

Keegan J. Moore

Assistant Professor

Department of Mechanical and Materials Engineering
University of Nebraska–Lincoln

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EDUCATION

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|------|--|
| 2018 | Ph.D. in Mechanical Engineering, University of Illinois at Urbana-Champaign, Urbana, IL
Dissertation: “Data-Driven System Identification of Strongly Nonlinear Modal Interactions and Model Updating of Nonlinear Dynamical Systems”
Advisors: Alexander F. Vakakis, Lawrence A. Bergman, D. Michael McFarland
National Science Foundation Graduate Research Fellowship Recipient |
| 2014 | B.Sc. in Mechanical Engineering, University of Akron, Akron, OH |

PROFESSIONAL EMPLOYMENT

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| 2018– | Assistant Professor, Department of Mechanical and Materials Engineering, University of Nebraska-Lincoln, Lincoln, NE |
| 2015–
2018 | National Science Foundation Graduate Research Fellow, University of Illinois at Urbana-Champaign, Urbana, IL |
| 2015 | Summer Graduate Research Intern, Sandia National Laboratories, Albuquerque, NM |
| 2014 | Predocctoral Fellow, University of Illinois at Urbana-Champaign, Urbana IL |

GRANTS & FELLOWSHIPS

Awarded Research Grants (Total: \$539,984)

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| 2022. | 7. AFOSR, Young Investigator Program, PI: K.J. Moore , “Digital Engineering the Test and Modeling Process: Autonomous Methods for Reconciling Test and Model Results,” \$450,000, 2022. https://www.afrl.af.mil/News/Article/2835114/afosr-awards-grants-to-36-scientists-and-engineers-through-its-young-investigat/ |
| 2021. | 6. NASA Nebraska EPSCoR, NASA, PI: K.J. Moore , “Understanding the Nonlinear Dynamics Governing Vertical-Lift Vehicles with Variable-speed, Fixed Rotors,” \$15,000, 2021. |
| 2021 | 5. University of Nebraska Preliminary Data and Application Grant, “Detecting the Walking Phases with Raised Oxygen Costs for Targeted Therapy,” PI: Philippe Malcolm (University of Nebraska Omaha [UNO]), Co-PI: K.J. Moore , Total Amount: \$38,399, UNL Amount: \$19,984, 2021-2022. |
| 2021 | 4. NSF Nebraska EPSCoR, “The How, Why, and When of Unwanted Disassembly: Inexpensive Dynamical Models for Loosening of Bolted Joints,” PI: K.J. Moore , Total Amount: \$25,000, Grant Number: OIA-1557417, 2021-2022. |
| 2021 | 3. UNL Faculty Seed Grant, “Determining the Interactions Between Bolts During Unwanted Loosening,” PI: K.J. Moore , Total Amount: \$10,000, 2021-2022. |

- 2020 | 2. NASA Nebraska EPSCoR, NASA, “Design of Nonlinear Vibration Absorbers to Enhance Aeroelastic Performance of High-aspect-ratio Wings in Commercial Aircraft,” **PI: K.J. Moore**, Total Amount: \$15,000, Grant Number: 80NSSC19M0065, 2019-2020.
- 2019 | 1. NASA Nebraska Space Grant, NASA, “Manipulating Nonlinear Absorbers to Enhance Vibration Suppression in Ultra-high-aspect-ratio Wings,” **PI: K.J. Moore**, Total Amount: \$5,000, Grant Number: NNX15AI09H, 2019-2020.

Fellowships & Awards - University of Nebraska-Lincoln (Total:\$85,048)

- 2021 | 8. University of Nebraska-Lincoln, College of Engineering Teaching Fellow (\$2000), 2021-2022.
- 2021 | 7. Air Force Summer Faculty Fellowship, “Concrete Sled Testing,” Air Force Office of Scientific Research, PI (\$24,048), 2021.
- 2021 | 6. University of Nebraska-Lincoln CAREER Club (\$10,000), 2021.
- 2020 | 5. Air Force Summer Faculty Fellowship, “Research on Wave Interaction in Stacked Concrete Slabs,” Air Force Office of Scientific Research, PI (\$18,000), 2020.
- 2019 | 4. Faculty Fellowship Program in Israel (\$10,000), *Jewish National Fund*, 2019-2020.
- 2019 | 3. University of Nebraska-Lincoln CAREER Club (\$10,000), 2019-2020.
- 2019 | 2. University of Nebraska-Lincoln Peer Review of Teaching Fellowship (\$1,000), 2019-2020.
- 2018 | 1. University of Nebraska-Lincoln Research Development Fellows Program (\$10,000), 2018-2019.

Fellowships & Awards - University of Illinois at Urbana-Champaign

- 2015 | 5. NSF Graduate Research Fellowship Program, “Nonlinear System Identification, Reduced Order Modeling, and Model Updating of the Effects of Mechanical Joints on Structural Dynamics,” Total Amount: \$138,000, Grant Number: DGE-1144245, 2015-2018.
- 2015 | 4. MechSE Travel Scholarship, University of Illinois at Urbana-Champaign, 2015–2016.
- 2014 | 3. George A. Costello Memorial Fellowship, University of Illinois at Urbana-Champaign, 2014.
- 2014 | 2. Thomas J. and Virginia Fisher Dolan Fellowship, University of Illinois at Urbana-Champaign, 2014.
- 2014 | 1. Henry L. Langhaar Memorial Fellowship, University of Illinois at Urbana-Champaign, 2014.

JOURNAL PUBLICATIONS

Supervised by Dr. Moore: ¹Undergraduate student, ²Masters student, ³Ph.D. student, ⁴Postdoctoral scholar

- S | 27. C. Wang³, **K.J. Moore**, “Energy Isolation in a Multi-floor Nonlinear Structure Under Harmonic Excitation,” *Nonlinear Dynamics*, (submitted on October 6, 2021).
- S | 26. C. López³, Á. Naranjo, **K.J. Moore**, “Hidden Markov Model based Stochastic Resonance and Its Application to Bearing Fault Diagnosis,” *Journal of Sound and Vibration*, (submitted on October 1, 2021).
- IP | 25. S. Aldana², **K.J. Moore**, “Dynamic Interactions Between Two Axially Aligned Threaded Joints Undergoing Loosening,” *Journal of Sound and Vibration*, (in press, accepted on November 8, 2021). <http://dx.doi.org/10.1016/j.jsv.2021.116625>
- IP | 24. A. Singh³, **K.J. Moore**, “Component-Scaled Signal Reconstruction for Enhanced Noise Filtration,” *Journal of Vibration and Control*, (in press; accepted on September 17, 2021).

- IP 23. A. Singh³, **K.J. Moore**, “An Open-source, Scalable, Low-cost Automatic Modal Hammer for Studying Nonlinear Dynamical Systems,” *Experimental Techniques*, (in press), 2021. <http://dx.doi.org/10.1007/s40799-021-00516-7>
- 2022 22. M. Jin, G. Kosova, M. Cenedese, W. Chen, A. Singh³, D. Jana, M.R.W. Brake, C.W. Schwingshackl, **K.J. Moore**, J.P. Noël, “Measurement and Identification of the Nonlinear Dynamics of a Jointed Structure Using Full-Field Data; Part II - Nonlinear System Identification,” *Mechanical Systems and Signal Processing*, 166:108402, 2022. <http://dx.doi.org/10.1016/j.ymsp.2021.108402>
- 2022 21. W. Chen, D. Jana, A. Singh³, M. Jin, M. Cenedese, G. Kosova, M.R.W. Brake, C.W. Schwingshackl, **K.J. Moore**, J.P. Noël, “Measurement and Identification of the Nonlinear Dynamics of a Jointed Structure Using Full-Field Data; Part I – Measurement of Nonlinear Dynamics,” *Mechanical Systems and Signal Processing*, 166:108401, 2022. <http://dx.doi.org/10.1016/j.ymsp.2021.108401>
- 2022 20. C. López³, D. Wang, Á. Naranjo, **K.J. Moore**, “Box-Cox-Sparse-Measures-Based Blind Filtering: Understanding the Difference between the Maximum Kurtosis Deconvolution and the Minimum Entropy Deconvolution,” *Mechanical Systems and Signal Processing*, 165:108376, 2022. <http://dx.doi.org/10.1016/j.ymsp.2021.108376>
- 2021 19. A. Singh³, **K.J. Moore**, “Identification of Multiple Local Nonlinear Attachments Using a Single Measurement,” *Journal of Sound and Vibration*, 513:116410, 2021. <http://dx.doi.org/10.1016/j.jsv.2021.116410>
- 2021 18. J.D.E. Dalisay, **K.J. Moore**, L.A. Bergman, A.F. Vakakis, “Local nonlinear stores induce global modal interactions in the steady-state dynamics of a model airplane,” *Journal of Sound and Vibration*, 500:116020, 2021. <http://dx.doi.org/10.1016/j.jsv.2021.116020>
- 2021 17. C. Wang³, **K.J. Moore**, “On Nonlinear Energy Flows in Nonlinearly Coupled Oscillators with Comparable Mass,” *Nonlinear Dynamics*, 103:343-366, 2021. <http://dx.doi.org/10.1007/s11071-020-06120-5>
- 2020 16. A. Singh³, **K.J. Moore**, “Characteristic Nonlinear System Identification of Clearance Nonlinearities in Local Attachments,” *Nonlinear Dynamics*, 102:1667-1684, 2020. <http://dx.doi.org/10.1007/s11071-020-06004-8>
- 2020 15. J.D.E. Dalisay, **K.J. Moore**, L.A. Bergman, A.F. Vakakis, “Effects of Nonlinear Stores on the Dynamics of a Computational Model Airplane,” *Journal of Aircraft*, 57(5):938-957, 2020. <http://dx.doi.org/10.2514/1.C035736>
- 2019 14. **K.J. Moore**, “A Reduced-order Model for Loosening Mechanics of Axial Joints,” *ASME Journal of Applied Mechanics*, 86(12):121007, 2019. <http://dx.doi.org/10.1115/1.4044813>
- 2019 13. **K.J. Moore**, “Characteristic Nonlinear System Identification: A Data-driven Approach for Local Nonlinear Attachments,” *Mechanical Systems and Signal Processing*, 131:335-347, 2019. <http://dx.doi.org/10.1016/j.ymsp.2019.05.066>
- 2019 12. **K.J. Moore**, A. Mojahed, L.A. Bergman, A.F. Vakakis, “Local Nonlinear Stores Induce Global Effects in the Dynamics of an Experimental Model Airplane,” *AIAA Journal*, 57(11):4953-4965, 2019. <http://dx.doi.org/10.2514/1.J058311>
- 2019 11. **K.J. Moore**, M. Kurt, M. Eriten, D.M. McFarland, L.A. Bergman, A.F. Vakakis, “Direct Detection of Nonlinear Modal Interactions From Time Series Measurements,” *Mechanical Systems and Signal Processing*, 125:311–329, 2019. <http://dx.doi.org/10.1016/j.ymsp.2017.09.010>
- 2019 10. **K.J. Moore**, M. Kurt, M. Eriten, D.M. McFarland, L.A. Bergman, A.F. Vakakis, “Time-Series Based Nonlinear System Identification of Modal Interactions Caused by Strongly Nonlinear Attachments,” *Journal of Sound and Vibration*, 438:13–32, 2019. <http://dx.doi.org/10.1016/j.jsv.2018.09.033>

- 2018 9. A. Mojahed, **K.J. Moore**, L.A. Bergman, A.F. Vakakis, “Strong Geometric Softening-Hardening Nonlinearities in an Oscillator Composed of Linear Stiffness and Damping Elements,” *International Journal of Non-linear Mechanics*, 11:94-111, 2018. <http://dx.doi.org/10.1016/j.ijnonlinmec.2018.09.004>
- 2018 8. **K.J. Moore**, A.F. Vakakis, “Wave Non-Reciprocity at a Nonlinear Structural Interface,” *Acta Mechanica*, 229(10):4057-4070, 2018. <http://dx.doi.org/10.1007/s00707-018-2212-5>
- 2018 7. **K.J. Moore**, M. Kurt, M. Eriten, D.M. McFarland, L.A. Bergman, A.F. Vakakis, “Wavelet-Bounded Empirical Mode Decomposition for Vibro-Impact Analysis,” *Nonlinear Dynamics*, 93(3):1559–1577, 2018. <http://dx.doi.org/10.1007/s11071-018-4276-0>
- 2018 6. J. Bunyan, **K.J. Moore**, A. Mojahed, M.D. Fronk, S. Tawfick, M. Leamy, A.F. Vakakis, “Acoustic Non-reciprocity in a Lattice Incorporating Nonlinearity, Asymmetry and Internal Scale Hierarchy: Experimental Study,” *Physical Review E*, 97(5):052211, 2018. <http://dx.doi.org/10.1103/PhysRevE.97.052211>
- 2018 5. **K.J. Moore**, J. Bunyan, S.H. Tawfick, O.V. Gendelman, S. Li, M. Leamy, A.F. Vakakis, “Non-Reciprocity in the Dynamics of Coupled Oscillators with Nonlinearity, Asymmetry and Scale Hierarchy,” *Physical Review E*, 97(1):012219, 2018. <http://dx.doi.org/10.1103/PhysRevE.97.012219>
- 2018 4. **K.J. Moore**, M. Kurt, M. Eriten, D.M. McFarland, L.A. Bergman, A.F. Vakakis, “Wavelet-Bounded Empirical Mode Decomposition for Measured Time Series Analysis,” *Mechanical Systems and Signal Processing*, 99:14–29, 2018. <http://dx.doi.org/10.1016/j.ymsp.2017.06.005>
- 2017 3. **K.J. Moore**, M. Kurt, M. Eriten, J.C. Dodson, J.R. Foley, J.C. Wolfson, D.M. McFarland, L.A. Bergman, A.F. Vakakis, “Nonlinear Parameter Identification of a Mechanical Interface Based on Primary Wave Scattering,” *Experimental Mechanics*, 57(9):1495–1508, 2017. <http://dx.doi.org/10.1007/s11340-017-0320-0>
- 2017 2. M. Kurt, **K.J. Moore**, M. Eriten, D.M. McFarland, L.A. Bergman, A.F. Vakakis, “Nonlinear model updating applied to the IMAC XXXII Round Robin benchmark system,” *Mechanical Systems and Signal Processing*, 88:111–122, 2017. <http://dx.doi.org/10.1016/j.ymsp.2016.10.016>
- 2015 1. Y. Zhang, **K.J. Moore**, D.M. McFarland, A.F. Vakakis, “Targeted energy transfers and passive acoustic wave redirection in a two-dimensional granular network under periodic excitation,” *Journal of Applied Physics*, 118(23):234901, 2015. <http://dx.doi.org/10.1063/1.4937898>

CONFERENCE PROCEEDINGS AND PRESENTATIONS

Supervised by Dr. Moore: ¹Undergraduate student, ²Masters student, ³PhD student, ⁴Postdoctoral scholar

- 2022 50. C. López³, Á. Naranjo, **K.J. Moore**, “Hidden Markov Model based Stochastic Resonance and its Application to Bearing Fault Diagnosis,” *International Modal Analysis Conference XL*, Orlando, FL, February 7–10, 2022.
- 2022 49. A. Singh³, **K.J. Moore**, “Data-Driven Identification of Multiple Local Nonlinear Attachments Installed on a Single Primary Structure,” *International Modal Analysis Conference XL*, Orlando, FL, February 7–10, 2022.
- 2022 48. A. Singh³, **K.J. Moore**, “An Open-source, Automatic Modal Hammer for Studying Nonlinear Dynamical Systems,” *International Modal Analysis Conference XL*, Orlando, FL, February 7–10, 2022.
- 2022 47. C. Wang³, **K.J. Moore**, “Applying Quasi-zero Stiffness Introduced by Elastic Strut Elements to Achieve Energy Isolation and Dissipation,” *International Modal Analysis Conference XL*, Orlando, FL, February 7–10, 2022.

- 2022 46. C. Wang³, J.D. Brown¹, **K.J. Moore**, “Energy Isolation by Introducing 2-D Nonlinear Energy Sink with Impact and Sliding on An Elliptical Frame,” *International Modal Analysis Conference XL*, Orlando, FL, February 7–10, 2022.
- 2022 45. J.D. Brown¹, **K.J. Moore**, “Using Nonlinear Energy Sinks to Diminish Vibrations in High-aspect Ratio Wings,” *International Modal Analysis Conference XL*, Orlando, FL, February 7–10, 2022.
- 2021 44. S.A. Aldana², **K.J. Moore**, “Dynamic Wave Interactions in Axial Rods With Multiple Threaded Interfaces,” *ASME International Design Engineering and Technical Conference*, Virtual Conference, August 17–20, 2021.
- 2021 43. J.D. Brown¹, **K.J. Moore**, “Investigation of Vibration Mitigation in High-aspect-ratio Wings Using Multi-directional Clearance Nonlinearities,” *ASME International Design Engineering and Technical Conference*, Online Virtual Conference, August 17–20, 2021.
- 2021 42. A. Singh³, **K.J. Moore**, “An Open-Source, Low-Cost Automatic Modal Hammer for Studying Nonlinear Dynamical Systems,” *ASME International Design Engineering and Technical Conference*, Online Virtual Conference, August 17–20, 2021.
- 2021 41. A. Singh³, **K.J. Moore**, “Data-Driven Identification of Multiple Local Nonlinear Attachments,” *ASME International Design Engineering and Technical Conference*, Online Virtual Conference, August 17–20, 2021.
- 2021 40. C. Wang³, A.T. Allen¹, E. Krings, E.J. Markvicka, **K.J. Moore**, “Energy Isolation Study by Utilizing Quasi-zero Stiffness Introduced by Buckling in Elastic Strut Elements,” *ASME International Design Engineering and Technical Conference*, Online Virtual Conference, August 17–20, 2021.
- 2021 39. G.M. Eymael¹, **K.J. Moore**, “The Effect of Store-to-store Energy Transfers On the Global Dynamics of Aircraft,” *ASME International Design Engineering and Technical Conference*, Online Virtual Conference, August 17–20, 2021.
- 2021 38. L. Wang, B. Beamer, **K.J. Moore**, K. Krainc, “Case Study - Lesson Plan for Noise Control Engineering Concepts for use in ABET Accredited Engineering Programs,” *Inter-Noise 2021*, Virtual Conference, August 1–5, 2021.
- 2021 37. J.D.E. Dalisay, **K.J. Moore**, L.A. Bergman, A.F. Vakakis, “Vibro-impacts Originating in Wing Attachments Induce Global Chaotic Effects in the Steady-state Dynamics of a Model Airplane,” *NM 2021*, Ascona, Switzerland, July 6–9, 2021.
- 2021 35. J.D. Brown¹, **K.J. Moore**, “Using Nonlinear Vibration Absorbers to Mitigate Unwanted Motion in High-aspect-ratio Wings,” *AIAA Region V Student Conference*, Virtual Conference, April 2–3, 2021.
- 2021 34. C. Wang³, **K.J. Moore**, “Energy Isolation in a Multi-floor Nonlinear Structure under Harmonic Excitation,” *International Modal Analysis Conference XXXIX*, Virtual Conference (Originally in Orlando, FL), February 8–11, 2021.
- 2021 33. A. Singh³, **K.J. Moore**, “Joint Interface Contact Area Predictions Using Surface Strain Measurements,” *International Modal Analysis Conference XXXIX*, Virtual Conference (Originally in Orlando, FL), February 8–11, 2021.
- 2021 32. S.A. Aldana², **K.J. Moore**, “Wave Interactions and Modeling of Loosening in Axial Rods with Multiple Threaded Interfaces,” *International Modal Analysis Conference XXXIX*, Virtual Conference (Originally in Orlando, FL), February 8–11, 2021.
- 2020 31. H.A. Van Heuveln¹, **K.J. Moore**, “Strong Vibration Mitigation in High-Aspect-Ratio Wings Using a Nonlinear Energy Sink With Elliptic Clearance,” *ASME International Design Engineering and Technical Conference*, St. Louis, MO, August 16–19, 2020.

- 2020 30. **K.J. Moore**, “Reduced-order Modeling of Loosening Mechanics in Axially Oriented Threaded Joints,” *ASME International Design Engineering and Technical Conference*, St. Louis, MO, August 16–19, 2020.
- 2020 29. **K.J. Moore**, “A New Data-Driven System Identification Method for Local Attachments with Smooth and Non-smooth Nonlinearities,” *ASME International Design Engineering and Technical Conference*, St. Louis, MO, August 16–19, 2020.
- 2020 28. C. Wang³, **K.J. Moore**, “Breaking Dynamic Reciprocity Allows for Strong Vibration Isolation in a Multi-floor Nonlinear Structure,” *ASME International Design Engineering and Technical Conference*, St. Louis, MO, August 16–19, 2020.
- 2020 27. **K.J. Moore**, “The Characteristic Nonlinear System Identification: A Method for Local, Nonlinear Attachments,” *International Modal Analysis Conference XXXVIII*, Houston, TX, February 10–13, 2020.
- 2020 26. H.A. Van Heuvel¹, **K.J. Moore**, “Manipulating Nonlinear Absorbers to Enhance Vibration Suppression in Ultra-high-aspect-ratio Wings,” *International Modal Analysis Conference XXXVIII*, Houston, TX, February 10–13, 2020.
- 2020 25. A. Singh³, **K.J. Moore**, “Enhancing Noise Filtration Through Linear Combinations of Intrinsic Mode Functions,” *International Modal Analysis Conference XXXVIII*, Houston, TX, February 10–13, 2020.
- 2020 24. C. Wang³, **K.J. Moore**, “Targeted Vibration Isolation through Breaking Dynamic Reciprocity in a Multi-floor Nonlinear Structure,” *International Modal Analysis Conference XXXVIII*, Houston, TX, February 10–13, 2020.
- 2020 23. M. Miller, C. Johnson, N. Sonne, J. Mersch, R. Kuether, J. Smith, J. Ortiz, G. Castelluccio, **K.J. Moore**, “Bolt Preload Loss Due to Modal Excitation of a C-Beam Structure,” *International Modal Analysis Conference XXXVIII*, Houston, TX, February 10–13, 2020.
- 2020 22. G. Kosova, M. Jin, M. Cenedese, W. Chen, A. Singh³, D. Jana, M.R.W. Brake, C.W. Schwing-shackl, **K.J. Moore**, J.P. Noël, “Nonlinear System Identification of a Jointed Structure Using Full-field Data: Part II Analysis,” *International Modal Analysis Conference XXXVIII*, Houston, TX, February 10–13, 2020.
- 2020 21. A. Singh³, W. Chen, D. Jana, M. Jin, G. Kosova, M. Cenedese, M.R.W. Brake, C.W. Schwing-shackl, **K.J. Moore**, J.P. Noël, “Nonlinear System Identification of a Jointed Structure Using Full-field Data: Part I Experimental Investigation,” *International Modal Analysis Conference XXXVIII*, Houston, TX, February 10–13, 2020.
- 2019 20. J.D. Dalisay, **K.J. Moore**, L.A. Bergman, A. F. Vakakis, “Computational Simulation of the Effects of Local Nonlinear Stores on the Global Dynamics of an Experimental Model Plane,” *ASME International Design Engineering and Technical Conference*, Anaheim, CA, August 18–21, 2019.
- 2019 19. **K.J. Moore**, “A Reduced-order Model for Axial Joint Loosening Mechanics,” *Tribomechanics Conference*, Houston, TX, July 31–August 2, 2019.
- 2019 18. M. Cenedese, G. Kosova, M. Jin, W. Chen, A. Singh³, D. Jana, M.R.W. Brake, C.W. Schwing-shackl, **K.J. Moore**, J.P. Noël, “Nonlinear System Identification of a Jointed Structure Using Full Field Data; Part 2: Analysis,” *Tribomechanics Conference*, Houston, TX, July 31–August 2, 2019.
- 2019 17. D. Jana, A. Singh³, W. Chen, M. Jin, G. Kosova, M. Cenedese, M.R.W. Brake, C.W. Schwing-shackl, **K.J. Moore**, J.P. Noël, “Nonlinear System Identification of a Jointed Structure Using Full Field Data; Part 1: Experiments,” *Tribomechanics Conference*, Houston, TX, July 31–August 2, 2019.

- 2019 16. **K.J. Moore**, A. Mojahed, J. Dalisay, L.A. Bergman, A.F. Vakakis, “Experimental Study of Global Response of a Model Airplane with a Strongly Nonlinear Store on Each Wing,” *7th International Conference on Nonlinear Vibrations, Localization and Energy Transfer*, Marseille, France, July 1–4, 2019.
- 2019 15. **K.J. Moore**, L.A. Bergman, A.F. Vakakis, “Influence of Local Nonlinearities on Global System Dynamics and Nonlinear System Identification,” *Engineering Mechanics Institute Conference*, California Institute of Technology, Pasadena, CA, June 18–21, 2019.
- 2019 14. **K.J. Moore**, A. Mojahed, L.A. Bergman, A.F. Vakakis, “Local Nonlinear Attachments Induce Global Effects in Airplane Dynamics,” *International Modal Analysis Conference XXXVII*, Orlando, FL, January 28–31, 2019.
- 2018 13. J. Bunyan, **K.J. Moore**, A. Mojahed, M. D. Fronk, M. Leamy, S. Tawfick, A.F. Vakakis, “Acoustic Non-reciprocity in a Lattice with Nonlinearity, Asymmetry and Internal Scale Hierarchy,” *ASME International Design Engineering Technical Conference*, Quebec City, Quebec, Canada, August 26–29, 2018.
- 2018 12. **K.J. Moore**, J. Bunyan, A. Mojahed, S. Tawfick, O.V. Gendelman, S. Li, M. Leamy, A.F. Vakakis, “Non-reciprocal Acoustics of Lattices with Nonlinearity, Asymmetry and Scale Hierarchy,” *U.S. National Congress for Theoretical and Applied Mechanics (18th USNC TAM)*, Chicago, IL, June 4–9, 2018.
- 2018 11. **K.J. Moore**, M. Kurt, M. Eriten, D.M. McFarland, L.A. Bergman, A.F. Vakakis, “Time-series Based System Identification of Nonlinear Attachments,” *International Modal Analysis Conference (International Modal Analysis Conference XXXVI)*, Orlando, FL, February 12–15, 2018.
- 2017 10. **K.J. Moore**, M. Kurt, M. Eriten, D.M. McFarland, L.A. Bergman, A.F. Vakakis, “Direct Detection of Nonlinear Modal Interactions for Model Updating Using Measured Time Series,” *ASME International Design Engineering and Technical Conference*, Cleveland, OH, 2017.
- 2017 9. **K.J. Moore**, C.A. Herrera, M. Kurt, M. Eriten, D.M. McFarland, L.A. Bergman, A.F. Vakakis, “Reduced-order Modeling of Strongly Nonlinear Systems Using Measured Time Series,” *9th European Nonlinear Dynamics Conference*, Budapest, Hungary, June 25–30, 2017. <http://congressline.hu/enoc2017/abstracts/65.pdf>
- 2017 8. **K.J. Moore**, C.A. Herrera, M. Kurt, M. Eriten, D.M. McFarland, L.A. Bergman, A.F. Vakakis, “Reduced-order Modeling of Strongly Nonlinear Systems Using Measured Time Series,” *International Modal Analysis Conference (International Modal Analysis Conference XXXV)*, Garden Grove, CA, January 30–February 2, 2017.
- 2016 7. **K.J. Moore**, M. Kurt, M. Eriten, D.M. McFarland, L.A. Bergman, A.F. Vakakis, “Nonlinear System Identification of Mechanical Interfaces Based on Wave Propagation,” in: J.M. Floryan (eds) *Contributions to the Foundations of Multidisciplinary Research in Mechanics: Papers presented during the 24th International Congress of Theoretical and Applied Mechanics*, International Congress of Theoretical and Applied Mechanics, Montreal, August 22–26, 2016. http://iutam.org/publications/ictam-proceedings/ictam_2016
- 2016 6. **K.J. Moore**, C.A. Herrera, M. Kurt, M. Eriten, D.M. McFarland, L.A. Bergman, A.F. Vakakis, “Estimation of the Natural Frequencies of Strongly Nonlinear Systems from Time-Domain Response Data,” *ISWAV 2016: 4th International Symposium and Workshop on Acoustics and Vibration*, Harbin, China, July 26–29, 2016.
- 2016 5. **K.J. Moore**, M. Kurt, M. Eriten, D.M. McFarland, L.A. Bergman, A.F. Vakakis, “Nonlinear System Identification of Mechanical Interfaces Based on Wave Propagation,” *Proceedings: International Conference on Nonlinear Vibrations, Localization and Energy Transfer*, Liège, Belgium, July 4–8, 2016. <http://www.nnm2016liege.com/en/download>

- 2016 4. M.R.W. Brake, **K.J. Moore**, “A Heuristic Model of Force-Displacement Curves for the Failure of Mechanical Bolts in Tension,” *ASME International Design Engineering Technical Conference*, Charlotte, NC, August 21–24, 2016.
- 2016 3. R.C. Flicek, **K.J. Moore**, G.M. Castelluccio, M.R.W. Brake, T. Truster, C.I. Hammetter, “Stress Waves Propagating Through Bolted Joints,” In: Allen M., Mayes R., Rixen D. (eds) *Dynamics of Coupled Structures, Volume 4. Conference Proceedings of the Society for Experimental Mechanics Series*. Springer, 2016. http://dx.doi.org/10.1007/978-3-319-29763-7_49
- 2016 2. **K.J. Moore**, M. Kurt, M. Eriten, D.M. McFarland, L.A. Bergman, A.F. Vakakis, “Nonlinear System Identification of Mechanical Interfaces Based on Wave Scattering,” In: Allen M., Mayes R., Rixen D. (eds) *Dynamics of Coupled Structures, Volume 4. Conference Proceedings of the Society for Experimental Mechanics Series*, Springer, 2016. http://dx.doi.org/10.1007/978-3-319-29763-7_32
- 2015 1. M. Kurt, **K.J. Moore**, M. Eriten, D.M. McFarland, L.A. Bergman, A.F. Vakakis, “Nonlinear Model Updating Methodology with Application to the International Modal Analysis Conference XXXIII Round Robin Benchmark Problem,” In: G. Kerschen, editor. *Nonlinear Dynamics, Volume 1. Conference Proceedings of the Society for Experimental Mechanics Series 5*, Springer International Publishing, 2015. http://dx.doi.org/10.1007/978-3-319-15221-9_31

OTHER PRESENTATIONS AND POSTERS

Supervised by Dr. Moore: ¹Undergraduate student, ²Masters student, ³PhD student, ⁴Postdoctoral scholar

- 2021 3. J.D. Brown ¹, K. J. Moore, ”Using Nonlinear Vibration Absorbers to Mitigate Unwanted Motion in High-aspect-ratio Wings,” *Nebraska Academy of Sciences (NAS) Aeronautics and Space Sciences Section*, Online Virtual Conference, April 23, 2021
- 2020 2. A. Allen¹, **K.J. Moore**, “Multi-harmonic Vibration Mitigation Through Exploitation of Structural Instability,” Nebraska Summer Research Virtual Symposium, August 6, 2020.
- 2019 1. J.J. Broadway¹, **K.J. Moore**, “Investigation of Digital Image Correlation as a Method of Measuring Bolted Joint Pressure Distribution,” Nebraska Summer Research Symposium, August 8, 2019.

INVITED TALKS

- 2021 7. “Data-driven Approaches to Modeling Warhead Penetration and New Directions Towards Digital Engineering of T&E,” Virtual Seminar, Air Force Research Laboratory, Eglin Air Force Base, Eglin, FL, August 26, 2021.
- 2021 6. “Reduced-order Modeling of the Loosening of Bolted Joints: Application to Axially Aligned Joints,” *DigiTwin Online Workshop* hosted by Swansea University, June 11, 2021.
- 2020 5. “Sunday with a Scientist: Vibrations,” Virtual Sunday with a Scientist Seminar, University of Nebraska State Museum, Lincoln, NE, 2020.
- 2020 4. “Reduced-order Modeling of Warhead Penetration in Single and Stacked Concrete Slabs,” Virtual Seminar, Air Force Research Laboratory, Eglin Air Force Base, Eglin, FL, 2020.
- 2019 3. “Reduced-order Modeling of Loosening in Bolted Joints Subjected to Axial Shock Excitation,” Sandia National Laboratories, Albuquerque, NM, 2019.
- 2017 2. “Methods for the Detection of Nonlinear Modal Interactions from Measured Time Series,” University of Akron, Akron, OH, 2017.

- 2016 | 1. “Nonlinear Identification Tools and Methods,” *m+p Modal Analysis Seminar* held at *International Modal Analysis Conference XXXIV*, Orlando, FL, 2016.

CHAPTERS IN BOOKS

- 2018 | 2. **K.J. Moore**, A. Mojahed, M. Kurt, M. Eriten, D.M. McFarland, L.A. Bergman, A.F. Vakakis, “Advanced Nonlinear System Identification for Modal Interactions in Nonlinear Structures: A Review,” In: I. Andrianov, A. Manevich, Y. Mikhlin, O. Gendelman (eds) *Problems of Nonlinear Mechanics and Physics of Materials*. Advanced Structured Materials, vol 94. Springer, Cham, 2018. http://dx.doi.org/10.1007/978-3-319-92234-8_7
- 2018 | 1. **K.J. Moore**, M. Kurt, M. Eriten, D.M. McFarland, L.A. Bergman, A.F. Vakakis, “Elements of a Nonlinear System Identification Methodology of Broad Applicability with Application to Bolted Joints,” In: M.R. Brake (eds) *The Mechanics of Jointed Structures*, Springer International Publishing, 2018. <http://dx.doi.org/10.1007/978-3-319-56818-8>

GOVERNMENT REPORTS

- 2015 | 2. **K.J. Moore**, R.C. Flicek, G.M. Castelluccio, C. Hammetter, T.J. Truster, M.R.W. Brake, “Stress Waves Propagating Through Jointed Connections,” SAND2015-6042D, Sandia National Laboratories, Albuquerque, NM, 2015. <https://www.osti.gov/biblio/1339225>
- 2015 | 1. **K.J. Moore**, M.R.W. Brake, “A Reduced Order Model of Force Displacement Curves for the Failure of Mechanical Bolts in Tension,” SAND2015-10871, Sandia National Laboratories, Albuquerque, NM, 2015. <https://www.osti.gov/scitech/biblio/1234813>

TEACHING EXPERIENCE

Assistant Professor, University of Nebraska-Lincoln

- 2021 | 8. Engineering Acoustics (Graduate & Undergraduate Elective), Spring, 2022
- 2021 | 7. Engineering Dynamics (Core Undergraduate), Fall, 2021.
- 2021 | 6. Engineering Acoustics (Graduate & Undergraduate Elective), Spring, 2021 (Rated 4.68/5.00)
- 2021 | 5. Data-driven Science and Engineering (Graduate & Undergraduate Elective), Spring, 2021 (Individually rated 3.98/5.00). Co-taught with Drs. P. Rao, E. Marvicka, and P. Grover.
- 2020 | 4. Advanced Vibrations (Graduate Only), Fall, 2020 (Rated 4.62/5.00).
- 2020 | 3. Engineering Acoustics (Graduate & Undergraduate Elective), Spring, 2020 (Rated 4.69/5.00).
- 2019 | 2. Engineering Dynamics (Core Undergraduate), Fall, 2019 (Rated 4.33/5.00).
- 2019 | 1. Engineering Acoustics (Graduate & Undergraduate Elective), Spring, 2019 (Rated 4.39/5.00).

Teaching Assistant, University of Illinois at Urbana-Champaign

- 2018 | 4. Intermediate Dynamics, Spring, 2018.
- 2017 | 3. Introduction to Nonlinear Dynamics and Vibrations, Spring, 2017.
- 2016 | 2. Experimental Stress Analysis, Spring, 2016.
- 2015 | 1. Introductory Dynamics, Spring, 2015.

ADVISING

Doctoral Students

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| 2025 | 4. Manal Mustafa, “The Effects Loosening on the Dynamics of Bolted Joints,” 2025 (expected). |
| 2025 | 3. Cristian López, “Synchronous Autonomous Measurement and Modeling Frameworks,” 2025 (expected). |
| 2022 | 2. Chengen Wang, “Employing Strong Nonlinearity to Passively Guide Mechanical Energy in Structures,” 2022 (expected; PhD comprehensive exam scheduled for December 9, 2021; Final defense planned for June 2022). |
| 2022 | 1. Aryan Singh, “Data-driven Identification and Automated Synchronous Measurement of Non-linear Structures,” Epected May 2022 (PhD comprehensive exam passed; Final defense planned for April 2022). |

Masters Students

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| 2021 | 1. Sandro A. Aldana, “Reduced-order Modeling of Loosening in Bolted Joints and Dynamic Interactions Between Axially Aligned Threaded Joints,” 2021. https://digitalcommons.unl.edu/mechengdiss/172/ |
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Undergraduate Researchers

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| 2021- | 15. Micah Busboom, “Understanding the Nonlinear Dynamics Governing Vertical-Lift Vehicles with Variable-speed, Fixed Rotors,” 2021-present. |
| 2021- | 14. Sean Griffin, “Employing Video-game Physics Engines to Create Virtual Dynamics Experiments,” 2021-present. |
| 2021- | 13. Aden Hester, “Employing Video-game Physics Engines to Create Virtual Dynamics Experiments,” 2021-present. |
| 2021- | 12. Anika Dujakovich, “Dynamic Interactions Between Multiple Joints and Bolts Undergoing Loosening,” 2021-present. |
| 2020- | 11. Stephanie Vavra, “Targeted Vibration Isolation of Airline Interior Cabins from External Disturbances,” 2020-present. |
| 2020- | 10. Judith Brown, “Design of Nonlinear Vibration Absorbers to Enhance Aeroelastic Performance of High-aspect-ratio Wings in Commercial Aircraft,” 2020-present. |
| 2020- | 9. Guilherme Eymael, “Nonlinear Interactions Between Nonlinear Stores on Fighter Jets,” 2020-present. |
| 2021 | 8. Sejal Soni, “Dynamic Interactions Between Multiple Joints and Bolts Undergoing Loosening,” 2021. |
| 2020 | 7. Thomas Vierk, “Design of Nonlinear Vibration Absorbers to Enhance Aeroelastic Performance of High-aspect-ratio Wings in Commercial Aircraft,” Summer-Fall 2020. |
| 2020 | 6. Rachael Stanek, “Manipulating Nonlinear Absorbers to Enhance Vibration Suppression in Ultra-high-aspect-ratio Wings,” Summer 2020. |
| 2019-2020 | 5. Ben Franco, “Reduced-order Modeling of Bolted Joint Loosening: Torque-Stiffness and Torque Loss Modeling,” Summer and Fall 2019. |
| 2019-2020 | 4. Austin Hajek, “Investigation Into Energy Flows of Nonlinear Structures,” 2019-2020. |

- 2019-2020 | 3. Anna Boothe, “Nonlinear Vibration Mitigation Using a Bunyan-Tawfick Spring,” Fall 2019 and Summer 2020.
- 2019-2020 | 2. Heath Van Heuveln, “Manipulating Nonlinear Absorbers to Enhance Vibration Suppression in Ultra-high-aspect-ratio Wings,” 2019-2020.
- 2019 | 1. Joseph Broadway, “Experimental Investigation of Pressure Distributions Induced by Bolted Joints in Complex Geometries,” Summer 2019.

Graduate Student Committee Membership

- 2021-2023 | 2. S. Mohammadreza Farooghi Mehr, (Civil Engineering, expected May 2023): Advisor: C. Wittich
- 2021-2022 | 1. Aniruddha Gaikwad, (Mechanical Engineering, expected May 2022): Advisor: P.K. Rao

SERVICE TO PROFESSION

Conference Organization

- 2021 | 5. Co-Chair, Sessions on Utilizing Nonlinearity, *International Modal Analysis Conference XL*, Orlando, FL, February 7–10, 2022.
- 2021 | 4. Co-Chair, Sessions on Geometric Nonlinearity, *International Modal Analysis Conference XL*, Orlando, FL, February 7–10, 2022.
- 2020 | 4. Co-Chair, Sessions on Exploiting Nonlinearity, *International Modal Analysis Conference XXXIX*, Orlando, FL, February 8–11, 2021.
- 2020 | 3. Co-Chair, Sessions on Experimental Nonlinear Dynamics, *International Modal Analysis Conference XXXIX*, Orlando, FL, February 8–11, 2021.
- 2019 | 2. Co-Chair, Mini-Symposium on Reduced-Order Modeling and System Identification, *European Nonlinear Oscillations Conference*, Lyon, France, July 5–10, 2021 (Delayed due to Covid-19 Pandemic)
- 2019 | 1. Co-Chair, Sessions on Nonlinear Vibration Mitigation, *International Modal Analysis Conference XXXVIII*, Houston, TX, February 10–13, 2020.

Service for Academic Journals

- 2015– | Reviewer: Mechanical Systems and Signal Processing, Journal of Sound and Vibration, ASME Journal of Vibration and Acoustics, Meccanica, International Journal of Non-Linear Mechanics, Nonlinear Dynamics, Journal of Engineering Mechanics, Communications in Nonlinear Science and Numerical Simulation, Digital Signal Processing, ASME Journal of Applied Mechanics, Energy, Chaos

PROFESSIONAL MEMBERSHIPS

- 2019 | 4. American Institute of Aeronautics and Astronautics, Associate Member, 2019–present
- 2015 | 3. Society of Experimental Mechanics, Member, 2015-present.
- 2012 | 2. American Society of Mechanical Engineers, Member, 2013-present.
- 2011 | 1. Society of Automotive Engineers, Member, 2011-2013.