Joseph C. Slater, Ph.D., P.E.

Education

Institution	*Concentration*	*Degree/Date*
State University of New York at Buffalo	Mechanical Engineering	Ph.D., 1993
State University of New York at Buffalo	Aerospace Engineering	M.S., 1992
State University of New York at Buffalo	Aerospace Engineering	B.S., 1989

Professional Credentials

Professional Engineer	State Board of Registration for Professional Engineers and Surveyors, Ohio. Registration Number 66936, 2002.

Professional Experience

Position	Institution	Dates
Chair- Department of Mechanical and Materials Engineering	Wright State University	6/16–present
Director- Aerospace Professional Development Center	Wright State University	10/12–2014
Director, Master of Science Engineering, Aerospace Systems Engineering	Wright State University	10/12–present
Associate Dean for Defense Aerospace Studies	Wright State University	12/11–13
Interim Associate Dean for Defense Aerospace Studies	Wright State University	8/11–11/11
Professor	Wright State University	9/08–Present
Associate Professor	Wright State University	9/99–8/08
Assistant Professor	Wright State University	9/93–8/99
Postdoctoral Research Assistant	State University of New York at Buffalo	6/93–8/93
Research Assistant	State University of New York at Buffalo	6/89–5/93

Professional Memberships

- American Society of Mechanical Engineers, Fellow
- American Institute of Aeronautics and Astronautics, Associate Fellow
- American Society for Engineering Education, Member
- Tau Beta Pi

Honors, Awards & Recognitions

Organization	Award	Dates
ASME	Fellow	2015
AIAA, Structural Dynamics, Mechanics, and Materials Organizing Committee	Outstanding service in organizing the SDM conference	2013
AIAA, Structural Dynamics, Mechanics, and Materials Organizing Committee	Outstanding service in organizing the SDM conference	2011
Dayton Affiliate Societies Council	Outstanding Engineers & Scientists Award, Education	2011
AIAA, Structural Dynamics, Mechanics, and Materials Organizing Committee	Outstanding service in assisting the SDM organizing committee in implementing ScholarOne for the first time	2010
Wright Lab/AFRL	Summer Faculty Fellowship	1994, 1995, 1999, 2000, 2009, 2010
Wright State University, College of Engineering & Computer Science	Faculty Service Award	2006, 2010
Wright State University, College of Engineering & Computer Science	Outstanding Teaching Award Finalist	1999, 2004, 2007, 2008
DARPA	Certificate of Award for outstanding contributions to the ISAT program	8/2007
Wright State University, College of Engineering & Computer Science	Nominee for Wright State University Distinguished Professor of Service	2005
AIAA	Associate Fellow	2001

Phillips Lab	Summer Faculty Fellowship	1996
SUNY Buffalo	Presidential Fellowship	1989–1993
NASA Langley	Graduate Fellowship	1989–1992

Professional Experience

Wright State University

Chair (2016–present), Professor (2008–present), Associate Professor (1999–2008), Assistant Professor (1993–1999) – Department of Mechanical and Materials Engineering

- Director (and founder) of MS in Aerospace Systems Engineering (2013–present)
- Directed $1.5M in research programs in the areas of modeling, control, and system identification of mechanical, aerodynamic, thermal, and electrical systems. Resulted in almost 70 technical articles and one book chapter.
- Wrote proposal and led development (Functional PI) of Ohio Mean's Interns and Co-ops I program resulting in $1.3M in state funding. Led team to obtain commitment letters for over $3.1M for internships in under one week.
- Led development of proposal for Ohio Mean's Interns and Co-ops II program resulting in $800G (after planned reallocation of OMIC I funds from external expenditure to internal investment) in state funding. Led team to obtain commitment letters for over $2.5M for internships in under one week.
- Supervised 18 graduate student (16 MS, 2 PhD) to completion as major advisor. A substantial number of students have become leaders in their industry or faculty (Manager at Goodrich Aerospace, Senior Director – Engineering at Ingersoll Rand, Master Engineer at Orbital Sciences Corporation, Assistant Professor at Petroleum Institute).
- Dayton Area's Affiliate Societies Council (that includes AIAA, ASME and other professional societies) recognized my contributions through the Outstanding Engineering and Scientist Award for Education in 2011.
- Wright State's College of Engineering and Computer Science recognized my service impact by awarding me the Service Excellence Award twice, in 2006 and 2010.
- Developed and coordinated what has become one of the largest STEM outreach programs at WSU from 2000 to the present. Served as a STEM Fellow at the Montgomery County Regional STEM Center developing K12 STEM lesson plans meeting Ohio Department of Education guidelines (2008–2010).
- Received a Certificate of Award for Outstanding Contributions to the ISAT Program for work on the DARPA Innovative Satellite Antenna Program performing non-publishable research and analysis.
- Served as advisor to SWE for ten years personally advising many of the members, developing leadership skills, and providing and assisting with outreach opportunities targeting

bringing young women into STEM fields.

- Served for several years as an *Associate Editor for Shock and Vibration* and the *International Journal of Modeling and Simulation*.
- Awarded two medals for service beyond supporting the AIAA SDM conference through transition to a new software system, overcoming and debugging the conference system, and serving on the AIAA conference software advisory committee, and a third for later service.
- Created the for-credit internship program within CECS, addressing a long observed need for both academically formalized experiential learning and greater support for connecting our students to industry. Developed a fiscally sustainable model for the intern program (see prior bullet) and programmed (with N. Klingbeil) the office to ensure greater interaction between intern office and students.

Scholarship

Printed Scholarship

Journal Papers

1. Gillaugh, D. L., Kaszynski, A. A., Brown, J. M., Johnston, D. A., and Slater, J. C., "Accurate Strain Gauge Limits Through Geometry Mistuning Modeling," *J. Propul. Power*, Vol. 34, No. 6, November 2018, pp. 1401–1408

2. Gillaugh, D. L., Kaszynski, A. A., Brown, J., Beck, J., and Slater, J. C., "Mistuning Evaluation Comparison via As-Manufactured Models, Traveling Wave Excitation, and Compressor Rigs," *Journal of Engineering for Gas Turbines and Power*, Vol. 141, No. 6, 11 2018, pp. GTP–18–1617. Available from: http://dx.doi.org/10.1115/1.4042079

3. Beck, J. A., Brown, J. M., Kaszynski, A. A., Slater, J. C., and Cross, C. J., "Mistuned Response Prediction of Dual Flow-Path Integrally Bladed Rotors With Geometric Mistuning," *Journal of Engineering for Gas Turbines and Power*, Vol. 137, No. 6, 2015. Available from: http://dx.doi.org/10.1115/1.4028795

4. Beck, J. A., Brown, J. M., Scott-Emuakpor, O. E., Cross, C. J., and Slater, J. C., "Dynamic Response Characteristics of Dual Flow-Path Integrally Bladed Rotors," *Journal of Sound and Vibration*, Vol. 336, 2015, pp. 150 – 163. Available from: http://dx.doi.org/10.1016/j.jsv.2014.10.011

5. Scott-Emuakpor, O. E., Schwartz, J., George, T. J., Holycross, C., Cross, C. J., and Slater, J. C., "Bending Fatigue Life Characterisation of Direct Metal Laser Sintering Nickel Alloy 718," *Fatigue & Fracture of Engineering Materials & Structures*, Vol. 38, No. 9, Feb 2015, pp. 1105–1117. Available from: http://dx.doi.org/10.1111/ffe.12286

6. Beck, J. A., Brown, J. M., Kaszynski, A. A., Cross, C. J., and Slater, J. C., "Geometric Mistuning Reduced-Order Models for Integrally Bladed Rotors With Mistuned Disk–Blade Boundaries," *Journal of Turbomachinery*, Vol. 137, No. 7, 2015, pp. 11

7. Beck, J. A., Brown, J. M., Cross, C. J., and Slater, J. C., "Component-Mode Reduced-Order Models for Geometric Mistuning of Integrally Bladed Rotors," *AIAA Journal*, Vol. 52, No. 7, July 2014, pp. 1345–1356

8. Beck, J. A., Brown, J. M., Cross, C. J., Slater, J. C., and Lamont, G. B., "Framework for Creating Digital Representations of Structural Components Using Computational Intelligence Techniques," *AIAA Journal*, Vol. 52, No. 4, April 2014, pp. 855–866

9. Beck, J. A., Brown, J. M., Slater, J. C., and Cross, C. J., "Probabilistic Mistuning Assessment Using Nominal and Geometry Based Mistuning Methods," *Journal of Turbomachinery-Transactions of the ASME*, Vol. 135, No. 5, September 2013

10. Shiryayev, O. V., Slater, J. C., and Brown, J., "Feasibility of Using Nonlinear Response Features for Crack Detection in Turbomachinery Components," *AIAA Journal*, Vol. 51, No. 9, 2013, pp. 2290 – 2294. Available from: http://dx.doi.org/10.2514/1.J052189

11. Shiryayev, O. V. and Slater, J. C., "Detection of Fatigue Cracks Using Random Decrement Signatures," *Structural Health Monitoring*, Vol. 9, No. 4, 2010, pp. 347–360

12. Shiryayev, O. V. and Slater, J. C., "Improved Structural Damage Identification Using Random Decrement Signatures: Application to FEM Data," *Structural Control and Health Monitoring*, Vol. 15, No. 7, 2008, pp. 1006–1020

13. Balagangadhar, R. and Slater, J. C., "On the Convergence of Nonlinear Modes of a Finite Element Model," *Shock and Vibration*, Vol. 15, No. 6, 2008, pp. 655–664

14. Shiryayev, O. V., Page, S. M., Pettit, C. L., and Slater, J. C., "Parameter Estimation and Investigation of a Bolted Joint Model," *Journal of Sound and Vibration*, Vol. 307, No. 3-5, 2007, pp. 680–697

15. Shiryayev, O. V. and Slater, J. C., "Panel Flutter Model Identification Using the Minimum Model Error Method on the Forced Response Measurements," *ASME Journal of Vibration and Acoustics*, Vol. 128, No. 5, October 2006, pp. 635–645

16. Shiryayev, O. V. and Slater, J. C., "Aeroelastic System Identification Using the Minimum Model Error Method," *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 29, No. 4, August 2006, pp. 936–943

17. Mortara, S. A., Slater, J. C., and Beran, P. S., "Analysis of Nonlinear Aeroelastic Panel Response Using Proper Orthogonal Decomposition," *Journal of Vibration and Acoustics-Transactions of the ASME*, Vol. 126, July 2004, pp. 416–421

18. Slater, J. C., Pettit, C. L., and Beran, P. S., "In-Situ Subspace Evaluation in Reduced Order Modelling," *Shock and Vibration*, Vol. 9, No. 3, 2002, pp. 105–122

19. Slater, J. C., Pettit, C. L., and Beran, P. S., "In-Situ Residual Tracking in Reduced Order Modelling," *Shock and Vibration*, Vol. 9, No. 3, 2002, pp. 105–121

20. Slater, J. C., Minkiewicz, G. R., and Blair, A. J., "Forced Response of Bladed Disk Assemblies – A Survey," *The Shock and Vibration Digest: Center for Intelligent Materials Systems and Structures*, Vol. 31, No. 1, 1999, pp. 17–24

21. Slater, J. C., "Application of the Nyquist Stability Criterion on the Nichols Chart," *Journal of Guidance Control and Dynamics*, Vol. 22, No. 2, March 1999, pp. 360–362

22. Wang, Y. and Slater, J. C., "A Comparison of Conventional and Impedance Methods for Modeling Piezoelectric Materials Actuation in Smart Structures," *Journal of Vibration and Acoustics*, Vol. 120, No. 3, 1998, pp. 685–688

23. Slater, J. C. and Inman, D. J., "On the Effect of Weak Non-Linearities on Linear Controllability and Observability Norms, an Invariant Manifold Approach," *Journal of Sound and Vibration*, Vol. 199, No. 3, January 1997, pp. 417–429

24. Slater, J. C., "A Numerical Method for Determining Nonlinear Normal Modes," *Nonlinear Dynamics*, Vol. 10, No. 1, 1996, pp. 19–30

25. Schulz, M. J., Thyagarajan, S. K., and Slater, J. C., "Inverse Dynamic Design Technique for Model Correction and Optimization," *AIAA Journal*, Vol. 33, No. 8, August 1995, pp. 1486–1491

26. Slater, J. C. and Inman, D. J., "Nonlinear Modal Control Method," *Journal of Guidance, Control, and Dynamics*, Vol. 18, No. 3, 1995, pp. 433–440

27. Banks, H. T., Wang, Y., Inman, D. J., and Slater, J. C., "Approximation and Parameter-Identification for Damped 2nd-Order Systems with Unbounded Input Operators," *Control-Theory and Advanced Technology*, Vol. 10, December 1994, pp. 873–892

28. Slater, J. C. and Inman, D. J., "Transfer Function Modeling of Damping Mechanisms in Distributed Parameter Models," *Mechanics Research Communications*, Vol. 20, No. 4, 1993, pp. 287–292

Books/Chapters

1. Cooley, P. E., Slater, J. C., and Shiryayev, O. V., *Simulating Fatigue Cracks in Healthy Beam Models for Improved Identification*, chap. 7: Fatigue of Materials II: Advances and Emergences in Understanding, Springer, 2012, pp. 87–101. Available from: https://doi.org/10.1002/9781118533383.ch7

2. Slater, J. C. and Agnes, G. S., *Nonlinear Modal Control Techniques and Applications in Structural Dynamic Systems*, Vol. 14, chap. 3: Structural Dynamic Systems, Computational Techniques and Optimization: Dynamic Analysis and Control Techniques, Gordon and Breach International Series in Engineering, Technology and Applied Science, 1999, pp. 107–168

Papers in Published Proceedings

1. Gillaugh, D. L., Kaszynski, A. A., Brown, J. M., Beck, J. A., and Slater, J. C., "Mistuning Evaluation Comparison via As-Manufactured Models, Traveling Wave Excitation, and Compressor Rigs," *ASME Turbo Expo 2018: Turbomachinery Technical Conference and Exposition*, No. GT2018-76888, 2018, p. V07CT35A039. Available from: http://dx.doi.org/10.1115/GT2018-76888

2. Slater, J. C. and Tidball, M. E., "Identification of Nonlinear Constitutive Properties of Damping Coatings," *2018 AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, 2018, p. 0184

3. Tidball, M. E., Slater, J. C., Brown, J. M., Langley, B., and George, T. J., "Modeling and Analysis of Damping Performance of Hard Coatings in Turbomachinery," *58th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, 2017, p. 1979

4. Gillaugh, D. L., Kaszynski, A. A., Brown, J. M., Johnston, D. A., and Slater, J. C., "Accurate Strain Gage Limits Through Geometry Mistuning Modeling," *58th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, 2017, pp. AIAA 2017–0865. Available from: https://doi.org/10.2514/6.2017-0865

5. Park, S., Shin, S., Kim, Y., Matson, E. T., Lee, K., Kolodzy, P. J., Slater, J. C., Scherreik, M., Sam, M., Gallagher, J. C., Fox, B. R., and Hopmeier, M., "Combination of Radar and Audio Sensors for Identification of Rotor-Type Unmanned Aerial Vehicles (UAVs)," *2015 IEEE SENSORS - Proceedings*, Busan, Korea, Republic of, 2015. Available from: http://dx.doi.org/10.1109/ICSENS.2015.7370533

6. Cooley, P. E. and Slater, J. C., "Investigation of a Vibration-Based Damage Identification Technique for Breathing Fatigue Cracks," *56th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, 2015, pp. AIAA 2015–0693

7. Henry, E. B., Brown, J. M., and Slater, J. C., "A Fleet Risk Prediction Methodology for Mistuned IBRs using Geometric Mistuning Models," *17th AIAA Non-Deterministic Approaches Conference*, 2015, pp. AIAA 2015–1144

8. Cooley, P. E. and Slater, J. C., "Experimental Investigation of a Perturbation Model for the Nonlinear Response of a Fatigue Cracked Beam," *55th AIAA/ASME/ASCE/AHS/SC Structures, Structural Dynamics, and Materials Conference*, 2014. Available from: http://dx.doi.org/10.2514/6.2014-0490

9. Scott-Emuakpor, O., George, T. J., Beck, J., Schwartz, J., Holycross, C., Shen, M. H., and Slater, J., "Material Property Determination of Vibration Fatigued DMLS and Cold-Rolled Nickel Alloys," *Proceedings of the ASME Turbo Expo*, Vol. 7A, International Gas Turbine Institute, Dusseldorf, Germany, 2014. Available from: http://dx.doi.org/10.1115/GT2014-26247

10. Beck, J. A., Slater, J. C., Brown, J. M., and Cross, C. J., "Dynamic Response Characteristics of Dual Flow-Path Integrally Bladed Rotors," *52nd Aerospace Sciences Meeting*, 2014, pp. AIAA 2014–0098

11. Scott-Emuakpor, O., Schwartz, J., George, T. J., Holycross, C., and Slater, J., "Bending Fatigue Life Comparison Between Dmls and Cold-Rolled Nickel Alloy 718," *Machinery Failure Prevention Technology (MFPT) Society Annual Conference, Virginia Beach, VA, May*, 2014, pp. 20–22

12. Yelamarthi, K., Slater, J., Wu, J., and Mawasha, P. R., "Engineering Management in an Interdisciplinary Senior Design Project," *Balkan Region Conference on Engineering and Business Education*, Vol. 1, De Gruyter Open, 2014, pp. 153–156

13. Beck, J. A., Brown, J. M., Cross, C. J., and Slater, J. C., "Geometric Mistuning Reduced Order Models for Integrally Bladed Rotors With Mistuned Disk-Blade Boundaries," *Proceedings of the ASME Turbo Expo*, Vol. 7 B, San Antonio, TX, United States, 2013. Available from: http://dx.doi.org/10.1115/GT2013-94361

14. Beck, J. A., Brown, J. M., Cross, C. J., and Slater, J. C., "Component Mode Reduced Order Models for Geometric Mistuning of Integrally Bladed Rotors," *AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 2013

15. Cooley, P. E., Slater, J. C., and Shiryayev, O. V., "Improving Spectral Signature Profiles for Fatigue Crack Identification in Beams," *54th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, 2013, p. 1498

16. Beck, J. A., Brown, J. M., Cross, C. J., and Slater, J. C., "Probabilistic Mistuning Assessment Using Nominal and Geometry Based Mistuning Methods," *Proceedings of the ASME Turbo Expo*, Vol. 7, Copenhagen, Denmark, 2012, pp. 1085 – 1097. Available from: http://dx.doi.org/10.1115/GT2012-68533

17. Cooley, P. E., Slater, J. C., and Shiryayev, O. V., "Fatigue Crack Modeling and Analysis in Beams," *53rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference 20th AIAA/ASME/AHS Adaptive Structures Conference 14th AIAA*, 2012, p. 1874

18. Erford, M., Henry, E., Nay, J., and Slater, J., "Analysis of a Free-Fall Ballute Vehicle," *53rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference 20th AIAA/ASME/AHS Adaptive Structures Conference 14th AIAA*, 2012, p. 1516

19. Slater, J. C. and Doman, D., "Proper Modes for Modeling Flapping Dynamics of Ornithopters," *53rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference 20th AIAA/ASME/AHS Adaptive Structures Conference 14th AIAA*, 2012, p. 1981

20. Shiryayev, O., Gaerke, J., Cooley, P., and Slater, J., "Application of the Campbell Diagram Concept to Identification of Fatigue Cracks in Bladed Disk Assemblies," *52nd*

AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference 19th AIAA/ASME/AHS Adaptive Structures Conference, 2011, p. 1938. Available from: https://doi.org/10.2514/6.2011-1938

21. Shiryayev, O. and Slater, J., "Sensitivity Studies of Nonlinear Vibration Features For Detection of Cracks in Turbomachinery Components," *51st AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference 18th AIAA/ASME/AHS Adaptive Structures Conference 12th*, 2010, p. 3030

22. Snyder, J., Barnes, C., Rinderle, J., Shiryayev, O., and Slater, J. C., "Experimental Near-Space Free Fall Testing Systems," *51st AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference 18th AIAA/ASME/AHS Adaptive Structures Conference 12th*, 2010, p. 2982

23. Beck, J. A., Brown, J. M., and Slater, J. C., "Stochastic Mistuning Simulation of Integrally Bladed Rotors Using Nominal and Non-Nominal Component Mode Synthesis Methods," *4th Propulsion Safety and Affordable Readiness Conference*, March 2009, pp. 24–26

24. Meier, M., Shiryayev, O. V., and Slater, J. C., "Investigation of Candidate Features For Crack Detection in Fan and Turbine Blades and Disks," *50th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics & Materials Conference*, No. AIAA 2009-2671, 2009

25. Shiryayev, O. V. and Slater, J. C., "Supplemental Investigations on Structural Damage Detection Using Randomdec Signatures from Experimental Data," *50th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference 17th AIAA/ASME/AHS Adaptive Structures Conference*, 2009, p. 2330

26. Anisetti, A., Shiryayev, O., and Slater, J., "Non-Linear Shunting of Piezo Actuators for Vibration Suppression," *49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, 16th AIAA/ASME/AHS Adaptive Structures Conference, 10th AIAA Non-Deterministic Approaches Conference, 9th AIAA Gossamer Spacecraft Forum, 4th AIAA Multidisciplinary Design Optimization Specialists Conference*, 2008, p. 2237

27. Shiryayev, O. and Slater, J., "Structural Damage Identification Using Random Decrement Signatures from Experimental Data," *49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, 16th AIAA/ASME/AHS Adaptive Structures Conference, 10th AIAA Non-Deterministic Approaches Conference, 9th AIAA Gossamer Spacecraft Forum, 4th AIAA Multidisciplinary Design Optimization Specialists Conference*, 2008, p. 2163

28. Slater, J. C., "Making Math and Science Exciting Through Engineering Sport: the Wright State University Trebuchet Competition," *ASEE-NCS Conference*, February 2008, pp. 13.861.1 – 13.861.13. Available from: https://peer.asee.org/4229

29. Kirby, B., Byers, C., Mascarella, S., Pestak, T., Bishop, J., Yelamarthi, K., Wolff, J., Slater, J. C., Mawasha, P. R., and Wu, Z., "Engineering Research in Space using a High Altitude Balloon: An Interdisciplinary Senior Design Project," *ASEE-NCS Conference*, March 2007

30. Nicholson, B., Page, S. M., Dong, H., and Slater, J. C., "Design of a Flapping Quad-Winged Micro Air Vehicle," *37th AIAA Fluid Dynamics Conference and Exhibit*, No. AIAA-2007-4337, AIAA, June 2007

31. Shiryayev, O. V. and Slater, J. C., "Improved Structural Damage Identification Using Random Decrement Signatures: Application to FEM Data," *48th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, April 2007

32. Mawasha, P. R., Yelamarthi, K., Wolff, J. M., Slater, J. C., and Wu, Z., "An Integrated Interdisciplinary Technology Project in Undergraduate Engineering Education," *Proceedings of 114th Annual ASEE Conference and Exposition*, 2007, pp. 24–27

33. Page, S. M., Shiryayev, O. V., Slater, J. C., and Pettit, C. L., "Experimentally Quantifying the Dynamic Response of Bolted Lap Joints," *47th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics & Materials Conference*, No. AIAA-2006-1657, 2006

34. Shiryayev, O. V. and Slater, J. C., "Effects of Proper Orthogonal Decomposition on Identification Using the Minimum Model Error Algorithm," *47th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics & Materials Conference*, No. AIAA-2006-2036, 2006

35. Shiryayev, O. V. and Slater, J. C., "Application of the Random Decrement Technique to Nonlinear Dynamic Systems," *47th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, No. AIAA 2006-1883, AIAA, 2006

36. El-Ashry, M., Slater, J. C., Seethraman, G., and Young, H. D., "3D Displays based on Deformable Polydimethylsiloxane (PDMS) Lenticulars," *Materials Science and Technology*, ASM/TMS, September 2005

37. Pettit, C., Shiryayev, O., Page, S. M., and Slater, J., "Parameter Identification and Investigation of a Bolted Joint Model," *46th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, No. AIAA-2005-2378, 2005

38. Cobb, R. G., Lindemuth, S. N., Slater, J. C., and Maddux, M. R., "Development and Test of a Rigidizable Inflatable Structure Experiment," *45th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics & Materials Conference*, No. AIAA 2004-1666, AIAA, April 2004

39. Page, S. M., Shiryayev, O. V., Pettit, C. L., and Slater, J. C., "Measurements and Modeling of Variability in the Dynamics of a Bolted Joint," *9th Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability*, 2004

40. Shiryayev, O. V. and Slater, J. C., "Panel Flutter Model Identification Using the Minimum Model Error Method. Part 2: Forced Response." *45th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference* Shiryayev, O. V. and Slater, J. C., "Panel Flutter Model Identification Using the Minimum Model Error Method. Part 1: Free Response." *45th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, April 2004

41. Shiryayev, O. V. and Slater, J. C., "Panel Flutter Model Identification Using the Minimum Model Error Method. Part 1: Free Response." *45th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, April 2004

42. Valevate, A., Slater, J. C., Cross, C. J., and George, T. J., "Semi-Active Vibration Control of Fan Blades," *9th National Turbine Engine High Cycle Fatigue Conference*, UTC, March 2004

43. Shiryayev, O. V. and Slater, J. C., "Control of Resonant Fatigue Tests in the Existence of Bifurcations," *8th National Turbine Engine High Cycle Fatigue (HCF) Conference*, April 2003

44. Shiryayev, O. V., Slater, J. C., Cross, C. J., and George, T. J., "Control of Resonant Fatigue Tests in the Existence of Bifurcations," *16th International Symposium on Air Breathing Engines*, No. ISABE-2003-1193, AIAA, Aug 2003, pp. 156–161

45. Brown, J. M., Slater, J. C., and Grandhi, R. V., "Probabilistic Analysis of Geometric Uncertainty Effects on Blade Modal Response," *ASME Turbo Expo 2003, collocated with the 2003 International Joint Power Generation Conference*, American Society of Mechanical Engineers, 2003, pp. 247–255

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52. Robertson, L., Leitner, J., Slater, J. C., and de Blonk, B., "Integrated Modeling and Control of the Ultralite System," *Aerospace Conference*, Vol. 2, IEEE, 1997, pp. 337–355

53. Slater, J. C., "An Optimization Based Technique for Determining Nonlinear Normal Modes," *1996 ASME International Congress and Exposition*, Vol. 93, 1996, pp. 399–407

54. Leo, D. J. and Slater, J. C., "Active/Passive Controller Synthesis Based on H Infinity Power Flow Techniques," *Smart Structures and Materials 1995: Mathematics and Control in Smart Structures*, Vol. 2442, International Society for Optics and Photonics, 1995, pp. 256–268

55. Thyagarajan, S. K., Schulz, M., and Slater, J. C., "Inverse Dynamic Design Technique for Flexible Structures," *First University/Industry Symposium On High Speed Civil Transport Vehicles*, Vol. 1, Dec 1994, pp. 408–413

56. Slater, J. C. and Inman, D. J., "Extensions of Modal Analysis to Nonlinear Systems," *Proceedings-SPIE the International Society for Optical Engineering*, SPIE International Society for Optical Engineering, 1994, pp. 1684–1684

57. Slater, J. C., Belvin, W., and Inman, D. J., "A Survey of Modern Methods for Modeling Frequency Dependent Damping in Finite Element Models," *Proceedings of the 11th International Modal Analysis Conference*, Vol. 1923, 1993, pp. 1508–1512

58. Slater, J. C. and Inman, D. J., "Forced Response of Nonlinear Systems for Modal Control," *Proceedings of the ASME-AMD Applied Mechanics Summer Meeting, Recent Developments in Stability, Vibration, and Control of Structural Systems*, edited by A. Guran, Vol. 167, June 1993

59. Slater, J. C., Belvin, W., and Inman, D. J., "A Comparison of Viscoelastic Damping Models," *Fifth NASA/DOD Controls-Structures Interaction Technology Conference*, NASA/DOD, Mar. 1992

60. Slater, J. C. and Inman, D. J., "Transfer Function Modeling of Damping Mechanisms in Distributed Parameter Models," *5th NASA Workshop on Distributed Parameter Modeling and Control of Flexible Space Structures*, edited by L. Taylor, Vol. 2, NASA, June 1992

61. Banks, H. T., Wang, Y., Inman, D. J., and Slater, J. C., "Variable Coefficient Distributed Parameters System Models for Structures With Piezoceramic Actuators and Sensors," *Decision and Control, 1992., Proceedings of the 31st IEEE Conference on*, IEEE, 1992, pp. 1803–1808

62. Banks, H. T., Wang, Y., Inman, D. J., and Slater, J. C., "Computational Methods for Identification in Structures With Piezoceramic Actuators and Sensors," *31st IEEE Conference on Decision and Control*, Vol. 2, IEEE, 1992, pp. 1803–1803. Available from: https://doi.org/10.1109/CDC.1992.371118

63. Slater, J. C., Inman, D. J., and Belvin, W., "Modeling of Constrained Layer Damping in Trusses," *Proceedings of Damping '91*, 1991, p. ECC

64. Slater, J. C. and Inman, D. J., "Transfer Function Modeling of Damping Mechanisms in Viscoelastic Plates," *32nd Structures, Structural Dynamics, and Materials Conference*, Vol. 3, Apr. 1991, pp. 2381–2383

Conference Presentations (without paper)

1. Henry, E., and Slater, J.C., "Flight Dynamics System Identification of a Free Falling Ballute," 38th AIAA Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH, USA, 2013.

2. Cooley, P., Slater, J.C., and Shiryayev, O.V., "Improving Spectral Signature Profiles for Fatigue Crack Identification in Beams," 38th AIAA Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH, USA, 2013.

3. Cooley, P., Slater, J.C., and Shiryayev, O.V., "Simulating Fatigue Cracks in Healthy Models for Improved Identification," 8th Annual Dayton Engineering Science Symposium, Dayton, OH, USA, 2012. Best Paper: Solid Mechanics

4. Beck, J. A., Brown, J. M, and Slater, J. C., "Probabilistic Mistuning Assessment using Frequency and Geometry Based Mistuning Methods, 6th Annual Propulsion - Safety and Affordable Readiness Conference, Jacksonville, FL, USA, 2011.

5. Sharra, B, and Slater, J.C., "Zero Tension Release Mechanism," 5th Annual Dayton Engineering Science Symposium, October 2009.

6. Snyder, J, Slater, J.C., and Shiryayev, O.V., "High Altitude Balloon Free Fall Capsule Test," 5th Annual Dayton Engineering Science Symposium, October 2009.

7. Beck, J. A., Brown, J. M, and Slater, J. C., "Stochastic Mistuning Simulation of Integrally Bladed Rotors Using Component Mode Synthesis Methods," 34th AIAA Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH, USA, 2009.

8. Shiryayev, O.V., and Slater, J.C., "Supplementary Investigations on Detection of Fatigue Cracks Using Randomdec Signatures from Experimental Data," 34th Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH, Feb. 2009.

9. Meier, M., Shiryayev, O.V., and Slater, J.C., "Investigation of Nonlinear Vibration Features for Crack Detection in Fan and Turbine Blades and Disks," 34th Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH, Feb. 2009, **Best Technical Presentation award**.

10. Shiryayev, O.V., and Slater, J.C., "Structural Health Monitoring Using Random Decrement Signatures: Experimental Results," 33rd Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH, Feb. 2008.

11. Allen, C., and Slater, J.C., "Global Optimization of an Aircraft Thermal Management Systems Using a Genetic Algorithm," 33rd Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH, Feb. 2008.

12. Nicholson, B., Page, S., Dong, H., and Slater, J.C., "Design of a Flapping Quad-Winged Micro Air Vehicle," 37th AIAA Fluid Dynamics Conference and Exhibit, No. AIAA-2007-4337, AIAA, June 2007.

13. Nicholson, B., Page, S, Dong, H., and Slater, J.C., "Wing Design And Testing For A

Flapping, Quad-Winged Micro Air Vehicle," 32nd Annual Dayton-Cincinnati Aerospace Science Symposium, March, 2007, **Best Presentation- Aircraft Concepts and Design**.

14. Shiryayev, O.V., and Slater, J.C., "Structural Health Monitoring Using Randomdec Signatures: Application To FEM Data," 32nd Annual Dayton-Cincinnati Aerospace Science Symposium, March, 2007.

15. Shiryayev, O.V. and Slater, J.C., "Improved Structural Health Monitoring Using the Randomdec Signatures," 2nd Annual Dayton Engineering Sciences Symposium, October 2006.

16. Shiryayev, O.V., Wolff, J.M., and Slater, J.C., "Power Extraction From Turbine Engines - Numerical Simulations," 2nd Annual Dayton Engineering Sciences Symposium, October 2006.

17. Esperanza, C., Page, S.M., and Slater, J.C., "Investigation of Vibrational Behavior Control Using Magneto-Rheological Fluids," 2nd Annual Dayton Engineering Sciences Symposium, October 2006.

18. Maddux, M., "Using In-Situ Error Tracking For Mode Selection in Proper Orthogonal Decomposition Reduced Order Modeling," 2nd Annual Dayton Engineering Sciences Symposium, October 2006.

19. Page, S.M., Shiryayev, O.V., and Slater, J.C., "Investigation into Bolted Joint Dynamics," 2nd Annual Dayton Engineering Sciences Symposium, October 2006.

20. Shiryayev, O.V., and Slater, J.C., "Improved Structural Health Monitoring Using the Randomdec Signatures," 2nd Annual Dayton Engineering Sciences Symposium, presentation DESS06-0012, October 31, 2006.

21. Anisetti, A., Page, S.M., and Slater, J.C., "Suppressing Structural Response using Piezoelectric Patches," 2nd Annual Dayton Engineering Sciences Symposium, presentation DESS06-0058, October 31, 2006.

22. Page, S.M., Shiryayev, O.V., and Slater, J.C., "Investigation into Bolted Joint Dynamics," 2nd Annual Dayton Engineering Sciences Symposium, presentation DESS06-0070, October 31, 2006.

23. Esperanza, C., Page, S.M., and Slater, J.C., "Investigation of Vibrational Behavior Control Using Magneto-Rheological Fluids," 2nd Annual Dayton Engineering Sciences Symposium, presentation DESS06-0071, October 31, 2006.

24. Maddux, M., and Slater, J.C., "Using In-Situ Error Tracking For Mode Selection in Proper Orthogonal Decomposition Reduced Order Modeling," 2nd Annual Dayton Engineering Sciences Symposium, presentation DESS06-0102, October 31, 2006.

25. Shiryayev, O.V., Wolff, J.M., and Slater, J.C., "Power Extraction From Turbine Engines - Numerical Simulations," 2nd Annual Dayton Engineering Sciences Symposium, presentation DESS06-0032, October 31, 2006.

26. Meyer, A., Schrinner, A., Taphorn, A., and Slater, J.C., "Forced Response Testing System," 25th Annual Dayton-Cincinnati Aerospace Science Symposium, March 30, 2000.

27. Yelamarthi, K., Mawasha, P.R., Wolff, J.M., Slater, J.C., and Wu, Z., "Wright State University High Altitude Balloon Project," The Great Midwestern Space Grant Region's Small Balloon Conference, September 2006.

28. Shiryayev, O.V., Wolff, J.M. and Slater, J.C., "Turbine Engine Modeling," 31st Dayton-Cincinnati Aerospace Sciences Symposium, March, 2006.

29. Shiryayev, O.V. and Slater, J.C., "Sensor Effects on Identification Using the Minimum Model Error Algorithm," 31st Dayton-Cincinnati Aerospace Sciences Symposium, March, 2006.

30. Corbett, M., Williams, J., Walters, E., Lamm, P., Wolff, J.M. and Slater, J.C., "Analysis and Testing of Low Pressure Turbine Power Extraction Systems," 31st Dayton-Cincinnati Aerospace Sciences Symposium, March, 2006.

31. Page, S.M., Shiryayev, O.V., Slater, J.C., and Pettit, "Response Variability of a Bolted Joint," 31st Dayton-Cincinnati Aerospace Sciences Symposium, March, 2006.

32. El-Ashry, M., Slater, J.C., Young, D., and Seetharaman, G., "3-D Displays Based on Deformable Polydimethylsiloxane (PDMS) Lenticulars," *Materials Science & Technology 2005 Conference and Exhibition*, ASM/ACerS/AWS/AIST/TMS, Sept. 25–28, Pittsburg, PA, 2005.

33. Shiryayev, O.V., and Page, S.M, and Slater, J.C. and Pettit, C.L., "Study of a Bolted Joint Model," 30th Dayton-Cincinnati Aerospace Sciences Symposium, February, 2005.

34. Page, S.M., Shiryayev, O.V., Slater, J.C., and Pettit, C., "Measurements and Modeling of Variability in the Dynamics of a Bolted Joint," *9th Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability*, ASCE, Albuquerque, NM, July 26–28, 2004.

35. Shiryayev, O.V. and Slater, J.C., "Investigation of the Appropriate Excitation for Identification of Nonlinear Distributed Parameter Systems Using the Minimum Model Error Method," 29th Dayton-Cincinnati Aerospace Sciences Symposium, March, 2004.

36. Valevate, A.V., Slater, J.C. and Menart, J.A., "Semi-Active Vibration Control of Fan Blades," 29th Dayton-Cincinnati Aerospace Sciences Symposium, March, 2004.

37. Shiryayev, O.V., Slater, J.C., George, T., and Cross, C.J., "Control of Resonant Fatigue Tests in the Existence of Bifurcations," ISABE August 31–September 5, 2003, Cleveland, OH.

38. Shiryayev, O.V., and Slater, J.C., and Cross, C.J., "Control of Resonant Fatigue Tests in the Existence of Bifurcations," AIAA/ICAS International Air and Space Symposium and Exposition: The Next 100 Years, Poster presentation. 14–17 July 2003, Dayton, OH.

39. Valevate, A., and Slater, J.C., "Semi-Active Vibration Control of Fan Blades," AIAA/ICAS

International Air and Space Symposium and Exposition: The Next 100 Years, Poster presentation. 14–17 July 2003, Dayton, OH.

40. Shiryayev, O.V., Slater, J.C., "Limit Cycle Oscillation Model Identification Using the Minimum Model Error Method," AIAA/ICAS International Air and Space Symposium and Exposition: The Next 100 Years, Poster presentation. 14–17 July 2003, Dayton, OH.

41. Shiryayev, O.V., Slater, J.C., and Cross, C.J., "Control of Resonant Fatigue Tests in the Existence of Bifurcations," High Cycle Fatigue Conference, 14–16 April 2003, Monterey CA.

42. Slater, J.C., Pettit, C. and Beran, P.S., "In-Situ Subspace Evaluation in Reduced Order Modeling," 42nd Structures, Structural Dynamics, and Materials Conference, Seattle, Washington, 2001.

43. Slater, J.C. and Sankarlal, S., "Blade Frequency Calculation For Tuned Aeroelastic Analysis," 25th Annual Dayton-Cincinnati Aerospace Science Symposium, March 30, 2000.

44. Gopinathan, A., Mortara, S., and Slater, J.C., "Limit Cycle Oscillation Model Identification Using the Minimum Model Error Method," 25th Annual Dayton-Cincinnati Aerospace Science Symposium, March 30, 2000.

45. Mortara, S., Slater, J.C., and Beran, P.S., "A Solution To The Nonlinear Flutter Problem Using Proper Orthogonal Decomposition," 25th Annual Dayton-Cincinnati Aerospace Science Symposium, March 30, 2000.

46. Wang, Y., and Slater, J.C., "Analysis of Piezoelectric Actuators Using a PDE Model," *1995 ASME Design Technical Conference*.

Other Miscellaneous Presentations given since 2000

1. Slater, J.C., "Wright State University High Altitude Balloon Team: Our Lab is at 100,000 ft.," AIAA Dayton-Cincinnati chapter *Lunch 'n' Learn*, March 22, 2013.

2. Slater, J.C., "Insect-Inspired Mechanism for Ornithopter Flight Control", AFRL/VA, 2010.

3. Slater, J.C., Shiryayev, O.V., and Page, S.M., "Structural Damping and Joints - Guessing is No Longer an Option," Dayton chapter of the Society of Tribology and Lubrication Engineers, Jan. 11, 2006.

4. Slater, J.C., "In-Situ Subspace Evaluation in Reduced Order Modeling," AFRL/VA, 2000.

Other Public Visibility

1. "Wright State University Explores New Methods For Damage Detection in Turbomachinery Components," Insight (ABAQUS Magazine), 2010, No. 1.

Professional Conference Presentations by my Students (without advisor attribution)

1. Maddux, M., "Using In-Situ Error Tracking For Mode Selection in Proper Orthogonal Decomposition Reduced Order Modeling," 2nd Annual Dayton Engineering Sciences Symposium, October 2006.
2. Corbett, M., Williams, J., and Holtkamp, J., "Design of a High Altitude Balloon Payload," 2nd Annual Dayton Engineering Sciences Symposium, October 2006.
3. Holtkamp, J.C., Williams, J.M., and Corbett, M., "Design of High Altitude Balloon," 31st Dayton-Cincinnati Aerospace Sciences Symposium, March, 2006.
4. Corbett, M., "High Altitude Balloon Flight Path Prediction," 31st Dayton-Cincinnati Aerospace Sciences Symposium, March, 2006.

Published Software - technical

1. Slater, J.C., "Engineering Vibration Toolbox for Matlab 7.x," 2006, for use with *Engineering Vibration*, Prentice Hall.
2. Slater, J.C., "Engineering Vibration Toolbox for Matlab 6.x," 2002, for use with *Engineering Vibration*, Prentice Hall.
3. Slater, J.C., "Engineering Vibration Toolbox, 2nd Edition," *Engineering Vibration*, Prentice Hall, New York, 1995.[1]
4. Slater, J.C., and Leitner, J.A., ctrb.m and obsv.m of the MATLAB *Controls Toolbox*, 1996.
5. Slater, J.C., and Leo, D.J., "Vibration Toolbox," *Engineering Vibration*, Prentice Hall, New York, 1993.

Funded Grants and Contracts

1. Slater, J.C., and Cooley, P.E., "Fatigue Crack Identification from Nonlinear Spectral Features in Bladed Disks," DAGSI, $27,000, 11/20/14 (continuation).
2. Sudkamp, T., Slater, J.C., and Miller, J., *Ohio Means Interns and Co-ops: Ohio Board of Regents*, $800G + industry cost share of $2.5M (TBD), 2014.
3. Slater, J.C., "OMIC - D'Angelo Technologies, LLC," $2,851, 7/13.[2]
4. Slater, J.C., "Turbine Engine Integrity Research," Universal Technology Corporation, $21,420, 1/13.
5. Sudkamp, T., Slater, J.C., and Miller, J., *Ohio Means Interns and Co-ops:Ohio Board of Regents*, $1,304,631 + industry cost share of $1.7M–$3.2M (TBD), responsible for over 90% of internship commitments, 1/13–12/13.

[1] Name was changed to resolve confusion with another toolbox with a similar name
[2] Tied to the Ohio Means Interns and Co-ops I program grant.

6. Slater, J.C., and Cooley, P.E., "Fatigue Crack Identification from Nonlinear Spectral Features in Bladed Disks," DAGSI, $69,480, 6/12–6/13.

7. Fendley, R.D., and Slater, J.C., "WSARC Defense Aerospace Graduate Studies Institute Project," State of Ohio, $4,000,000, 7/11–6/13.

8. Slater, J.C., and Gaerke, J.P., "Application of the Campbell Design Concept to Identification of Fatigue Cracks in Bladed Disk Assemblies," DAGSI, $57,853, 6/10–5/11.

9. Slater, J.C., and Shiryayev, O.V., "Sensitivity Studies of Nonlinear Response for Crack Detection in Fan and Turbine Disks," UTC/AFRL, $50,000, 8/09–5/10.

10. Shiryayev, O.V., and Slater, J.C., "Vibration Tests of ITCN BCIT Card Cage Assembly," ITCN Inc., $2,021, 5/09–12/09.

11. Mawasha, P.R., Slater, J.C., Wolff, J.M., and Wu, Z., "Enhancing Integrated Technology and Interdisciplinary Based Engineering Education Through the High Altitude Balloon (HAB) Experience," NSF CCLI, $147,568, 9/08–8/11.

12. Shiryayev, O.V., and Slater, J.C., "Investigation of Candidate Features for Crack Detection in Fan and Turbine Disks," UTC, $48,496, 8/08–11/08.

13. Meier, M., and Slater, J.C., "Crack Detection in Blades Using Random Decrement Signatures From Experimental Data," DAGSI, $56,720, 3/08–3/09.

14. Mawasha, P.R., Wolff, J.M., and Slater, J.C., "Student BalloonSat Program," Ohio Space Grant Consortium, $10,000, 4/06–4/07.

15. Slater, J.C., "Vibration Control of Turbo-Machinery Blade Vibration," UTC/AFRL, $40,000, 1/07–11/07.

16. Wolff, J.M., and Slater, J.C., "Engine Health Monitoring via Dynamics Engine Model Failure Diagnostics," PCKA/AFRL, $52,000, 7/13/06–7/12/07.

17. Slater, J.C., "Semi-Active Vibration Control of Fan Blades," UTC/AFRL, $25,000, 5/1/06–6/30/07.

18. Slater, J.C., "ISAT Government SEIT Structures Reference Designs and Analytical Models," SAIC/DARPA, $11,529, 9/13/04–6/30/06.

19. Slater, J.C., "Turbine Engine Modeling," PCKA, $8,500, 1/12/05–2/28/06.

20. Slater, J.C., Menart, J.A., "Semi-Active Vibration Control of Fan Blades," UTC, $25,000, 6/1/05–5/31/06.

21. Wolff, J.M., and Slater, J.C., "Power Extraction From a Gas Turbine Engine in Flight," PCKA, $65,717, 4/1/05–6/30/06.

22. Slater, J.C., "ISAT Government SEIT Structures Reference Designs and Analytical Models," SAIC, $12,957, 12/01/04–3/31/05.

23. Slater, J.C., "ISAT Government SEIT Structures Reference Designs and Analytical Models," SAIC, $944, 9/13/04–9/30/05.

24. Slater, J.C., "ISAT Government SEIT Structures Reference Designs and Analytical Models," SAIC, $18,289, 9/13/04–6/30/06.

25. Slater, J.C., "ISAT Government SEIT Structures Reference Designs and Analytical Models," SAIC, $13,958, 9/01/04–3/31/05.

26. Wolff, J.M. and Slater, J.C., "Power Extraction From a Gas Turbine Engine in Flight," PCKA, $70,000, 4/9/04–12/24/05.

27. Slater, J.C., and Wolff, J.M., "Parallel Reduced-Order, Modeling/In Situ Error Correction in CFD," NSF, $25,740, 6/1/03–5/31/04.

28. Slater, J.C., "Quantifying Uncertainty in Structural Response," Anteon (AFRL/VA/AFOSR), $156,825, 10/01/02–9/30/04.

29. Slater, J.C., "Validation and Enhancement to Wildcat - POD, AFRL/UTC," $12,870, 6/03–12/03.

30. Slater, J.C., "Semi-Active Control of Fan Blades, Phase 3," AFRL/UTC, $24,986, 1/04–12/04.

31. Slater, J.C., "Semi-Active Control of Fan Blades, Phase 2," AFRL/UTC, $15,876, 6/03–12/03.

32. Slater, J.C., "Semi-Active Control of Fan Blades," AFRL/UTC, $9,192, 3/03–6/03.

33. Slater, J.C., "Intergovernmental Personnel Agreement," AFIT, $23,980, 6/02.

34. Slater, J.C., "Intergovernmental Personnel Agreement," AFIT, $18,430, 9/02–12/02.

35. Slater, J.C., "P-POD: A Python-Based Generic Proper Orthogonal Decomposition Simulation Control Tool," UTC, $36,405, 5/02.

36. Slater, J.C., "Development of a Novel Method for Evaluating Material Behavior Under Turbine Engine Operating Conditions," DAGSI, $90,077, 7/1/00–6/30/02.

37. Slater, J.C., "Forced Response Enhancement to the Engine Structural Integrity Program Guidelines II," UTC, $12,753, 8/11/00–2/15/01.

38. Slater, J.C., "Forced Response Enhancement to the Engine Structural Integrity Program," Universal Technology Corp., $13,473, 8/99.

39. Slater, J.C., "Turbomachinery Dynamics Experimentation," Universal Technology Corp., $14,256, 6/1/99.

40. Slater, J.C., "Electromechanical Engraving Device," Ohio Electronic Engravers: extension, $5,980, 9/1/98.

41. Slater, J.C., "Field-of-View Research IPA," Naval Aeromedical Research Laboratory, $10,000, 6/1/98.

42. Slater, J.C., "Experimental Study of Wave Propagation," Universal Technology Corp., $5,000, 6/15/98.

43. Slater, J.C., "Electromechanical Engraving Device," Ohio Electronic Engravers, 3 months, $7,535, 4/14/98.

44. Slater, J.C., Srinivasan, R., and Weiss, I., "Spring Manufacturer's Institute," SMI, Inc, $10,080, 7 months, 1/13/98.

45. Slater, J.C., "Analysis of Stress Wave Propagation in Bladed Disk Assemblies," Universal Technology Corp., $26,372, 6/17/97.

46. Slater, J.C., "A Design Strategy for Preventing High Cycle Fatigue," RDL (AFOSR), $25,000, 10/25/95.

47. Lieh, J., and Slater, J.C., "Advanced 3D Camera Systems," Ohio Infrastructure Institute, $80,920, 6/1/94.

Students Advised (MS/PhD)

1. MacKenzie Tidball, "Identification of Nonlinear Constitutive Properties of Damping Coatings," 2018, MS.

2. Emily Henry, "Stochastic Modeling of Geometric Mistuning and Application to Fleet Response Prediction," 2014, MS.

3. Masoud Zarepoor, "Bulls-Eye Structure with a Sub-Wavelength Circular Aperture," 2013, MS.

4. Joseph Beck, "Fundamental Understanding of Blisk Analytical Response," 2013, Ph.D.

5. Joshua Mark, "Analytical and Experimental Vibration Analysis of Variable Update Rate Waveform Generation," 2011, MS.

6. Joseph Beck, "Stochastic Mistuning Simulation of Integrally Bladed Rotors using Nominal and Non-Nominal Component Mode Synthesis Methods," 2009, MS.

7. Anusha Anisetti, "Non-linear Shunting of Piezo-actuators for Vibration Suppression," 2008, MS.

8. Chris Allen, "Global Optimization of an Aircraft Thermal Management System through Use of a Genetic Algorithm," 2008, MS.

9. Oleg Shiryayev, "Improved Structural Health Monitoring Using Random Decrement Signatures," 2008, PhD.

10. Jason Hansel, "The Influence of Thickness on the Complex Modulus of Air Plasma Sprayed Ceramic Blend Coatings," 2008, MS.

11. Steve Page, "Investigation into the Behavior of Bolted Joints," 2006, MS.

12. Mike Maddux, "Using In-Situ Error Tracking For Mode Selection in Proper Orthogonal Decomposition Reduced Order Modeling," 2006, MS.

13. Brian Runyon, "The Influence Of Boundary Conditions And Aspect Ratio On Approximate Solutions For Constrained Layer Damping Treatments On Beams And Plates," 2004, MS.

14. Anil Valevate, "Semi-Active Vibration Control of a Beam Using Embedded Magneto-Rheological Fluids," 2004 MS.

15. Oleg Shiryayev, "Investigation Of The Appropriate Excitation For Identification Of Nonlinear Distributed Parameter Systems Using The Minimum Model Error Method," 2003, MS.

16. Mohamed Qureshi, "Robust Semi-Active Control of a Dry Friction Damper for a Cantilever Beam," 2001, MS.

17. Anil Gopinathan, "Robust Nonlinear System Identification Using Correlation Techniques," 1999, MS.

18. Andrew Blair, "A Design Strategy for Preventing High Cycle Fatigue by Minimizing Sensitivity of Bladed Disks to Mistuning," 1997, MS.

19. Ramesh Balagangadhar (Kurup), "On the Convergence of Nonlinear Modes Using the Finite Element Method," 1997, MS.

Consulting

1. Expert witness, Martin, McCarty, Wright & Roach, 2009.

2. Research Scientist, Paul C. Krause and Associates, 2005–2009.

3. Expert Witness, Wheelchair Tip Over Dynamics, Schuck Law Offices, 1999.

4. Deployment and Reorientation Modeling of the Innovative Space Antenna Technology program, SAIC, 2003.

Service and Academic Outreach

Associate Editor:

1. *Shock and Vibration* Journal, 2004–2011.

2. *International Journal of Modeling and Simulation*, 2004–2008.

Professional Society Committees

1. AIAA Structural Dynamics Technical Committee, 2004–present.
   Major contributions:
   (a) AIAA SciTech Aerospace Design & Structures Technical Chair, 2019.
   (b) AIAA SciTech Aerospace Design & Structures Deputy Technical Chair, 2018.

(c) Dynamic Specialists Conference Technical Discipline Chair (formerly called General Chair), 2016 SciTech

(d) Dynamic Specialists Conference Technical Chair (**split handling 187 abstracts**, reviews, and organized sessions), 2013 (SDM 54)

(e) Representative to SDM Program committee (**split handling 195 abstracts**, reviews, and organized sessions), 2011 (SDM 52)

(f) Hosted 2005 Fall Committee Meeting

(g) Chair: website committee, 2004–2010

(h) Member: Outreach committee– Converted award-winning outreach DVD for release Spring 2006 (1.0) and Spring 2007 (1.1) to web

(i) Chaired sessions (see below)

2. AIAA Dayton-Cincinnati Aerospace Sciences Symposium organizing committee, 2008, 2009, 2010.

   (a) Publication chair, 2008.

   (b) Publication co-chair, 2009, 2010.

3. AIAA Conference Software Advisory Committee, 2011–2012.

4. Member AIAA Gossamer Spacecraft Program Committee (2002–present)
   Major contributions:

   (a) Website editor

   (b) Chaired sessions (see below)

5. Montgomery County Regional STEM Center STEM Fellow.
   Developed K12 STEM lesson plans tied to local research and industry needs and meeting Ohio Department of Education guidelines, 2008–2010.

Review Panels

- Proposal review
  1. NASA Large Aperture Research Program, panel **chair**, 2003.
  2. NSF Dynamic Systems & Controls, panel member, 2004.
  3. NASA New Millennium ST-9 Program, panel member, 2005.
- Program review
  1. Western Michigan University: STEP Advisory Board, 2012–present.

Reviewer:

1. Journals

(a) AIAA Journal

(b) Shock and Vibration

(c) AIAA Journal of Guidance, Control and Dynamics

(d) ASME Journal of Vibration and Acoustics

(e) International Journal of Modeling and Simulation

(f) Journal of Engineering for Gas Turbines and Power

(g) Journal of Intelligent Material Systems and Structures

(h) Journal of Nonlinear Mechanics

(i) AIAA Journal of Propulsion and Power

(j) Journal of Vibration and Control

(k) Mathematical and Computer Modeling

(l) Mechanical Systems and Signal Processing

(m) Nonlinear Dynamics

2. Books

(a) Prentice Hall: Engineering Dynamics, 1st Edition, Tongue.

(b) Prentice Hall: Engineering Mechanics: Statics, 1st Edition, Soutas-Little and Inman

(c) Prentice Hall: Engineering Vibration, 2nd edition: Statics, Soutas-Little and Inman

(d) Burkhauser: First Steps in LaTeX, George Gratzer

(e) McGraw Hill: Engineering Dynamics: Gray, Costanza and Plesha 1st draft

(f) McGraw Hill: Engineering Statics: Gray, Costanza and Plesha 2nd draft

(g) McGraw Hill: Engineering Dynamics: Gray, Costanza and Plesha 2nd draft

3. Conferences

(a) International Gas Turbine Institute

(b) AIAA SDM Conference, 40th, 41st, 42nd, 43rd, 45th, 46th, 47th, 48th, 50th

(c) AIAA Gossamer Spacecraft Forum, 4th, 5th, 6th

(d) AIAA Gossamer Spacecraft Forum Best Paper committee, 4th

Conference sessions chaired:

1. AIAA SDM-21 at 41st SDM Conference, 2000

2. AIAA SDM at 43rd SDM Conference, 2002
3. AIAA SDM at 44th SDM Conference, 2003
4. AIAA SDM at 45th SDM Conference, 2004
5. AIAA SDM-59 at 45th SDM Conference, 2004
6. AIAA GSF-6 at SDM Conference 4th Gossamer Spacecraft Forum, 2004
7. AIAA SDM-42 at 46th SDM Conference, 2005
8. AIAA SDM-59 at 46th SDM Conference, 2005
9. AIAA GSF-3 at 46th SDM Conference 6th Gossamer Spacecraft Forum, 2005
10. AIAA SDM-26 at 47th SDM Conference, 2006
11. AIAA GSF-8 at 47th SDM Conference 7th Gossamer Spacecraft Forum, 2006
12. AIAA SDM-9 at 48th SDM Conference, 2007
13. AIAA GSF-4 at 48th SDM Conference 8th Gossamer Spacecraft Forum, 2007
14. AIAA SDM-75 at 49th SDM Conference, 2008
15. AIAA SDM-34 at 50th SDM Conference, 2009
16. AIAA SDM-72 at 50th SDM Conference, 2009
17. MFPT 2009 Session 4A- Health Management for Maintenance and Decision Support, 2009

On-Line Publications

1. LaTeXon Mac Wiki. 2002–2013
   The principle resource for TeX users on the Macintosh.
2. Slater, J.C., Getting Started With TeX on MacOS X, Oct. 2003–present.

Committee service:

Department

1. Department Faculty Search Committees, 1994–1996, 1997–2002, 2007–2008, 2011–2013
2. Department Curriculum Committee, 1994–1996, 2003–2011 (chair 2006/2007–2011)
   (a) Introduced program change to eliminate "soft" elective courses that were being misused by students
   (b) Reviewed and approved Materials Minor program
   (c) Participated in incorporation of design throughout the program as prescribed by ABET

(d) Oversaw largest overhaul of Mechanic and Materials Engineering programs in 14 years.

(e) Undergraduate semester transition committee, chair 2009–present

(f) Department internal advisory board, 2009–2010

3. Assistant to the Chair position search committee, chair, 2006 (2 times)

4. Student Recruitment position search committee, chair, 2006

5. Department Graduate Admissions Committee, 1997–2002

6. Honors and Awards Committee, 1997–1998

College

1. College Library Committee, 1994–98 (Chair, 1996/97)

   (a) Initiated library copying service concept.

   (b) Developed web page for searching local resources focusing on the needs of CECS that streamlines the search process

2. College Curriculum Committee, 1996–1999, 2010 (Scribe 1996/7, Chair 1997–1999, 2010)

   (a) Invited speakers from Math dept. to speak about courses they teach that are taken by our students (Calc. and DEs).

   (b) Continued cooperation with Math dept. by initiating dept. by dept. evaluation of skills students need to acquire in Math courses.

   (c) Oversaw two minors through the committee.

   (d) Oversaw bulk of semester transition business

3. College PhD Program Coordinating Committee, 1996–2004

4. College PhD Program Student Affairs Committee, 2004–present

   (a) Assisted in the formulation of the Robotics and Controls Area program requirements.

5. College Teaching Committee, 1997–1999 (Scribe 1997/98)

6. College Steering Committee, 1999–2001, 2003–2009, Chair 2004–2005, 2005–2006, 2008–2009.

   (a) Developed college bylaws

   (b) Developed college awards procedures

University

1. NTE faculty Bargaining Agreement Negotiation Committee (Administration)
2. University Undergraduate Curriculum and Policies Committee, 1996–1999, 2010–2011
3. University Legal Subcommittee of Campus-Wide Information System Advisory Committee, 1996–97
4. Graduate Council, 1996–1999
5. Faculty Senate, 1999–2001, *Engineering and Computer Science College Graduation Marshall, Fall 1999*
6. University Ad Hoc Committee for Undergraduate Academic Program Review, 2005–2006
7. University Ad Hoc General Education Semester Transition Committee, 2009

Advising

- Advisor of Society of Women Engineers, WSU student chapter, 2000–2009, 2010–2011.

Open Source Software

1. MacGzip package, MATLAB code for gzipping and un-gzipping files.
2. LaTeX style, bibliography, and example files for Society of Experimental Mechanics International Modal Analysis Conference. Adopted as standard format for conference papers for IMAC XVII conference.
3. No-Name file converters: a package of Perl scripts for converting end of line characters between Mac, Unix, and DOS formats.
4. poly2tex.m and matrix2tex.m: These Octave/Matlab functions take polynomials/matrices and convert them into strings that you can paste into your LaTeX document as ready-formatted equations.
5. Trebuchet Designer: A graphical user interface code written in MATLAB for simulating the motion and predicting the projectile trajectory of a trebuchet. The code was written for use in the ME dept. course "Introduction to Engineering Design."
6. Engineering Vibration Toolbox: A selection of 43 MATLAB and Octave codes for use in education of vibration phenomenon. Originally sponsored by the author of the corresponding text, it is now maintained pro-bono.
7. Vibration Toolbox: Educational module for illustrating vibration analysis and phenomenon. (Try on mybinder)
8. Mousai: Harmonic Balance solvers and relevant tools to dynamic analysis to nonlinear dynamic systems.

9. Array_to_LaTeX: Converts a NumPy/SciPy array or Pandas Numerical DataFrame to a LaTeX array or table using Python 3.x style (or alternatively) formatting of the result. (Try on mybinder)

10. VibrationTesting: A package for signal processing, modal analysis, and model reduction and model updating.

11. Vitae: A Python module for building curriculum vitae and other documents from a BibTeX file.