

Chengzhe Zou *Ph.D. Candidate*

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EDUCATION

Ph.D., Mechanical Engineering (4.0/4.0), The Ohio State University, United States, 2016 - present

Visitor, Technical University of Braunschweig & German Aerospace Center, Germany, 2014 - 2015

M.S., Aerospace Engineering (94.6/100), Northwestern Polytechnical University, China, 2013 - 2016

B.S., Aerospace Engineering (90.6/100), Northwestern Polytechnical University, China, 2009 - 2013

TECHNICAL SKILLS

- Proficiency in acoustics, vibrations, and mechanics
- Strong experiences in analysis, FEM, hands-on prototyping, and experiments
- Critical thinking, fast problem-solving, and troubleshooting
- Expertise in MATLAB, COMSOL, CATIA, Inkscape, and others
- Maturity in technical writing and verbal presentation
- High ownership, outstanding teamwork, and self-motivation

EMPLOYMENT

- Facebook Reality Labs (FRL), Audio Hardware
Research Intern, 07/2019 - present
- The Ohio State University (OSU), Department of Mechanical and Aerospace Engineering (MAE)
Graduate Research Associate, 08/2016 - 05/2019
- Northwestern Polytechnical University (NPU), School of Aeronautics
Graduate Research Assistant, 09/2013 - 06/2016

PUBLICATIONS

Peer-Reviewed Journal Articles

1. N. Zhao, C. Zou, and R.L. Harne. "Partially activated reconfigurable arrays to guide acoustic waves." Under review.
2. C. Zou and R.L. Harne. "Deployable tessellated transducer array for ultrasound focusing and bio-heat generation in a multilayer environment." Under review.
3. C. Zou and R.L. Harne. "Tailoring reflected and diffracted wave fields from tessellated acoustic arrays by origami folding." *Wave Motion*. 89:193-206. 2019.
4. C. Zou and R.L. Harne. "Piecewise assembled acoustic arrays based on reconfigurable tessellated structures." *The Journal of the Acoustical Society of America*. 144:2324-2333. 2018.
5. S. Alharbi, S. Chaudhari, A. Inshaar, H. Shah, C. Zou, R.L. Harne, and A. Kiourti. "E-textile origami dipole antennas with graded embroidery for adaptive RF performance." *IEEE Antennas and Wireless Propagation Letters*. 17:2218-2222. 2018.
6. W. Niu, C. Zou, B. Li, and W. Wang. "Adaptive vibration suppression of time-varying structures with enhanced FxLMS algorithm." *Mechanical Systems and Signal Processing*. 118:93-107. 2019.
7. D.T. Lynd, C. Zou, J. Crump, and R.L. Harne. "Directive and focused acoustic wave radiation by tessellated transducers with folded curvatures." *Proceedings of Meetings on Acoustics*. 30:055010. 2018.
8. C. Zou, D.T. Lynd, and R.L. Harne. "Acoustic wave guiding by reconfigurable tessellated arrays."

Physical Review Applied. 9:014009. 2018.

9. C. Zou and R.L. Harne. "Adaptive acoustic energy delivery to near and far fields using foldable, tessellated star transducers." *Smart Materials and Structures*. 26:055021. 2017.

Conference Proceedings

1. C. Zou and R.L. Harne. "Deployable tessellated acoustic array with a curved Miura-ori pattern for ultrasound focusing in multilayered media." *The Journal of the Acoustical Society of America*. 145:1669. 2019.
2. H. Shah, A. Inshaar, C. Zou, S. Chaudhari, S. Alharbi, A. Kiourti, and R.L. Harne. "Multiphysics modeling and experimental validation of reconfigurable, E-textile origami antennas." in *Proceedings of ASME 2018 International Design Engineering Technical Conferences, DETC2018 -85603*, Quebec City, Canada, Aug 2018.
3. S. Chaudhari, S. Alharbi, C. Zou, H. Shah, R.L. Harne, and A. Kiourti. "A new class of reconfigurable origami antennas based on E-textile embroidery." in *Proceedings of 2018 IEEE International Symposium on Antennas and Propagation*, 1196, Boston, Massachusetts, Jul 2018.
4. C. Zou and R.L. Harne. "Analysis of foldable acoustic arrays from piecewise linear, conformal, and tessellated topologies." *The Journal of the Acoustical Society of America*. 143:1954. 2018.
5. C. Zou, S. Chaudhari, S. Alharbi, H. Shah, A. Kiourti, and R.L. Harne. "Investigation of reconfigurable antennas by foldable, E-textile tessellations: modeling and experimentation." *The Journal of the Acoustical Society of America*. 143:1955. 2018.
6. D.T. Lynd, C. Zou, J. Crump, and R.L. Harne. "Computational tool integrations for origami-inspired acoustic transducer and array design." in *Proceedings of ASME 2017 Conference on Smart Materials, Adaptive Structures, and Intelligent Systems*, SMASIS2017-3912, Snowbird, Utah, Sept 2017.
7. C. Zou and R.L. Harne. "Folding star-shaped acoustic transducers for real-time guidance of radiated acoustic waves." in *Proceedings of ASME 2017 International Design Engineering Technical Conferences, DETC2017-67286*, Cleveland, Ohio, Aug 2017.
8. R.L. Harne, D.T. Lynd, C. Zou and J. Crump. "Directive and focused acoustic wave radiation by tessellated transducers with folded curvatures." *The Journal of the Acoustical Society of America*. 141:3650. 2017. **This presentation was highlighted by the American Institute of Physics via on-site public media interview and online highlight feature.**
9. C. Zou, B. Li, L. Liang, and W. Wang. "Active vertical buffeting suppression based on macro fiber composites." in *Proceedings of SPIE Vol. 9803 Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2016*, 98033A, Las Vegas, Nevada, Mar 2016.

PROFESSIONAL ACTIVITIES AND SERVICE

Society Membership

- Student Member, Acoustical Society of America (ASA), 2018 - present
- Student Member, American Society of Mechanical Engineers (ASME), 2017 - present
- Student Member, International Society for Optics and Photonics (SPIE), 2016 - present

Reviewer for Journals and Conferences

- Applied Acoustics
- Mechanical Systems and Signal Processing
- Journal of Sound and Vibration
- Journal of Intelligent Material Systems and Structures
- Sensors and Actuators A

- Energy Conversion and Management
- ASME Journal of Dynamic Systems, Measurement and Control
- Journal of Sandwich Structures and Materials
- Journal of Aerospace Engineering
- ASME International Design Engineering Technical Conferences
- and others

HONORS AND AWARDS

- 2019 Jul. International Student Scholarship awarded by Office of International Affairs at OSU
- 2018 Aug. Future Academic Scholars Training Fellowship awarded by MAE Department at OSU
- 2018 Apr. Student transportation subsidies of 175th Meeting of the Acoustical Society of America
- 2016 Mar. Graduation with Distinction at NPU (M.S.)
- 2015 Mar. Third Prize in National English Competition for College Students
- 2014 Sep. AVIC Chengdu Aircraft Design & Research Institute Scholarship
- 2014 Mar. Third Prize in National English Competition for College Students
- 2013 Dec. Scholarship from the Graduate School of NPU to visit TUB and DLR
- 2013 Sep. Speechmaker in the Opening Ceremony of NPU (**1 out of 2400**)
- 2013 Jun. Graduation with Distinction at NPU (B.S.)
- 2013 Jun. First Prize in Honors Research Program
- 2012 Dec. Honors Research Scholarship
- 2012 Sep. China Airborne Missile Academy Scholarship
- 2011 May Excellence Prize in National Mechanics Competition for College Students

STUDENTS MENTORING

Graduate Research

1. Srinivas, Vivek. M.S. 01/2019 - 05/2019. Project: "Illuminating the multiphysics of foldable, tessellated acoustic wave guiding systems."
2. Zhao, Ningxiner. M.S. 08/2018 - 05/2019. Project: "Partial activation and manipulation of foldable, tessellated acoustic arrays for wave focusing."

Undergraduate Research

1. Abdullahi, Inshaar. 01/2018 - 04/2019. Project: "Miura-ori-inspired tessellated array for reconfigurable patch antenna."
 - **Awarded** 1st prize poster presentation at the OSU Denman Undergraduate Research Forum, 02/2019.
2. Hamil, Shah. 10/2017 - 04/2019. Project: "Design and development of reconfigurable origami antenna based on E-textile embroidery."

High School Intern

1. Rickard, Alexander. 01/2018 - 05/2019. Project: "Computational modeling of flat-foldable tessellated acoustic transducer arrays."
2. Wolf, Elijah. 10/2017 - 01/2018. Project: "Computational modeling of flat-foldable tessellated acoustic transducer arrays."
3. Crump, Joseph. 09/2016 - 05/2017. Project: "Optimizing acoustic directivity and focusing with origami-based transducer arrays."