Ruobing Bai

Assistant Professor, Mechanical and Industrial Engineering, Northeastern University
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Education

Ph.D., Engineering Sciences 2018
Harvard University
Thesis: *Fatigue of Hydrogels*
Advisor: Zhigang Suo

B.S., Theoretical and Applied Mechanics 2012
Peking University
Thesis: *Stress Analysis of Lithium Ion Batteries with Surface Effect and Phase Transition*
Advisor: Huiling Duan

Employment History

Assistant Professor Jan 2021 - Now
Northeastern University, Department of Mechanical and Industrial Engineering

Postdoctoral Fellow Aug 2018 - Dec 2020
California Institute of Technology, Department of Mechanical and Civil Engineering
Advisor: Kaushik Bhattacharya

Postdoctoral Fellow May 2018 - Aug 2018
Graduate Research Assistant Sept 2012 - May 2018
Harvard University, John A. Paulson School of Engineering and Applied Sciences
Advisor: Zhigang Suo

Awards and Honors

- *NSF CAREER Award*
  National Science Foundation 2025
- *MPS Best Referee Award*
  Journal of the Mechanics and Physics of Solids 2025
- *Doctoral New Investigator Award*
  American Chemical Society (ACS) Petroleum Research Fund 2024
- *EML Young Investigator Award*
  Extreme Mechanics Letters 2022
- *Haythornthwaite Research Initiation Award*

Applied Mechanics Division of American Society of Mechanical Engineers (ASME) 2022

- *Best Poster Award*
  New England Workshop on the Mechanics of Materials and Structures (NEW.Mech), Massachusetts Institute of Technology, Cambridge, MA 2017
- *Haythornthwaite Student Travel Grants*
  American Society of Mechanical Engineers International Mechanical Engineering Congress & Exposition, Phoenix, AZ 2016
- *Chun-Tsung Scholar*
  Peking University, Beijing, China 2010
- *National Scholarship of China*
  Peking University, Beijing, China 2009
- *Pacemaker to Merit Student*
  Peking University, Beijing, China 2009

Journal Publications

[#]Equal contribution; [*]Corresponding author; [1]My PhD student; [2]My undergraduate student

Since Joining Northeastern University

1. Lin, R.[1]; Ihuaenyi, R. C.; Zhu, J.[*]; Bai, R.[*] Morphology-property interplay in chemo-mechanics of ion-intercalation active particles. *currently under review*.
2. Wei, Z.[#,1]; Shen, B.[#,*]; Usmanova, Z.[1]; Bootwala, U.[2]; Bai, R.[*] Thermoviscoelasticity of polydomain liquid crystal elastomers regulated by soft elasticity. *currently under review*.
3. Ihuaenyi, R. C.; Lin, R.[1]; Dastagir, R. B.[1]; Shi, X.; Usmanova, Z.[1]; Peng, K.; Yang, X.; Wan, Y.[1]; Li, W.[*]; Bai, R.[*]; Zhu, J.[*] Informatics-driven mechanical characterization toward autonomous materials research. *Extreme Mechanics Letters*, *in press*.
4. Chen, W.; Zhou, X.; Tang, J.; Bai, R.; Wang, L.; Liu, K.[*] Influence of water-soaking on the mechanical properties of liquid crystal elastomers: an experimental study. *Acta Mechanica Sinica* **2026**, *42*, 225780.
5. Usmanova, Z.[1]; Bai, R.[*] Anomalous thermomechanical actuation of liquid crystal elastomer balloons. *Extreme Mechanics Letters* **2026**, *83*, 102448.
6. Wan, Y.[1]; Bai, R.[*] Prevalent low interfacial fatigue threshold in pressure-sensitive adhesives. *Journal of Applied Mechanics* **2026**, *93* (3), 031010.
7. Yu, Z.[#]; Xu, D.[#]; Usmanova, Z.[#,1]; Swarnkar, A.; Ye, C.; Scott, E.; Huang, S.; Rao, S.; Boriskina, S. V.[*]; Bai, R.[*]; Lin, S.[*] An elastocaloric polymer with ultra-high solid-state cooling via defect engineering. *Advanced Science* **2025**, e18106.
8. Xu, L.[#]; Penda, F.[#]; Usmanova, Z.[#,1]; Li, W.; Ihuaenyi, R.; Zhu, J.[*]; Bai, R.[*]; Xu, H.[*] Exploring the role of stochasticity in lattice structures for crush energy absorption capabilities. *Thin-Walled Structures* **2025**, *219*, 114169.

9. Xiao, Y.; Zeng, Y.; Liu, B.; Bai, R.; Hong, W.; Yang, C.* Prolonged fracture resistance of hydrogels through spontaneous network reconfiguration. *Extreme Mechanics Letters* **2025**, *75*, 102298.
10. Yin, Q.[1]; Manav, Y. A.; Wan, Y.[1]; Davaji, B.*; Bai, R.* Highly switchable and reversible soft sticky adhesives based on thermo-responsive phase separation. *Extreme Mechanics Letters* **2025**, *75*, 102293.
11. Usmanova, Z.[1]; Bai, R.* Peeling an architected interface: Roles of softness and fractoadhesive length in adhesion toughening. *International Journal of Fracture* **2025**, *249*, 18.
12. Wei, Z.[1]; Bootwala, U. H.[2]; Bai, R.* Synthesis-processing-property relationships in thermomechanics of liquid crystal elastomers. *Journal of the Mechanics and Physics of Solids* **2024**, 105977.
13. Wan, Y.[1]; Yin, Q.[1]; Zhang, P.; Yang, C.; Bai, R.* Interfacial fatigue fracture of pressure sensitive adhesives. *Extreme Mechanics Letters* **2024**, *72*, 102248.
14. Anssari-Benam, A.; Wei, Z.[1]; Bai, R.* Modelling the deformation of polydomain liquid crystal elastomers as a state of hyperelasticity. *Journal of Elasticity* **2024**, *156* (2), 387-413.
15. Wang, Y.[#]; Wei, Z.[#,1]; Ji, T.; Bai, R.*; Zhu, H.* Highly ionic conductive, stretchable, and tough ionogel for flexible solid-state supercapacitor. *Small* **2023**, 2307019.
16. Cao, D.; Ji, T.; Wei, Z.[1]; Liang, W.; Bai, R.; Burch, K. S.; Geiwitz, M.; Zhu, H.* Enhancing lithium stripping efficiency in anode-free solid-state batteries through self-regulated internal pressure. *Nano Letters* **2023**, *23* (20), 9392-9398.
17. Wei, Z.[#,1]; Wang, P.[#,2]; Bai, R.* Thermomechanical coupling in polydomain liquid crystal elastomers. *Journal of Applied Mechanics* **2023**, *91* (2).
18. Xiao, Y.; Li, Q.; Yao, X.; Bai, R.; Hong, W.; Yang, C.* Fatigue of amorphous hydrogels with dynamic covalent bonds. *Extreme Mechanics Letters* **2022**, *53*, 101679.
19. Wei, Z.[1]; Bai, R.* Temperature-modulated photomechanical actuation of photoactive liquid crystal elastomers. *Extreme Mechanics Letters* **2022**, *51*, 101614.

Before Joining Northeastern University

20. Bai, R.; Ocegueda, E.; Bhattacharya, K. Photochemical-induced phase transitions in photoactive semicrystalline polymers. *Physical Review E* **2021**, *103* (3), 033003.
21. Hua, M.; Kim, C.; Du, Y.; Wu, D.; Bai, R.; He, X. Swaying gel: Chemo-mechanical self-oscillation based on dynamic buckling. *Matter* **2021**, *4* (3), 1029-1041.
22. Bai, R.; Teh, Y. S.; Bhattacharya, K. Collective behavior in the kinetics and equilibrium of solid-state photoreaction. *Extreme Mechanics Letters* **2021**, *43*, 101160.
23. Bai, R.; Bhattacharya, K. Photomechanical coupling in photoactive nematic elastomers. *Journal of the Mechanics and Physics of Solids* **2020**, *144*, 104115.
24. Yang, J.; Steck, J.; Bai, R.; Suo, Z. Topological adhesion II. Stretchable adhesion. *Extreme Mechanics Letters* **2020**, *40*, 100891.
25. Yang, J.; Bai, R.; Chen, B.; Suo, Z. Hydrogel adhesion: A supramolecular synergy of chemistry, topology, and mechanics. *Advanced Functional Materials* **2020**, *30*, 1901693.

26. Chen, B.; Yang, J.; Bai, R.; Suo, Z. Molecular staples for tough and stretchable adhesion in integrated soft materials. *Advanced Healthcare Materials* **2019**, *8*, 1900810.
27. Yang, J.; Bai, R.; Li, J.; Yang, C.; Yao, X.; Liu, Q.; Vlassak, J. J.; Mooney, D. J.; Suo, Z. Design molecular topology for wet–dry adhesion. *ACS Applied Materials & Interfaces* **2019**, *11* (27), 24802-24811.
28. Bai, R.; Yang, J.; Morelle, X. P.; Suo, Z. Flaw-insensitive hydrogels under static and cyclic loads. *Macromolecular Rapid Communications* **2019**, *40* (8), e1800883.
29. Bai, R.; Chen, B.; Yang, J.; Suo, Z. Tearing a hydrogel of complex rheology. *Journal of the Mechanics and Physics of Solids* **2019**, *125*, 749-761.
30. Bai, R.; Yang, J.; Suo, Z. Fatigue of hydrogels. *European Journal of Mechanics - A/Solids* **2019**, *74*, 337-370.
31. Sun, M.; Bai, R.; Yang, X.; Song, J.; Qin, M.; Suo, Z.; He, X. Hydrogel interferometry for ultrasensitive and highly selective chemical detection. *Advanced Materials* **2018**, *30*, 1804916.
32. Morelle, X. P.; Illeperuma, W. R.; Tian, K.; Bai, R.; Suo, Z.; Vlassak, J. J. Highly stretchable and tough hydrogels below water freezing temperature. *Advanced Materials* **2018**, *30* (35), 1801541.
33. Wang, Z.; Tang, J.; Bai, R.; Zhang, W.; Lian, T.; Lu, T.; Wang, T. A phenomenological model for shakedown of tough hydrogels under cyclic loads. *Journal of Applied Mechanics* **2018**, *85* (9), 091005-091005-091008.
34. Yang, J.; Bai, R.; Suo, Z. Topological adhesion of wet materials. *Advanced Materials* **2018**, *30* (25), 1800671.
35. Zhang, E.; Bai, R.; Morelle, X. P.; Suo, Z. Fatigue fracture of nearly elastic hydrogels. *Soft Matter* **2018**, *14* (18), 3563-3571, 10.1039/C8SM00460A.
36. Qin, M.; Sun, M.; Bai, R.; Mao, Y.; Qian, X.; Sikka, D.; Zhao, Y.; Qi, H. J.; Suo, Z.; He, X. Bioinspired hydrogel interferometer for adaptive coloration and chemical sensing. *Advanced Materials* **2018**, 1800468.
37. Bai, R.; Yang, J.; Morelle, X. P.; Yang, C.; Suo, Z. Fatigue fracture of self-recovery hydrogels. *ACS Macro Letters* **2018**, 312-317.
38. Morelle, X. P.; Bai, R.; Suo, Z. Localized deformation in plastic liquids on elastomers. *Journal of Applied Mechanics* **2017**, *84* (10), 101002.
39. Bai, R.; Yang, Q.; Tang, J.; Morelle, X. P.; Vlassak, J.; Suo, Z. Fatigue fracture of tough hydrogels. *Extreme Mechanics Letters* **2017**, *15*, 91-96.
40. Bai, R.; Suo, Z. Optomechanics of soft materials. *Journal of Applied Mechanics* **2015**, *82* (7), 071011-071011-071019.
41. Liu, Y.; Lv, P.; Ma, J.; Bai, R.; Duan, H. L. Stress fields in hollow core–shell spherical electrodes of lithium ion batteries. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Science* **2014**, *470* (2172).

Other Research/Scholarship/Creative Activities

[1]My PhD student

Since Joining Northeastern University

Book Chapters

1. Yang, J.; Bai, R. Mechanics of wet adhesion. In *Mechanics of Flexible and Stretchable Electronics (eds Y. Zhu and N. Lu)*, 2024; pp 345-372.

Patents

1. Bai, R.; Wei, Z.[1]; Wan, Y.[1]; Usmanova, Z.[1]; Yin, Q.[1] Tough and switchable liquid crystalline pressure-sensitive adhesives. *U.S. Provisional Patent Application* **2024**, App. 63/685,073.
2. Bai, R.; Yin, Q.[1]; Wan, Y.[1] Thermo-switchable pressure-sensitive adhesives. *U.S. Patent Application* **2024**, App. 18/830,163.

Before Joining Northeastern University

Patents

1. Yang J.; Bai, R.; Suo, Z. Topological adhesion of materials. *U.S. Patent* **2021**, App. 17/048,803.

Presentations

Since Joining Northeastern University

Invited Seminars and Keynote Presentations

- *Interfacial Fatigue Fracture of Pressure Sensitive Adhesives*
  Society for Experimental Mechanics Annual Conference, Norfolk, VA 2026
- *Toward Strong, Durable, and Switchable Soft Polymer Adhesives for Reversible Bonding, Recovery, and Reuse*
  ONR Symposium for Polymer Bonding for Recovery, Reuse, Rejoining, and Repair (R4), State College, PA 2026
- *Multifunctional Polymers towards Durable, Intelligent, and Sustainable Mechanical Systems*
  NSWC Dahlgren Tech Talk, virtual 2026
- *Multifunctional Polymer Mechanics Towards Intelligent and Sustainable Mechanical Systems*
  Worcester Polytechnic Institute, Worcester, MA 2025
- *Thermomechanical and Photomechanical Coupling in Liquid Crystal Elastomers*
  Society of Engineering Science Annual Meeting, Hangzhou, China 2024
- *Interfacial Fatigue and Switchable Adhesion of Soft Sticky Adhesives*
  Fracture of Soft Materials Symposium, Austin, TX 2024
- *Mechanics of Physically Intelligent Soft Materials*
  Brown University, Providence, RI 2024
- *Mechanics of Physically Intelligent Soft Materials*
  Tufts University, Medford, MA 2024
- *Embedding Physical Intelligence in Soft Active Materials: from Actuation of Liquid Crystal Elastomers to Switchable Pressure-Sensitive Adhesives*

Extreme Mechanics Letters Webinar, virtual 2023

- *Fracture, Fatigue, and Adhesion of Soft Active Materials*
  Adhesion Community of Practice, Dow, virtual 2023
- *Embedding Physical Intelligence in Soft Active Materials through Stimuli-Responsive Phase Transformation: from Photomechanical Actuation to Thermo-switchable Adhesion*
  University of Connecticut, Mansfield, CT 2023
- *Photomechanical Coupling in Photoactive Molecular Crystals and Liquid Crystal Elastomers*
  UMass Dartmouth, Dartmouth, MA 2022
- *Mesoscale Photomechanical Coupling in Photoactive Materials*
  New England Workshop on the Mechanics of Materials and Structures (NEW.Mech), MIT, Cambridge, MA 2022
- *Fatigue of Hydrogels and What We Have Learned So Far*
  Prospects of Soft Matter Symposium, CU Boulder, virtual 2022
- *Liquid Crystal Elastomers: from Optics to Novel Mechanics*
  Display Materials Technology Symposium, KLA Instruments, virtual 2022
- *Mesoscale Photomechanical Coupling in Photoactive Materials*
  Engineering and Applied Science Forum Webinar, virtual 2022

Conference Presentations

- *Synthesis-Processing-Property Relationships in Thermomechanics of Liquid Crystal Elastomers*
  National Congress on Theoretical and Applied Mechanics, Pasadena, CA 2026
- *Synthesis-Processing-Property Relationships in Thermomechanics of Liquid Crystal Elastomers*
  Society for Experimental Mechanics Annual Conference, Norfolk, VA 2026
- *A Reduced-Order Model of Porous Electrode Solid-State Lithium-Ion Battery Considering Non-Uniform Microstructural Features and Mechanical Effects*
  Electrochemical Society Meeting, Chicago, IL 2025
- *Low Interfacial Fatigue Threshold Prevails in Various Pressure Sensitive Adhesives*
  American Physical Society March Meeting, Anaheim, CA 2025
- *Peeling an Architected Interface: Roles of Softness and Fractocohesive Length in Adhesion Toughening*
  Adhesion Society Annual Meeting, New Orleans, LA 2025
- *Interfacial Fatigue Fracture of Pressure Sensitive Adhesives*
  Adhesion Society Annual Meeting, New Orleans, LA 2025
- *Synthesis-Processing-Dependent Thermomechanics of Liquid Crystal Elastomers*
  International Mechanical Engineering Congress & Exposition, Portland, OR 2024
- *Interfacial Fatigue Fracture of Pressure Sensitive Adhesives*
  International Mechanical Engineering Congress & Exposition, Portland, OR 2024

- *Peeling an Architected Interface*
  International Mechanical Engineering Congress & Exposition, Portland, OR 2024
- *The Detailed Synthesis Process Determines Thermomechanical Behaviors of a Liquid Crystal Elastomer*
  Fracture of Soft Materials Symposium, UT Austin, Austin, TX 2024
- *Thermo-Switchable Adhesives with Strong Adhesion and Fast, Repeatable Switching*
  Fracture of Soft Materials Symposium, UT Austin, Austin, TX 2024
- *Interfacial Fatigue Fracture of Pressure Sensitive Adhesives*
  Fracture of Soft Materials Symposium, UT Austin, Austin, TX 2024
- *Interplay between Geometric Heterogeneity and Elasticity in Architected Adhesion*
  Fracture of Soft Materials Symposium, UT Austin, Austin, TX 2024
- *Interfacial Fatigue Fracture of Pressure Sensitive Adhesives*
  New England Workshop on the Mechanics of Materials and Structures, Boston, MA 2024
- *Interplay between Geometric Heterogeneity and Elasticity in Architected Adhesion*
  New England Workshop on the Mechanics of Materials and Structures, Boston, MA 2024
- *Interfacial Fatigue Fracture of Pressure Sensitive Adhesives*
  American Physical Society March Meeting, Minneapolis, MN 2024
- *Thermomechanical Coupling in Monodomain and Polydomain Liquid Crystal Elastomers*
  American Physical Society March Meeting, Minneapolis, MN 2024
- *Interfacial Fatigue Fracture of Pressure Sensitive Adhesives*
  Adhesion Society Annual Meeting, Savannah, GA 2024
- *Thermo-Switchable Adhesives with Strong Adhesion and Fast, Repeatable Switching*
  Adhesion Society Annual Meeting, Savannah, GA 2024
- *Temperature-Switchable Adhesives Enabled by Thermo-Responsive Soft Active Materials*
  International Mechanical Engineering Congress & Exposition, New Orleans, LA 2023
- *Thermomechanical Coupling in Monodomain and Polydomain Liquid Crystal Elastomers*
  International Mechanical Engineering Congress & Exposition, New Orleans, LA 2023
- *Temperature-Switchable Adhesives Enabled by Thermo-Responsive Soft Active Materials*
  Society of Engineering Science Annual Meeting, Minneapolis, MN 2023
- *Temperature-Switchable Adhesives Enabled by Thermo-Responsive Soft Active Materials*
  Science of Adhesion Gordon Research Seminar, Mount Holyoke, MA 2023
- *Temperature-Switchable Adhesives Enabled by Thermo-Responsive Soft Active Materials*
  New England Workshop on the Mechanics of Materials and Structures, Boston, MA 2023
- *Effects of Pre-Stretch on Thermomechanical Behaviors of Nematic Liquid Crystal Elastomers*
  New England Workshop on the Mechanics of Materials and Structures, Boston, MA 2023
- *Effects of Pre-Stretch on Thermomechanical Behaviors of Nematic Liquid Crystal Elastomers*
  American Physical Society March Meeting, Las Vegas, NV 2023

- *Temperature-Switchable Adhesives Enabled by Thermo-Responsive Soft Active Materials*
  American Physical Society March Meeting, Las Vegas, NV 2023
- *Temperature-Switchable Adhesives Enabled by Thermo-Responsive Soft Active Materials*
  Adhesion Society Annual Meeting, Orlando, FL 2023
- *Mesoscale Photomechanical Coupling in Photoactive Liquid Crystal Elastomers*
  Materials Research Society Fall, Boston, MA 2022
- *Photomechanics and Thermomechanics of Nematic Liquid Crystal Elastomers*
  Society of Engineering Science Annual Meeting, College Station, TX 2022
- *Mesoscale Photomechanical Coupling in Photoactive Liquid Crystal Elastomers*
  National Congress for Theoretical and Applied Mechanics, Austin, TX 2022
- *Photomechanical Coupling in Photoactive Nematic Elastomers*
  International Mechanical Engineering Congress & Exposition, virtual 2021
- *Collective Behavior in the Kinetics and Equilibrium of Solid-State Photoreaction*
  International Mechanical Engineering Congress & Exposition, virtual 2021

Before Joining Northeastern University
Invited Seminars and Keynote Presentations

- *Mechanics of Soft Active Materials: Characterization, Design, and Functionalization*
  California Institute of Technology, Pasadena, CA 2020
- *Soft Active Materials towards Soft Machines: Characterization, Design, and Functionalization*
  University of Houston, Houston, TX 2020
- *Mechanics of Soft Active Materials: Characterization, Design, and Functionalization*
  Southern Methodist University, Dallas, TX 2020
- *Mechanics of Soft Active Materials: Characterization, Design, and Functionalization*
  Northeastern University, Boston, MA 2020
- *Mechanics of Soft Active Materials: Characterization, Design, and Functionalization*
  University at Buffalo, Buffalo, NY 2019

Conference Presentations

- *National Congress for Theoretical and Applied Mechanics*: 2018 (Chicago, IL)
- *Society of Engineering Science*: 2019 (St. Louis, MO)
- *Materials Research Society Fall*: 2019 (Boston, MA)
- *International Mechanical Engineering Congress & Exposition*: 2016 (Phoenix, AZ)
- *New England Workshop on the Mechanics of Materials and Structures*: 2017 (Cambridge, MA)

Teaching and Advising

Courses

- **Spring 2026: ME6320, *Mechanics of Soft Materials***

15 students

- **Spring 2025: ME2340, *Introduction to Materials Science***
  58 students
- **Fall 2024: ME2355, *Mechanics of Materials***
  52 students
- **Spring 2024: ME2340, *Introduction to Materials Science***
  43 students
- **Fall 2023: ME6320, *Mechanics of Soft Materials***
  6 students
- **Spring 2023: ME2340, *Introduction to Materials Science***
  36 students
- **Fall 2022: ME2355, *Mechanics of Materials***
  29 students
- **Spring 2022: ME2340, *Introduction to Materials Science***
  36 students
- **Spring 2021: ME2340, *Introduction to Materials Science***
  47 students

Supervision of Postdoctoral Associates

- **Yanchu Zhang, Postdoctoral Associates, Sep 2025 - Jul 2026**

Supervision of Graduate Students

- **Rafi Bin Dastagir, PhD student, Sep 2025 - Now**
- **Rongyue Lin, PhD candidate, Sep 2024 - Now**
- **Yichen Wan, PhD candidate, Sep 2022 - Now**
- **Zumrat Usmanova, PhD candidate, Sep 2022 - Now**
- **Qianfeng Yin, PhD candidate, Sep 2021 - Now**
- **Zhengxuan Wei, PhD, Jan 2021 - Apr 2026**
  Thesis: *Thermomechanical and Photomechanical Coupling in Liquid Crystal Elastomers*
- **Peixun Wang, Master, Oct 2021 - May 2023**
  Thesis: *Temperature-Dependent Effective Mechanical Responses of Polydomain Nematic Liquid Crystal Elastomers*

Service and Professional Development

Service to the Institution

Department Service

- Mechanics&Design Program Graduate Admission Committee co-chair, 2023-Now
- MIE Graduate Affairs Committee member, 2023-Now
- MIE Lab Affairs Committee member, 2025-Now

- MIE Student Award Committee member, 2026-Now
- Faculty advisor of the MIE PhD Council, 2023-Now
- Mechanics&Design Graduate Curriculum Subcommittee member, 2024-2024
- **Guest Lecture:** MEIE 6860, *Graduate Traineeship 2*, Spring 2025
- **MIE Master Course:** *Mechanics of Gels*, Summer 2021

Service to the Discipline/Profession

- Guest Editor, *Special Issue: Mechanics of Soft and Living Matter*, Experimental Mechanics, 2025-2026
- Incoming Chair (2027), Vice-Chair (2026), Secretary (2025), Editor (2024), American Society of Mechanical Engineers (ASME) Technical Committee, *Mechanics of Soft Materials*
- Extreme Mechanics Letters (EML) Early Career Advisory Board, 2023-Now
- Moderator, iMechanica, world's largest website of mechanics and mechanicians, 2015-Now
- Consulting committee member, University-Industry Workshop, *High-Throughput Soft Material Development*, Michigan State University, 2025
- Organizing committee member, *7th International Workshop on Soft Materials & Mechanics*, Jeju island, Korea, 2025
- Editor, iMechanica Journal Club, 2024-2025
- Reviewer, American Chemical Society (ACS) Petroleum Research Fund, 2024-2026
- Review panelist, National Science Foundation (NSF), 2022, 2024, 2025
- Reviewer, National Aeronautics and Space Administration (NASA), 2024
- Co-organizer, New England Workshop on the Mechanics of Materials and Structures (NEW.Mech), Boston University, 2024
- Organizer, New England Workshop on the Mechanics of Materials and Structures (NEW.Mech), Northeastern University, 2023
- Reviewer, American Society for Engineering Education (ASEE) eFellows (Engineering Postdoctoral Fellowship) by National Science Foundation (NSF), 2022
- Review Editor, *Frontiers in Materials* - Smart Materials & Soft Robotics, 2022
- Guest Editor, *Frontiers in Robotics and AI* - Soft Robotics, Research Topic *Extreme Mechanics of Soft Active Materials for Soft Robotics*, 2020-2021
- Multiple conference session chairs for: *Mechanics of Soft Materials* (International Mechanical Engineering Congress & Exposition, Vancouver, 2026), *Mechanics of Interfaces: Deformation, Adhesion, Fracture, and Friction* (Society of Engineering Science Annual Meeting, West Lafayette, 2026), *Mechanics and Physics of Soft Materials* (U.S. National Congress on Theoretical and Applied Mechanics, Pasadena, 2026), *Mechanics of Soft Materials* (International Mechanical Engineering Congress & Exposition, Memphis, 2025), *Adhesion, Friction, and Fracture at Soft Interfaces: Theory, Simulation, and Experiment* (Society of Engineering Science Annual Meeting, Atlanta, 2025), *Mechanics and*

Polymer Physics of Soft Adhesives (American Physical Society March Meeting, Anaheim, 2025), *Gels, Elastomers, and Hybrids I* (Adhesion Society Annual Meeting, New Orleans, 2025), *Mechanics of Soft Materials* (International Mechanical Engineering Congress & Exposition, Portland, 2024), *Fracture of Soft Materials* (AmeriMech Symposium, Austin, 2024), *Reversible Adhesion/Adhesives & 3D Printing* (Adhesion Society Annual Meeting, Savannah, 2024), *Adhesion, Friction, and Fracture at Soft Interfaces: Theory, Simulation, and Experiment* (Society of Engineering Science Annual Meeting, Hangzhou, 2024), *EML 10th Anniversary Symposium* (Society of Engineering Science Annual Meeting, Hangzhou, 2024), *Elastomeric Fracture* (Society of Engineering Science Annual Meeting, Minneapolis, 2023), *Adhesion, Friction, and Fracture at Soft Interfaces: Theory, Simulation, and Experiment* (Society of Engineering Science Annual Meeting, Minneapolis, 2023), *Mechanics of Liquid Crystal Elastomers* (U.S. National Congress on Theoretical and Applied Mechanics, Austin, 2022), *Mechanics of Smart and Tough Gels* (International Union of Theoretical and Applied Mechanics Symposium, Austin, 2021)

- Active reviewer for: *ACS Macro Letters*, *Advanced Materials*, *Advanced Functional Materials*, *Applied Physics Letters*, *Chemical Reviews*, *Engineering Fracture Mechanics*, *European Journal of Mechanics - A/Solids*, *European Polymer Journal*, *Experimental Mechanics*, *Extreme Mechanics Letters*, *International Journal of Fracture*, *International Journal of Mechanical Sciences*, *International Journal of Solids and Structures*, *iScience*, *Journal of Applied Mechanics*, *Journal of Applied Physics*, *Journal of the Mechanics and Physics of Solids*, *Liquid Crystals*, *Macromolecules*, *Materials Science & Engineering C*, *Materials Today*, *Mechanics of Materials*, *Mechanics of Soft Materials*, *Molecules*, *Nano Letters*, *npj Computational Materials*, *Proceedings of the Royal Society A*, *Physical Review Applied*, *Physical Review E*, *Physical Review Letters*, *Physical Review Materials*, *Physical Review X*, *PNAS*, *RSC Advances*, *Science*, *Science Advances*, *Soft Matter, etc.*
- Discussion leader, iMechanica Journal Club, *Fatigue of hydrogels*, 2019

Service to the Community/Public

- Young Scholars Program Lunch Seminar, NU Center for STEM Education, 2025
- Building Bridges, NU Center for STEM Education, 2023
- Building Bridges, NU Center for STEM Education, 2022
- Pathways to STEM, NU Center for STEM Education, 2021
- Young Scholars Program, NU Center for STEM Education, 2021
- Panelist, MIE Alumni and Faculty Panel, National Engineers Week, 2021