Symposium UA Little Rock (Nov 14, 2024)
- “Detecting damages in structures with the help of Artificial Intelligence” presented in *Aerospace Club at UA Little Rock* (Feb 23, 2024)
- “Artificial Intelligence in Structural Health Monitoring” presented in *Donaghey College of Science, Technology, Engineering, and Mathematics Colloquium Series, University of Arkansas at Little Rock* (Feb 16, 2024)
- “Structural health monitoring using infrared thermography, structure from motion, and artificial intelligence” presented in the *International Mini-Symposium on Rotating Machinery, Texas Tech University, Lubbock* (May 2022)
- “Automated damage detection and assessment in buildings and infrastructure using infrared thermography and deep learning techniques” presented as *a part of the Graduate seminar series, University of Massachusetts, Lowell* (Feb 2022)
- “Multiple aspects of damage detection in structural components using deep learning and photogrammetry” presented in the *Fall 2021 Seminar Series on Innovation at the University of Wisconsin, River Falls* (Oct 2021)

- “Fatigue Damage Diagnostics and Prognostics of Composites Using Artificial Intelligence Methods for Experimental Data” presented at the *Pacific Northwest National Laboratory, seminar* (Dec 2020)

Conference Presentations

- “Designing Generative AI Scaffolds to Enhance Critical Thinking and Self-Directed Learning” *2025 ASEE Midwest conference*, Sept 18-19, 2025.
- “Damage Detection of Composite Materials using Data Fusion with Deep Neural Networks” *2020 ASME Turbomachinery Technical Conference & Exposition*, Virtual Conference, Online, Sep 21–25, 2020.
- Presented “Damage Classification of Composites Using Machine Learning” *2019 ASME International Mechanical Engineering Congress & Exposition*, Salt Lake City, Utah, Nov 11–14, 2019.
- Presented “Damage classification of composites and Maximum entropy principle overview” at the *International Mini Symposium on Rotating Machinery*, Lubbock, Texas, Sep 4, 2019.

Posters

- ‘Can a convolutional neural network used with data fusion improve the damage detection of composites?’ presented in the *19th Annual Graduate Student Research Poster Competition*, Texas Tech University (2020)
- ‘Composite Materials and Machine Learning’ presented in the *18th Annual Graduate Student Research Poster Competition*, Texas Tech University (2019)
- ‘Probabilistic Approach Towards Consideration of Future Load Parameters to Determine RUL’ presented in the *Mechanical Engineering Graduate Poster Competition*, Texas Tech University (2017)
- ‘Probabilistic Approach for Ocean Wave Energy Conversion Systems’ presented in *Probabilistic Prognostics and Health Management Workshop and Conference*, Texas (2017)
- ‘Ocean Wave Energy Conversion Systems’ presented in the *15th Annual Graduate Student Research Poster Competition*, Texas Tech University (2016)

Mentoring experience

Primary mentor for students in the Material Intelligence and Prognostics Lab (MIP Lab) at the University of Arkansas at Little Rock

- Hannah Jones, B. S./M.S. Student 1/2024 –Present
 - Won third-place winner of the Research and Creative Works Social Media Competition (2026)
 - Won the best research poster award at IMECE 2025 in Track 15 (2025)
 - Won the best graduating undergraduate student award at UA Little Rock (2025)
 - Selected to present a poster at the Capitol of Arkansas state (2025, 2026)
- Syed Azfar Rahman, B. S. Student 10/2024 –Present

- Won the best undergraduate poster award at the Research Expo in UA Little Rock 2025 (university level)
- Marcus Branton, B. S. Student 10/2025 –Present
- Aditi Barua, M.S. student in Mechanical Engineering, “Infrared images and damage detection in composite materials using artificial intelligence” 10/2023 – 07/2025
 - Won best presentation in UA Little Rock Research Expo 2025
 - Won second place in the poster competition at the University of Arkansas at Little Rock, Material Research Symposium (college level) 2024
 - Won the best research poster award at IMECE 2024 in Track 14

Supervised with Dr. Sabato at the University of Massachusetts, Lowell

- Nitin Kulkarni, Ph.D. student in Mechanical Engineering, “Use of Infrared imaging for automated sub-surface damage detection” 3/2021 – 7/2023
- Fabio Bottalico, Ph.D. student in Mechanical Engineering, “Advancement of wireless calibration for 3D-DIC using unmanned platforms” 3/2021 – 7/2023
- Anurag Akella, B.S. student in Mechanical Engineering, “Virtual reality models using structure from motion created from infrared images for heat leakage localization” 9/2022 – 12/2022
- Sai Ajjarapu, M.S. student in Mechanical Engineering, “Damage localization and quantification using infrared images for building infrastructure” 1/2022 - 5/2022

Supervised with Dr. Ekwaro-Osire at Texas Tech University, Lubbock

- Camilo Lopez-Salazar, Ph.D. student in Mechanical Engineering 11/2021 – 03/2025
- Nazir Gandur, Ph.D. student in Mechanical Engineering 01/2024 – 12/2024

Academic appointments

- Master’s thesis committee chair for Hannah Jones (graduating in 2027)
- Master’s thesis committee member and co-advisor for Tanisha Fairuz (graduating in 2027)
- Master’s thesis committee member for Peter Zokoro (graduating in May 2026)
- Master’s thesis committee chair for Aditi Barua (graduated in Aug 2025)
- Master’s thesis committee member for Nihal Ahmed (graduated in 2024)
- Donaghey Scholars’ honors program final project committee chair for Hannah Jones (graduated B.S. in 2025)

Service

Service at the University of Arkansas at Little Rock

- DCSTEM symposium organizing committee (2026)
- Mechanical Engineering faculty search committee (2025)
- School of Engineering and Engineering Technology director search committee (2025)
- Chancellor’s AI ad-hoc committee (2025-present)

- Faculty advisor for Tau Beta Pi student committee (2025-present)
- DCSTEM undergraduate curriculum committee representing the School of Engineering and Engineering Technology (2023-present)
- Community of Practice and Community of Transformation member (2024-Present)
- Faculty Professional Development Committee (2024-2025)

Service to the profession

Editorial board

- ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering (**Associate Editor (2025-present), Early career editorial board (2022-2024)**)
- Special Issue on Reliability and Safety Analysis, Uncertainty Quantification, and Prognostics of Fuel Cells (under ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering) (**Lead guest editor**)
- Reliability of Onshore and Offshore Wind Energy Generation Systems (Journal: Sustainability, Chief guest editor: Dr. Fisseha Alemayehu, Co-guest editor: Dr. Shawn Sheng), Online: March 2023 (**Co-guest editor**)

Grant Review panels

- NSF various panels (2024, 2025)
- Arkansas INBRE (2025)

Appointments in Divisions and Boards

- 4th vice chair of the Safety Engineering and Risk Analysis Division (SERAD) in American Society of Mechanical Engineers (Aug 2025-Aug 2026)

Session organizer and chair

- Co-track chair for 2026 ASME International Mechanical Engineering Congress & Exposition, Track 16: Safety Engineering and Risk Analysis Division
- **Track chair** for 2025 ASME International Mechanical Engineering Congress & Exposition, Track 15: Safety Engineering and Risk Analysis Division
- Session chair and topic organizer for 2024 ASME International Mechanical Engineering Congress & Exposition. Topic 14-06: Machine Learning and Deep Learning in Safety, Reliability, and Maintenance, and Topic 14-07: Machine Learning for Safety, Reliability, and Maintenance (Nov 2024)
- Session chair and track organizer for 2023 ASME International Mechanical Engineering Congress & Exposition. Track 14-06: Machine Learning and Deep Learning in Safety, Reliability, and Maintenance (Nov 2023)
- Session chair and organizer for 2022 ASME International Mechanical Engineering Congress & Exposition. Track 14-06: Machine Learning for Safety, Reliability, and Maintenance (Nov 2022)
- Session chair and organizer for 2021 ASME International Mechanical Engineering Congress & Exposition Track 14-07: Machine Learning for Safety, Reliability, and Maintenance (Nov 2021)

Organizing committee

- Member of research team, Advancement of Mentoring Practice Program (AMPP), University of Massachusetts, Lowell (Joined January 2023).
- Member of the strategic and execution team, Strategic Preparation for Academic Resilience and Know-how (SPARK Faculty) (joined April 2022).
- Member of organizing committee, International Mini-Symposium on Rotating Machinery, Lubbock, TX, Sep 4, 2019.
- Member of organizing committee, international conference and workshop on Probabilistic Prognostics and Health Management, Lubbock, TX, March 2017.

Instructor

- Instructor at workshops organized by Advancement of Mentoring Practice Program (AMPP), University of Massachusetts, Lowell (February-April 2023)
- Instructor at “Science: It’s a girl thing!” workshop organized by ‘Texas Tech University College Connect - Division of Diversity, Unity, and Inclusion’ for girls of the age group 12-16 years (April 2019)

Journal reviewer

- Mechanical Systems and Signal Processing (Science Direct)
- Engineering Structures (Science Direct)
- Quantitative InfraRed Thermography Journal
- Journal of Building Engineering (Science Direct)
- Reliability Engineering and System Safety (Science Direct)
- Engineering Structures (Science Direct)
- Quantitative InfraRed Thermography Journal
- ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering
- ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering
- Advances in Engineering Software (Elsevier)
- Journal of Civil Structural Health Monitoring (Springer)
- Journal of Vibration Engineering & Technologies (Springer)
- MDPI: Sensors, Structural Health Monitoring, Applied Sciences, Materials, Symmetry, Photonics, Electronics, Machines

Conference reviewer

- 2026 ASME International Mechanical Engineering Congress & Exposition (American Society of Mechanical Engineers)
- 2025 ASME International Mechanical Engineering Congress & Exposition (American Society of Mechanical Engineers)
- 2024 ASME International Mechanical Engineering Congress & Exposition (American Society of Mechanical Engineers)
- 2023 ASME International Mechanical Engineering Congress & Exposition (American Society of Mechanical Engineers)

- 2022 ASME International Mechanical Engineering Congress & Exposition (American Society of Mechanical Engineers) (paper reviewed: 8)
- 2021 ASME International Mechanical Engineering Congress & Exposition (American Society of Mechanical Engineers) (paper reviewed: 10)

Awards and Achievements

- Won the “Rising Faculty Award” (college level) 3/2026
- Selected for Hannover Grant Academy (among 7 selections across the campus) 1/2025
- Mobile Institute for Scientific Teaching (MoSI) certificate 5/2024
- Rudd Mayer Wind Power Fellowship (WRISE) 4/2023
- Whitacre College of Engineering Dean’s Scholarship 9/2016 - 12/2020
- 3rd place in 19th Annual Graduate Student Research Poster Competition, TTU 5/2020
- 1st Runner up in 15th Annual Graduate Student Research Poster Competition, TTU 4/2016
- Mechanical Engineering Departmental Scholarship 8/2015 - 5/2016
- National Talent Search Scholar (NCERT India) 6/2008 - 6/2014

Memberships and License

- Part 107 remote pilot (License) 6/2021 – 6/2023
- Member of American Society of Mechanical Engineers (ASME) 9/2019 - Present
- Member of International society for optics and photonics (SPIE) 2/2023 – 2/2024
- Volunteer for WindSTAR in University of Massachusetts Lowell 4/2022 – 7/2023
- Volunteer at India Student Association at Texas Tech University 9/2016 - 9/2019

References

Available upon request.