

Weihua Su, Ph.D.

Associate Professor

*Department of Aerospace Engineering and Mechanics
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RESEARCH INTERESTS

- Nonlinear aeroelasticity and control synthesis of flexible aircraft
- Active aeroelastic tailoring, vibration control, and shaping control for flexible UAVs
- Mission-adaptive and morphing aircraft shaping optimization
- Multifunctional structures and sensing technologies
- Urban air mobility and autonomous vehicles
- Attitude monitoring and control of flexible launch vehicles and space structures

EDUCATION

- 2008 Ph.D., Aerospace Engineering
The University of Michigan, Ann Arbor, MI
- 2002 M.S., Aerospace Engineering
Beijing University of Aeronautics and Astronautics, Beijing, China
- 2000 B.S., Aerospace Engineering
Beijing University of Aeronautics and Astronautics, Beijing, China

PROFESSIONAL EXPERIENCE

- 08/2018–present Associate Professor, Department of Aerospace Engineering and Mechanics
The University of Alabama, Tuscaloosa, AL
- 08/2012–08/2018 Assistant Professor, Department of Aerospace Engineering and Mechanics
The University of Alabama, Tuscaloosa, AL
- 05/2015–07/2015 Air Force Summer Faculty Fellow, Aerospace Systems Directorate
Air Force Research Laboratory, Wright-Patterson AFB, OH
- 08/2014–09/2014 NASA Summer Faculty
NASA Ames Research Center, Moffett Field, CA
- 05/2014–08/2014 Air Force Summer Faculty Fellow, Aerospace Systems Directorate
Air Force Research Laboratory, Wright-Patterson AFB, OH
- 09/2008–07/2012 Research Fellow, Department of Aerospace Engineering
The University of Michigan, Ann Arbor, MI
- 01/2008–08/2008 Graduate Research Assistant, Department of Aerospace Engineering
The University of Michigan, Ann Arbor, MI

- 01/2007–12/2007 Structural Analysis Engineer
Tenneco Inc., Grass Lake, MI
- 09/2002–12/2006 Graduate Research Assistant, Department of Aerospace Engineering
The University of Michigan, Ann Arbor, MI
- 09/2000–07/2002 Graduate Research Assistant, School of Jet Propulsion
Beijing University of Aeronautics and Astronautics, Beijing, China

HONORS AND AWARDS

- **NASA Group Achievement Award (2018)**
National Aeronautics and Space Administration
- **Outstanding External Research Funding (2017)**
Department of Aerospace Engineering and Mechanics
The University of Alabama, Tuscaloosa, AL
- **Air Force Summer Faculty Fellowship (2014, 2015)**
- **NASA Ames Research Center Summer Faculty Fellowship (2014)**
- **ASME/Boeing Structures and Materials Award (2011)**
Awarded to the outstanding paper presented at the 51st AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference (SDM 2010) based on the originality and significance to the field, selected from among over 500 papers.
- **Mr. and Mrs. Milo E. Oliphant Fellowship (2006)**
The University of Michigan, Ann Arbor, MI
- **“Xifei” Scholarship (2001)**
Beijing University of Aeronautics and Astronautics, Beijing, China
- **“Renmin” Scholarship (1998, 1999)**
Beijing University of Aeronautics and Astronautics, Beijing, China
- **Kwang-Hua Scholarship (1998)**
Beijing University of Aeronautics and Astronautics, Beijing, China
The scholarship is sponsored by the Kwang-Hua Education Foundation, Taiwan.

TEACHING ACTIVITIES

University of Alabama:

- **AEM 264–Dynamics:** Service course for the College of Engineering (Fall 2013, Fall 2018)
- **AEM 341–Aerospace Structures:** Core undergraduate subject for juniors (Fall 2015, Fall 2016, Fall 2017)
- **AEM 368–Flight Dynamics and Control - I (Flight Mechanics):** Core undergraduate subject for juniors (Spring 2013, Spring 2014, Spring 2015, Spring 2016, Spring 2018, Spring 2020), with revised curriculum and syllabus since Spring 2018
- **AEM 491–Special Problems: Performance & Control of Flight Vehicles** (Summer 2015)
- **AEM/ME 562–Intermediate Dynamics:** Core graduate course (Fall 2012, Fall 2014, Fall 2019)
- **AEM 574/474–Structural Dynamics:** Graduate course and elective course for seniors (Fall 2016, Fall

2018)

- **AEM 575/475–Fundamentals of Aeroelasticity:** Newly developed elective course for both seniors and graduate students (Fall 2014, Spring 2017, Spring 2019)
- **AEM 614–Airfoil and Wing Theory:** Advanced graduate course (Fall 2019)
- **AEM 635–Finite Element Method:** Advanced graduate course (Fall 2015)
- Contributed lectures to other courses:
 - **AEM 591/491–Special Problems: MAV** (Spring 2014)

CAMPUS ACTIVITIES AND SERVICES

University of Alabama:

- Department of Aerospace Engineering and Mechanics
 - Chair, Student Awards Committee (Spring 2013)
 - Member/Chair, Ph.D. Qualification Exam Committee (Area of Dynamics) (2013–present)
 - Member, Perspective Student Recruiting Committee (2014–2018)
 - Chair, Undergraduate Curriculum Committee for Aeronautics (Fall 2016)
 - Member, Strategic Planning Committee (Spring 2017)
 - Chair, Faculty Search Committee (2017–2018)
 - Member, Faculty Search Committee (2018–2019)
 - Faculty Adviser, Univ. of Alabama’s AIAA Student Branch (2018–present)
 - Member, Retention, Tenure, and Promotion (RTP) Committee (2018–present)
 - Member, Aerospace Structures Committee (Spring 2019)
 - Member, Flight Dynamic and Control Committee (Spring 2019)
 - Member, Undergraduate Program Committee (Fall 2019–present)
 - Service Course Coordinator for AEM 264 Dynamics (Fall 2019–present)

Member of Ph.D. Committees:

- Zheng Zhang (Ph.D., 2014), Aerospace Engineering and Mechanics, UA. Chair: J. P. Hubner.
- Saeid Hayati (Ph.D., 2017), Civil Engineering, UA. Chair: W. Song.
- Tania Hazra (Ph.D., 2018), Mathematics, UA. Chair: S. Zhao.
- Omar Hussien (Ph.D., 2018), Aerospace Engineering and Mechanics, UA. Chair: S. B. Mulani.
- Christian Hoover (Ph.D., 2018), Aerospace Engineering and Mechanics, UA. Chair: J. Shen.
- Anahita Zargarani (Advanced to Ph.D. Candidacy, 2019), Mechanical Engineering, UA. Chair: S. N. Mahmoodi.

Member of M.S. Committee(s):

- Preston Powell (M.S., 2016), Aerospace Engineering and Mechanics, UA. Chair: J. Shen.

PROFESSIONAL ACTIVITIES, SERVICES, AND BOARD MEMBERSHIPS

Membership of Professional Societies:

Senior Member, American Institute of Aeronautics and Astronautics (AIAA)
Member, American Society of Mechanical Engineers (ASME)

Member, Vertical Flight Society, formerly American Helicopter Society (AHS)
Member, SPIE, the International Society for Optics and Photonics
Full Member, Sigma Xi, The Scientific Research Society
Member, American Society for Engineering Education (ASEE)
Member, European Mechanics Society (EUROMECH)

Membership of Technical Committees:

- Member, AIAA Structural Dynamics Technical Committee (2014–present)
 - Member, Liaison Subcommittee
 - Member, Conference Subcommittee
- Member, ASME Aerospace Division Structures and Materials Technical Committee (2014–present)
 - Secretary (2016–2018)
 - Vice-Chair (2018–present)

Conference Organization:

- International Forum on Aeroelasticity and Structural Dynamics
 - Session Chair (2009)
- ASME International Mechanical Engineering Congress & Exposition (IMECE)
 - Session Organizer/Chair (2013–2018)
 - Topic Organizer/Chair of “Aeromechanics and Aeroelasticity” (2014, 2015)
 - Topic Co-organizer/Co-chair of “Dynamics and Control of Aerospace Structures” (2016)
 - Track Co-organizer/Co-chair of “Advances in Aerospace Technology” (2017)
 - Track Organizer/Chair of “Advances in Aerospace Technology” (2018, 2019)
 - Technical Representative of ASME Aerospace Division Structures and Materials Technical Committee (2015, 2016)
 - Judge for International Undergraduate Research and Design Poster Competition (2017)
- AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference (at AIAA Science and Technology Forum and Exposition)
 - Session Chair (2015–2020)
 - Deputy Chair, Technical Discipline of Structural Dynamics (2018)
 - Chair, Technical Discipline of Structural Dynamics (2019)
- Session Chair, ASC 33rd Annual Technical Conference (2018)
- Host, AIAA Region II Student Conference (2020)

Reviewer of Journal Manuscripts:

Aerospace Science and Technology, AIAA Journal, Aircraft Engineering and Aerospace Technology, Chinese Journal of Aeronautics, Engineering Structures, IET Control Theory & Applications, International Journal of Non-Linear Mechanics, ASCE Journal of Aerospace Engineering, Journal of Aircraft, Journal of Fluids and Structures, Journal of Nonlinear Dynamics, Journal of Renewable and Sustainable Energy, Journal of the American Helicopter Society, Nonlinear Dynamics, Probabilistic Engineering Mechanics, Progress in Aerospace Sciences, Sensors, Proc. of the Inst. of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science, Proc. of the Inst. of Mechanical Engineers, Part G: Journal of Aerospace Engineering

Reviewer of Conference Papers and Abstracts:

ASME International Mechanical Engineering Congress & Exposition (2013–2019)
AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference (2014–2020)

Reviewer of Research Proposals:

NASA EPSCoR Program in State of Missouri (2014)
Israeli Ministry of Science, Technology and Space (2015)

Reviewer for Book Publishers:

John Wiley & Sons, Inc. (2012)
Springer (2012)
Elsevier (2019)

CONSULTING ACTIVITIES

- CFD Research Corporation, Huntsville, Alabama (01/2015–04/2015)

RESEARCH GRANTS

Summary: A total of \$0.97M (as PI) has been attracted to University of Alabama. Sponsors include NASA Aeronautics Research Mission Directorate (ARMD), NASA Ames Research Center, NASA Kennedy Space Center, and industries, such as a.i. solutions, Inc., CFD Research Corporation, and DENSO International America, Inc.

INVENTIONS, PATENTS, AND MAJOR NEW PRODUCTS

1. Wolf, M.G., Griffin, E.D., Gutierrez, H., Suhey, J.D., Su, W., and Stanley, J.E., “Flexible Body Control Using Fiber Optic Sensors (FlexFOS),” NASA Report 1426097577, NASA Technology Transfer System.
2. “Nonlinear Aeroelastic Simulation Toolbox,” Software developed for coupled nonlinear aeroelastic, flight dynamic, and control analysis of highly flexible aircraft. Dr. Su is one of the major inventors. The software has been purchased by Aurora Flight Sciences, etc.
3. “Sensor System for Indirect Sensing of Deformation of Flexible Structures,” U.S. Patent No. 10,488,183, Granted on Nov. 29, 2019.

STUDENT SUPERVISION

Ph.D. Students:

1. Natsuki Tsushima (08/2017), Ph.D. Aerospace Engineering and Mechanics, Univ. of Alabama. Currently employed by Japan Aerospace Exploration Agency (JAXA).
2. Yanxin Huang (01/2016–present), Advanced to Ph.D. Candidacy in 08/2019, Aerospace Engineering and Mechanics, Univ. of Alabama.

3. Vincent Hill (08/2018–present), Aerospace Engineering and Mechanics, Univ. of Alabama.
4. Jessica Nunes (08/2019–present), Aerospace Engineering and Mechanics, Univ. of Alabama.
5. James Senter (01/2020–present), Aerospace Engineering and Mechanics, Univ. of Alabama.

M.S. Students (Thesis):

1. Nathan Butler (12/2015), M.S. Aerospace Engineering and Mechanics, Univ. of Alabama.
Currently employed by NASA Marshall Space Flight Center.
2. Jared Hammerton (05/2018), M.S. Aerospace Engineering and Mechanics, Univ. of Alabama.
Partially supported by the Alabama Space Grant Consortium Fellowship.
Currently employed by Applied Research Associates (ARA), Niceville, FL.
3. Peter Chiego (08/2019), M.S. Aerospace Engineering and Mechanics, Univ. of Alabama.
Currently employed by The Aerospace Corporation.
4. Adam Benabbou (08/2019–present), Aerospace Engineering and Mechanics, Univ. of Alabama.

M.S. Students (Non-Thesis):

1. Natsuki Tsushima (08/2015), M.S. Aerospace Engineering and Mechanics, Univ. of Alabama.
Continued to finish Ph.D. at Univ. of Alabama.
2. Cecilia King (08/2016), M.S. Aerospace Engineering and Mechanics, Univ. of Alabama.
Currently employed by NASA Marshall Space Flight Center.
3. Wade McDowell (05/2017), M.S. Aerospace Engineering and Mechanics, Univ. of Alabama.
Currently employed by SURVICE Engineering Company, FL.
4. Houston Spencer (08/2018), M.S. Aerospace Engineering and Mechanics, Univ. of Alabama.
Currently employed by GE Aviation.

Undergraduate Students:

1. Robert Ramsey (01/2013–04/2013), Emerging Scholars Program, Univ. of Alabama.
2. Robert See (05/2013–12/2014), B.S. Aerospace Engineering, Univ. of Alabama.
3. Cecilia King (08/2013–05/2015), B.S. Aerospace Engineering, Univ. of Alabama.
4. Jackson Morris (09/2014–05/2016), B.S. Aerospace Engineering, Univ. of Alabama.
5. Jared Hammerton (09/2014–05/2016), B.S. Aerospace Engineering, Univ. of Alabama.
6. Houston Spencer (10/2015–05/2016), B.S. Aerospace Engineering, Univ. of Alabama.
7. Emerson Curtis (01/2016–05/2016), B.S. Aerospace Engineering, Univ. of Alabama.
8. Morgan Cleary (01/2016–12/2016), B.S. Aerospace Engineering, Univ. of Alabama.
9. Anne Bless (01/2016–12/2016), B.S. Aerospace Engineering, Univ. of Alabama.
10. Peter Chiego (08/2016–12/2016), B.S. Aerospace Engineering, Univ. of Alabama.
11. Vincent Hill (09/2017–05/2018), B.S. Mechanical Engineering, Univ. of Alabama.

OTHER RESEARCHERS SUPPORTED

Visiting Scholar(s):

1. Xiaochen Hang (09/2016–03/2018), Ph.D. student of Southeast University, China.

INVITED SEMINARS

1. Mar., 2013 — “Reduced-Order Modeling of Nonlinear Aeroelasticity for Very Flexible UAVs,” University of Alabama Aerospace Engineering Industrial Advisory Board Meeting (2013 Spring), Huntsville, AL.
2. Apr., 2013 — “Reduced-Order Modeling for Nonlinear Aeroelasticity of Very Flexible UAVs with High-Aspect-Ratio Wings,” National Wind Technology Center, National Renewable Energy Laboratory, Louisville, CO.
3. Jul., 2013 — “A Strain-Based Approach for Geometrically Nonlinear Aeroelasticity,” School of Aeronautic Science and Engineering, Beijing University of Aeronautics and Astronautics, Beijing, China.
4. Jul., 2013 — “A Strain-Based Approach for Geometrically Nonlinear Aeroelasticity,” Beijing Aeronautical Science & Technology Research Institute, Commercial Aircraft of China, Ltd., Beijing, China.
5. Oct., 2013 — “Active Aero-Servo-Elastic Research for Future Unmanned Aerial Vehicles,” AIAA Student Chapter Seminar, The University of Alabama, Tuscaloosa, AL.
6. Aug., 2014 — “Application of Artificial Hair Sensors in Flight Dynamics of Highly Flexible Unmanned Aerial Vehicles,” Air Force Research Laboratory, Aerospace Systems Directorate, Wright-Patterson AFB, OH.
7. Aug., 2014 — “Coupled Nonlinear Aeroelasticity and Flight Dynamics of Highly Flexible Aircraft,” Applied Modeling & Simulation Seminar Series, NASA Ames Research Center, Moffett Field, CA.
8. May, 2015 — “Applications of Artificial Hair Sensors in Flight Dynamics and Control of UAVs,” Air Force Research Laboratory, Munitions Directorate, Eglin AFB, FL.
9. Jul., 2015 — “Applications of Artificial Hair Sensors in Flight and Control of UAVs,” Air Force Research Laboratory, Aerospace Systems Directorate, Wright-Patterson AFB, OH.
10. Feb., 2016 — “Low-Order Computational Modeling for Nonlinear Aeroelasticity of Highly Flexible Aircraft,” Applied Math Seminar, Department of Mathematics, The University of Alabama, Tuscaloosa, AL.
11. Nov., 2017 — “Nonlinear Aeroelasticity of Highly Flexible Aircraft – From Traditional UAVs to Novel Mission-Adaptive Aircraft,” Department of Mechanical Engineering, Michigan State University, East Lansing, MI.
12. Apr., 2018 — “Interdisciplinary Aeronautics Solutions: from UAVs to Future Mission-Adaptive Air Vehicles,” Department of Mechanical and Aerospace Engineering, Rutgers, The State University of New Jersey, Piscataway, NJ.
13. Nov., 2018 — “Interdisciplinary Aeronautics Studies: from UAVs to Future Mission-Adaptive Air Vehicles,” Department of Aerospace Engineering, The University of Michigan, Ann Arbor, MI.

PUBLICATIONS

Names of Dr. Su's advisees are underlined. Names in boldface type denote corresponding authors.

Refereed Journal Articles:

1. Su, W., and Cesnik, C. E. S., "Nonlinear Aeroelasticity of a Very Flexible Blended-Wing-Body Aircraft," *Journal of Aircraft*, Vol. 47, No. 5, 2010, pp. 1539–1553. (doi: 10.2514/1.47317)
2. Su, W., and Cesnik, C. E. S., "Dynamic Response of Highly Flexible Flying Wings," *AIAA Journal*, Vol. 49, No. 2, 2011, pp. 324–339. (doi: 10.2514/1.J050496)
3. **Su, W.**, and Cesnik, C. E. S., "Strain-Based Geometrically Nonlinear Beam Formulation for Modeling Very Flexible Aircraft," *International Journal of Solids and Structures*, Vol. 48, No. 16–17, 2011, pp. 2349–2360. (doi: 10.1016/j.ijsolstr.2011.04.012)
4. Cesnik, C. E. S., Senatore, P. J., Su, W., Atkins, E. M., and Shearer, C. M., "X-HALE: A Very Flexible Unmanned Aerial Vehicle for Nonlinear Aeroelastic Tests," *AIAA Journal*, Vol. 50, No. 12, 2012, pp. 2820–2833. (doi: 10.2514/1.J051392)
5. **Su, W.**, and Cesnik, C. E. S., "Strain-Based Analysis for Geometrically Nonlinear Beams: A Modal Approach," *Journal of Aircraft*, Vol. 51, No. 3, 2014, pp. 890–903. (doi: 10.2514/1.C032477)
6. Phillips, D. M., Ray, C. W., Hagen, B. J., Su, W., Baur, J. W., and Reich, G. W., "Detection of Flow Separation and Stagnation Points Using Artificial Hair Sensors," *Smart Materials and Structures*, Vol. 24, No. 11, 2015, Art. 115026 (10 pp). (doi: 10.1088/0964-1726/24/11/115026)
7. Tsushima, N., and **Su, W.**, "Modeling of Highly Flexible Multifunctional Wings for Energy Harvesting," *Journal of Aircraft*, Vol. 53, No. 4, 2016, pp. 1033–1044. (doi: 10.2514/1.C033496)
8. **Su, W.**, Swei, S. S.-M., and Zhu, G., "Optimum Wing Shape of Highly Flexible Morphing Aircraft for Improved Flight Performance," *Journal of Aircraft*, Vol. 53, No. 5, 2016, pp. 1305–1316. (doi: 10.2514/1.C033490)
9. Tsushima, N., and **Su, W.**, "Concurrent Active Piezoelectric Control and Energy Harvesting of Highly Flexible Multifunctional Wings," *Journal of Aircraft*, Vol. 54, No. 2, 2017, pp. 724–736. (doi: 10.2514/1.C033846)
10. **Su, W.**, King, C. K., Clark, S. R., Griffin, E. D., Suhey, J. D., and Wolf, M. G., "Dynamic Beam Solutions for Real-Time Simulation and Control Development of Flexible Rockets," *Journal of Spacecraft and Rockets*, Vol. 54, No. 2, 2017, pp. 403–416. (doi: 10.2514/1.A33543)
11. **Su, W.**, and Reich, G. W., "Geometric Scaling of Artificial Hair Sensors for Flow Measurement under Different Conditions," *Smart Materials and Structures*, Vol. 26, No. 3, 2017, Art. 037002 (9 pp). (doi: 10.1088/1361-665X/aa5a35)
12. **Su, W.**, "Development of an Aeroelastic Formulation for Deformable Airfoils Using Orthogonal Polynomials," *AIAA Journal*, Vol. 55, No. 8, 2017, pp. 2793–2807. (doi: 10.2514/1.J055665)
13. Tsushima, N., and **Su, W.**, "Flutter Suppression for Highly Flexible Wings Using Passive and Active Piezoelectric Effects," *Aerospace Science and Technology*, Vol. 65, 2017, pp. 78–89.

(doi: 10.1016/j.ast.2017.02.013)

14. Al-Jiboory, A. K., Zhu, G., Swei, S. S.-M., Su, W., and Nguyen, N. T., “LPV Modeling of a Flexible Wing Aircraft Using Adaptive Model Gridding and Alignment Methods,” *Aerospace Science and Technology*, Vol. 66, 2017, pp. 92–102. (doi: 10.1016/j.ast.2017.03.009)
15. Tsushima, N., **Su, W.**, Gutierrez, H., Wolf, M. G., Griffin, E. D., Whittaker, J. T., and Dumoulin, M. P., “Monitoring Multi-Axial Vibrations of Flexible Rockets Using Sensor-Instrumented Reference Strain Structures,” *Aerospace Science and Technology*, Vol. 71, 2017, pp. 285–298. (doi: 10.1016/j.ast.2017.09.026)
16. Hammerton, J. R., **Su, W.**, Zhu, G., and Swei, S. S.-M., “Optimum Distributed Wing Shaping and Control Loads for Highly Flexible Aircraft,” *Aerospace Science and Technology*, Vol. 79, 2018, pp. 255–265. (doi: 10.1016/j.ast.2018.05.045)
17. Tsushima, N., and **Su, W.**, “A Study on Adaptive Vibration Control and Energy Conversion of Highly Flexible Multifunctional Wings,” *Aerospace Science and Technology*, Vol. 79, 2018, pp. 297–309. (doi: 10.1016/j.ast.2018.05.056)
18. He, T., Al-Jiboory, A. K., Zhu, G., Swei, S. S.-M., and Su, W., “Application of ICC LPV Control to a Blended-Wing-Body Airplane with Guaranteed \mathcal{H}_∞ Performance,” *Aerospace Science and Technology*, Vol. 81, 2018, pp. 88–98. (doi: 10.1016/j.ast.2018.07.046)
19. He, T., Zhu, G., Swei, S. S.-M., and Su, W., “Smooth-Switching LPV Control for Vibration Suppression of a Flexible Airplane Wing,” *Aerospace Science and Technology*, Vol. 84, 2019, pp. 895–903. (doi: 10.1016/j.ast.2018.11.029)
20. Tsushima, N., Yokozeki, T., Su, W., and Arizono, H., “Geometrically Nonlinear Static Aeroelastic Analysis of Composite Morphing Wing with Corrugated Structures,” *Aerospace Science and Technology*, Vol. 88, 2019, pp. 244–257. (doi: 10.1016/j.ast.2019.03.025)
21. Hang, X., Fei, Q., and **Su, W.**, “On Tracking Aeroelastic Modes in Stability Analysis Using Left and Right Eigenvectors,” *AIAA Journal*, Vol. 57, No. 10, 2019, pp. 4447–4457. (doi: 10.2514/1.J057297)
22. **Su, W.**, and Song, W., “A Real-Time Hybrid Aeroelastic Simulation Platform for Flexible Wings,” *Aerospace Science and Technology*, Vol. 95, 2019, Art. 105513 (12 pp). (doi: 10.1016/j.ast.2019.105513)
23. Hang, X., Su, W., Fei, Q., Jiang, D., “Analytical Sensitivity Analysis of Flexible Aircraft with the Unsteady Vortex-Lattice Aerodynamic Theory,” *Aerospace Science and Technology*, Vol. 99, 2020, Art. 105612. (doi: 10.1016/j.ast.2019.105612)

Refereed Conference Proceedings:

1. Su, W., and Bai, G., “Static Strength Analysis of an Axisymmetric Vectoring Exhaust Nozzle of a Jet Engine Using Finite Element Method,” Proceedings of the *11th Chinese Society of Aeronautics and Astronautics (CSAA) Symposium on Structures, Strength, and Vibrations of Aircraft Engines*, Weihai, China, Oct. 13–18, 2002. (in Chinese)
2. Cesnik, C. E. S., and Su, W., “Nonlinear Aeroelastic Modeling and Analysis of Fully Flexible

- Aircraft,” AIAA-2005-2169, Proceedings of the *46th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Austin, TX, Apr. 18–21, 2005.
3. Cesnik, C. E. S., and Su, W., “Nonlinear Aeroelastic Behavior of Fully Flexible Slender Vehicles,” Proceedings of *International Forum on Aeroelasticity and Structural Dynamics 2005*, Munich, Germany, Jun. 28–Jul. 1, 2005.
 4. Su, W., and Cesnik, C. E. S., “Dynamic Response of Highly Flexible Flying Wings,” AIAA-2006-1636, Proceedings of the *47th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Newport, RI, May 1–4, 2006.
 5. Su, W., and Cesnik, C. E. S., “Nonlinear Aeroelasticity of a Very Flexible Blended-Wing-Body Aircraft,” AIAA-2009-2402, Proceedings of the *50th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Palm Springs, CA, May 4–7, 2009.
 6. Su, W., and Cesnik, C. E. S., “Coupled Nonlinear Aeroelastic and Flight Dynamic Simulation of a Flapping Wing Micro Air Vehicle,” IFASD-2009-142, Proceedings of *International Forum on Aeroelasticity and Structural Dynamics 2009*, Seattle, WA, Jun. 21–25, 2009.
 7. Su, W., Zhang, J., and Cesnik, C. E. S., “Correlations between UM/NAST Nonlinear Aeroelastic Simulations and Experiments of a Cantilever Slender Wing,” IFASD-2009-168, Proceedings of *International Forum on Aeroelasticity and Structural Dynamics 2009*, Seattle, WA, Jun. 21–25, 2009.
 8. Cesnik, C. E. S., Senatore, P. J., Su, W., Atkins, E. M., Shearer, C. M., and Pitcher, N. A., “X-HALE: A Very Flexible UAV for Nonlinear Aeroelastic Tests,” AIAA-2010-2715, Proceedings of the *51st AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Orlando, FL, Apr. 12–15, 2010.
 9. Su, W., and Cesnik, C. E. S., “Nonlinear Aeroelastic Simulations of a Flapping Wing Micro Air Vehicle Using Two Unsteady Aerodynamic Formulations,” AIAA-2010-2887, Proceedings of the *51st AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Orlando, FL, Apr. 12–15, 2010.
 10. Cesnik, C. E. S., and Su, W., “Nonlinear Aeroelastic Simulation of X-HALE: a Very Flexible UAV,” AIAA-2011-1226, Proceedings of the *49th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition*, Orlando, FL, Jan. 4–7, 2011.
 11. Su, W., and Cesnik, C. E. S., “Flight Dynamic Stability of a Flapping Wing Micro Air Vehicle in Hover,” AIAA-2011-2009, Proceedings of the *52nd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Denver, CO, Apr. 4–7, 2011.
 12. Su, W., Kang, C.-K., and Cesnik, C. E. S., “Nonlinear Aeroelasticity of Flapping Wing Micro Air Vehicles with a Surrogate Aerodynamic Model,” IFASD-2011-155, Proceedings of *International Forum on Aeroelasticity and Structural Dynamics 2011*, Paris, France, Jun. 26–30, 2011.
 13. Su, W., and Cesnik, C. E. S., “Strain-Based Analysis for Geometrically Nonlinear Beams: A Modal Approach,” AIAA-2012-1713, Proceedings of the *53rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Honolulu, HI, Apr. 23–26, 2012.
 14. Su, W., “Modified Strain-Based Geometrically Nonlinear Beam Formulation for Modeling Slender

- Wings with Deformable Cross-Sections,” AIAA-2014-0841, Proceedings of the *55th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference (at AIAA SciTech 2014)*, National Harbor, MD, Jan. 13–17, 2014.
15. Su, W., and Song, W., “Nonlinear Aeroelastic Modeling and Analysis of Flexible Wind Turbine Blades,” AIAA-2015-0178, Proceedings of the *56th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference (at AIAA SciTech 2015)*, Kissimmee, FL, Jan. 5–9, 2015.
 16. Su, W., and Tsushima, N., “Modeling of Highly Flexible Multifunctional Wings for Energy Harvesting,” AIAA-2015-0444, Proceedings of the *56th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference (at AIAA SciTech 2015)*, Kissimmee, FL, Jan. 5–9, 2015.
 17. Su, W., “Dynamic Aeroelastic Response of Highly Flexible Aircraft with Wing Camber Deformations,” AIAA-2015-2057, Proceedings of the *56th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference (at AIAA SciTech 2015)*, Kissimmee, FL, Jan. 5–9, 2015.
 18. Su, W., and Reich, G. W., “Gust Alleviation of Highly Flexible UAVs with Artificial Hair Sensors,” 94350X, Proceedings of the *SPIE Smart Structures/NDE Conference 2015*, SPIE 9435, Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2015, San Diego, CA, Mar. 8–12, 2015.
 19. Song, W., and Su, W., “A Wind Turbine Hybrid Simulation Framework Considering Aeroelastic Effects,” 94351W, Proceedings of the *SPIE Smart Structures/NDE Conference 2015*, SPIE 9435, Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2015, San Diego, CA, Mar. 8–12, 2015.
 20. Tsushima, N., and Su, W., “Active Piezoelectric Actuation and Control of Highly Flexible Multifunctional Wings,” AIAA-2016-0715, Proceedings of the *57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference (at AIAA SciTech 2016)*, San Diego, CA, Jan. 4–8, 2016.
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