Yi Zhao

CURRICULUM VITAE

ADDRESS

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EDUCATION

2006	Ph.D., Manufacturing Engineering Boston University, Boston, MA
2002	M.S., Mechanical Engineering Tsinghua University, China
2000	B.S., Mechanical Engineering Tsinghua University, Beijing, China

POSITIONS

Sep 2012 – present	Associate Professor (tenured), Department of Biomedical Engineering The Ohio State University
Oct 2006 – Aug 2012	Assistant Professor, Department of Biomedical Engineering The Ohio State University

HONORS & AWARDS

2011	TechColumbus Innovation Awards Finalist
2011	Lumley Research Award. The Ohio State University.
2011	Professional Development Grant, TERL at Ohio State University
2010	Best Poster Award. International Mechanical Engineering Congress and Exposition (IMECE).
2010	NSF CAREER Award. National Science Foundation.

RESEARCH INTERESTS

BioMEMS; lab-on-chip; sensors and actuators; micro/nanofluidics; micro/nanoscale medical devices and systems; biomanufacturing and biofabrication

PUBLICATIONS

Peer-Reviewed Journal Papers

1. C. B. Horner, G. Ico, J. Johnson, Y. Zhao, J. Nam. Microstructure-dependent mechanical properties of electrospun core-shell scaffolds at multi-scale levels. *Journal of the Mechanical Behavior of Biomedical Materials, in press*.
2. J Nam, P Perera, R Gordon, Y Jeong, AD Blazek, DG Kim, BC Tee, Z Sun, TD Eubank, Y Zhao, B Lablebecioglu, S Liu, A Litsky, NL Weisleder, BS Lee, T Butterfield, AL Schneyer, S Agarwal. 2015. Follistatin-like 3 is a mediator of exercise-driven bone formation and strengthening, *Bone*, 78: 60-72.

3. Q. Wang, X. Zhang and Y. Zhao. 2015. A Multiplexed Micromechanical Cell Stimulator for Studying Magnitude-Dependent Cell Responses. Microfluidics Nanofluidics, 18, 415-425.
4. K. Wei, M. S. Rudy and Y. Zhao. 2014. Systematic investigation of benchtop surface wrinkling process by corona discharge. RSC Advances, 4, 59122-59129.
5. T. M. Best, S. K. Crawford, C. Haas, L. Charles and Y. Zhao. 2014. Transverse forces in skeletal muscle with massage-like loading in a rabbit model. BME Complementary and Alternative Medicine. 14:393.
6. X. Zhang, D. J. Huk, J. Lincoln, Y. Zhao. 2014. A Microfluidic Shear Device that Accommodates Parallel High and Low Stress Zones Within the Same Culturing Chamber. Biomicrofluidics, 8, 054106.
7. K. Wei, H. Zeng and Y. Zhao. 2014. Insect-Human Hybrid Eye (IHHE): An Adaptive Optofluidic Lens Combining Structural Characteristics of Insect and Human Eyes. *Lab Chip*, 14(18):3594-602.
8. S. K Crawford, C. Haas, Q. Wang, X. Zhang, Y. Zhao, T. M. Best. 2014. Effects of Immediate vs. Delayed Massage-like Loading on Skeletal Muscle Viscoelastic Properties Following Eccentric Exercise, *Clinical Biomechanics*. 29(6), 671–678.
9. K. Wei, N. W. Domicone and Y. Zhao. 2014. An Electroactive Liquid Lens Driven By An Annular Membrane, *Optics Letters*. 39(5), 1318-1321. This article was also selected for publication in the *Virtual Journal for Biomedical Optics (VJBO)*, 9(5), 2014.
10. Q. Wang, X. Zhang, and Y. Zhao, 2014. A Microscale Mechanical Stimulator for Generating Identical In-Plane Surface Strains Towards Live Cells on Multiple Loading Sites. *Sensors & Actuators: B. Chemical*. 194, 484-491.
11. Q. Wang, H. Zeng, T. M. Best, C. M. Haas, N. T. Heffner, S. Agarwal, Y. Zhao. 2014. A Mechatronic System for Quantitative Application and Assessment of Massage-Like Actions in Small Animals. *Ann Biomed Eng*. 42(1), 36-49.
12. P. Agarwal, S. Zhao, P. Bielecki, W. Rao, J. K. Choi, Y. Zhao, J. Yu, W. Zhang, and X. He. 2013. One-Step Microfluidic Generation of Pre-Hatching Embryo-Like Core-Shell Microcapsules for Miniaturized 3D Culture of Pluripotent Stem Cells. *Lab Chip*. 13, 4525-4533.
13. X. Zhang, Q. Wang, B. Gablaski, X. Zhang, P. Lucchesi, and Y. Zhao. 2013. A Microdevice for Studying Intercellular Electromechanical Transduction in Adult Cardiac Myocytes. *Lab Chip*. 13(15), 3090-3097.
14. C. Haas, T. A. Butterfield, Y. Zhao, X. Zhang, D. Jarjoura, T. M. Best. 2013. Dose-Dependency of Massage-Like Compressive Loading on Recovery of Active Muscle Properties Following Eccentric Exercise: Rabbit Study with Clinical Relevance, *British Journal of Sports Medicine*. 47, 83-88.
15. K. Wei, H. Zeng, and Y. Zhao. 2013. Substrate Material Affects Wettability of Surfaces Coated and Sintered with Silica Nanoparticles. *Applied Surface Science*. 273 32-38.
16. C. Haas, T.A. Butterfield, S. Abshire, Y. Zhao, X. Zhang, D. Jarjoura, T. M. Best. 2013. Massage Timing Affects Postexercise Muscle Recovery and Inflammation in a Rabbit Model. *Medicine and Science in Sports and Exercise*. 45(6):1105-1112.
17. Q. Wang, X. Zhang, and Y. Zhao. 2013. Micromechanical Stimulator for Localized Cell Loading: Fabrication and Strain Analysis. *Journal of Micromechanics and Microengineering*. 015002.
18. C. Hass, T. M. Best, Q. Wang, and Y. Zhao. 2012. In Vivo Passive Mechanical Properties of Skeletal Muscle Improve With Massage-Like Loading Following Eccentric Exercise. *Journal of Biomechanics*. Vol. 45 no. 15. : 2630-2636.
19. B. Kim, X. Zhang, H. Borteh, Z. Li, J. Guan and Y. Zhao. 2012. Fabrication of Porous Microtent Structures Towards An In Vitro Endothelium Model. *Journal of Micromechanics and* Microengineering, Vol. 22. : 085001.
20. X. Zhang, and Y. Zhao. 2012. Programmable Patterning of Polymeric Microparticles By Floating Electrodes-Assisted Electrospray. *Journal of Micromechanics and Microengineering*, Vol. 22. : 047001.
21. S. Xu and Y. Zhao. 2011. Monolithic Fabrication of Nanochannels Using Core-sheath Nanofibers as Sacrificial Mold. *Microfluidics and Nanofluidics*. Vol 11, no. 3. : 359-365.

22. H. Zeng and Y. Zhao. 2011. Liquid-State Motion Sensing. *Sensors and Actuators B: Chemical*. Vol. 1, no. 154. : 33-40.
23. H. Zeng and Y. Zhao. 2011. Microfabrication in Electrospun Nanofibers by Electrical Discharges. *Sensors and Actuators A: Physical*. Vol. 2, no. 162. : 214-218.
24. H. Zeng and Y. Zhao. 2011. Rheological Analysis of Non-Newtonian Flow Using A Microfluidic Device. *Sensors and Actuators A: Physical*. Vol. 2, no. 162. : 207-213.
25. H. Zeng and Y. Zhao. 2011. Sensing Movement: Microsensors for Body Motion Measurement. *Sensors*. Vol. 11, no. 1. : 638-660.
26. H. Zeng and Y. Zhao. 2010. Dynamic Behavior of A Liquid Marble Based Accelerometer. *Applied Physics Letters*. Vol. 96. : 114104.
27. W. Gu and Y. Zhao. 2010. Cellular Electrical Impedance Spectroscopy: An Emerging Technology of Microscale Biosensors. *Expert Reviews of Medical Devices*. Vol. 6, no. 7. : 767-779.
28. Y. Zhao. 2009. Investigating Electrical Field Affected Skeletal Myogenesis using A Microfabricated Electrodes Array. *Sensors and Actuators A: Physical*. Vol. 2, no. 154. : 281-287.
29. Y. Zhao and H. Zeng. 2009. Fabricating Non-Photodefinable Polymer Microstructures for Micro-Total-Analysis. *Sensors and Actuators B: Chemical*. no. 139. : 673-681.
30. Y. Zhao and H. Zeng. 2009. Rotational Maneuver of Ferromagnetic Nanowires for Cell Manipulation. *IEEE Transactions on Nanobioscience*. Vol. 3, no. 8. : 226-236.
31. Y. Zhao, H. Zeng, J. Nam and S. Agarwal. 2009. Fabrication of Skeletal Muscle Constructs by Topographic Activation of Cell Alignment. *Biotechnology and Bioengineering*. Vol. 2, no. 102. : 624-631.
32. H. Zeng, T. A. Butterfield, S. Agarwal, F. Haq, T. M. Best, and Y. Zhao. 2008. An Engineering Approach for Quantitative Analysis of the Lengthwise Strokes in Massage Therapies. *Journal of Medical Devices*. Vol. 4, no. 2. (October 24): 041003.
33. T.A. Butterfield, Y. Zhao, S. Agarwal, F. Haq, and T.M. Best. 2008. Cyclic Compressive Loading Facilitates Recovery after Eccentric Exercise. *Medicine and Science in Sport and Exercise*. Vol. 7, no. 40. : 1289-1296.
34. Y. Zhao and X. Zhang. 2008. Profile Control in Silicon Nanostructures Using Fluorine Enhanced Oxide Passivation. *IEEE Transactions on Nanotechnology*. Vol. 1, no. 7. : 40-47.
35. Y. Zhao and X. Zhang. 2007. Adaptation of Myofibrils to a Microstructured Polymeric Substrate. *Sensors and Actuators A: Physical*. Vol. 2, no. 136. : 491-495.
36. Y. Zhao, C.C. Lim, D. Sawyer, R. Liao, and X. Zhang. 2007. Simultaneous Orientation and Cellular Force Measurements in Adult Cardiac Myocytes Using Three-dimensional Polymeric Microstructures. *Cell Motility and Cytoskeleton*. Vol. 9, no. 64. : 718-725.
37. Y. Zhao, and X. Zhang. 2006. An Approach for Creating Polymeric Microstructures with Various Aspect Ratios for Cellular Analysis Applications. *Sensors & Actuators A: Physics*. Vol. 2, no. 127. : 216-220.
38. Y. Zhao, and X. Zhang. 2006. Cellular Mechanics Study in Cardiac Myocytes Using PDMS Pillar Array. *Sensors & Actuators A: Physical*. Vol. 2, no. 125. : 398-404.
39. Y. Zhao, and X. Zhang. 2006. Determination of the Deformations in Polymeric Nanostructures Using Geometric Moire Techniques for Biological Applications. *Sensors & Actuators B: Chemical*. Vol. 2, no. 127. : 376-383.
40. Y. Zhao, C.C. Lim, D. Sawyer, R. Liao, and X. Zhang. 2006. Microchip for Subcellular Mechanics Study in Living Cells. *Sensors & Actuators B: Chemical*. Vol. 2, no. 114. : 1108-1115.
41. Y. Zhao, and X. Zhang. 2005. Adaptation of Flexible Polymer Fabrication to Cellular Mechanics Study. *Applied Physics Letters*. Vol. 14, no. 87. : 144101.
42. Y. Zhao, C.C. Lim, D. Sawyer, R. Liao, and X. Zhang. 2005. Cellular Force Measurements using Single-spaced Polymeric Microstructures: Isolating Cells from Base Substrate. *Journal of Micromechanics and Microengineering*. Vol. 9, no. 15. : 1649-1656.

43. X. Zhang, Y. Zhao, B. Li, and D. Ludlow. 2004. Pumping Capacity and Reliability of Cryogenic Micro-Pump for Micro Satellite Applications. *Journal of Micromechanics and Microengineering*. Vol. 10, no. 14. : 1421-1429.

Manuscripts Under Review

1. X. Zhang, and Y. Zhao, Bottom-up microfabrication of particulate scaffolds for cell patterning, submitted to *Biofabrication.*
2. Y. Gu, P. Jukkola, Q. Wang, Y. Zhao, C. Gu, Polarity of varicosity initiation in central neuron mechanosensation, submitted to *Nature Communications*.
3. Q. Wang, H. Huang, K. Wei, Y. Zhao, A Microengineering approach to study time-dependent combinatory effects of active mechanical loading and passive topographical cues on cell orientation, submitted to *Biotechnology and Bioengineering, revised*.
4. K. Wei, H. Huang, and Y. Zhao, Focus-tunable liquid lens with an aspherical membrane for improved central and peripheral resolutions at high diopters, submitted to *Optical Express.*
5. S. K. Crawford, Y. Zhao, T. A Butterfield, T. M. Best. Mechanical loading profiles during Swedish massage and their effects on active and passive mechanical property recovery following eccentric exercise, submitted to *Ann Biomed Eng*.

Peer-Reviewed Conference Proceeding Papers (Full Papers)

1. H. Huang, K. Wei and Y. Zhao. 2016. A Compound Optofluidic Lens for Switchable 2D/3D Imaging. Proceeding of the 29th IEEE International Conference on Micro Electro Mechanical Systems (MEMS 2016), Shanghai, China: in press.
2. H. Huang, K. Wei and Y. Zhao. 2016. Variable Focus Smartphone Based Microscope Using An Elastomer Liquid Lens. Proceeding of the 29th IEEE International Conference on Micro Electro Mechanical Systems (MEMS 2016), Shanghai, China: in press.
3. H. Huang, K. Wei and Y. Zhao. 2016. Optofluidic lens(es) for switchable 2D and 3D imaging. Biomedical Optics Conference, SPIE Photonics West, San Francisco, CA, accepted.
4. H. Huang, K. Wei, and Y. Zhao. 2016. A focus-tunable liquid lens encapsulated by a membrane with aspherical cross-section for field curvature reduction at high diopters, Biomedical Optics Conference, SPIE Photonics West, San Francisco, CA, accepted.
5. Xu Zhang, and Yi Zhao, 2014. A Microfluidic Device to Generate Heterogeneous Shear Stress Pattern with High Shear Contrast in Parallel Compartments of the Same Culturing Chamber. Proceeding of 17th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS 2014). San Antonio, TX: 485-487.
6. Q. Wang, K. Wei, and Y. Zhao, 2014. A Microdevice to Investigate the Synergistic Effect of Passive and Active Mechanical Stimulations on Cell Alignment. Proceeding of 17th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS 2014). San Antonio, TX: 485-487. 775-777.
7. K. Wei, Y. Zuo, N. W. Domicone, A. Wang, M. S. Rudy and Y. Zhao. 2014. An On-Board Microfluidic Pump Driven by Magnetic Stir Bar. Proceeding of 17th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS 2014). San Antonio, TX: 485-487. 2211-2213.
8. X. Zhang, and Y. Zhao, 2014. A Microdevice for Examining Cardiac Gap Junction. In: Technical Digest of IEEE Solid-State Sensor and Actuator Workshop (Hilton Head2014). Hilton Head Island, SC. June 8-12, 2014: 9-12.
9. Q. Wang, S. Zhao, J.K. Choi, X. He, and Y. Zhao, 2014. Polymeric Micro-gripper for Applying Mechanical Stimulation on Three-dimensional Cell Aggregates. In: Technical Digest of IEEE Solid-State Sensor and Actuator Workshop (Hilton Head2014). Hilton Head Island, SC. June 8-12, 2014: 147-150.

10. K. Wei and Y. Zhao, 2014. Fabrication of Anisotropic and Hierarchical Undulations By Benchtop Surface Wrinkling. In: Proceedings of the 26th IEEE International Conference on Micro Electro Mechanical Systems (MEMS 2014), San Francisco, CA. Jan 26-30, 2014: 474-477.
11. K. Wei, N. Domicone, and Y. Zhao, 2014. A Tunable Liquid Lens Driven By A Concentric Annualr Electroactive Actuator, In: Proceedings of the 26th IEEE International Conference on Micro Electro Mechanical Systems (MEMS 2014), San Francisco, CA. Jan 26-30, 2014: 909-912.
12. Q. Wang and Y. Zhao, 2013. A Microfluidic Device to Load Multiple Mechanical Stimulators with Differing Strain Magnitudes with A Single Pump. In: Proceeding of the 17th International Conference on Solid-State Sensors and Actuators and Microsystems (Transducers2013). Barcelona, Spain, June 16-20, 2013: 392-395.
13. X. Zhang, and Y. Zhao, 2013. Creating Particulate Microstructures For two- and Three- Dimensional Cell Patterning. In: Proceeding of the 17th International Conference on Solid-State Sensors and Actuators and Microsystems (Transducers2013). Barcelona, Spain, June 16-20, 2013: 2616-2619.
14. Kang Wei and Yi Zhao, 2013. A Three-Dimensional Deformable Liquid Lens Array For Directional and Wide angle Laparoscopic Imaging. In: Technical Digest of the 25th IEEE International Conference on Micro Electro Mechanical Systems (MEMS 2013), Taipei, Taiwan: 133-136.
15. Qian Wang and Y. Zhao, 2012. Microdevice for Studying Intercellular Mechanical Interaction. Proceeding of 16th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS 2012). Okinawa, Japan: 503-505.
16. Xu Zhang and Yi Zhao, 2012. Microfabricated Particle Assemblies for Versatile Cell Patterning. Proceeding of 16th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS 2012). Okinawa, Japan: 1087-1089.
17. Kang Wei and Yi Zhao, 2012. Fast and Versatile Fabrication of PDMS Nanowrinkling Structures. Proceeding of 16th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS 2012). Okinawa, Japan, 665-667.
18. X. Zhang, and Y. Zhao. 2011. Spatially Controllable Deposition of Electrospray Microparticles. In: ASME International Mechanical Engineering Congress and RD&D Expo (IMECE 2011). Denver, CO: 65383.
19. Q. Wang, B. Kim, X. Zhang, and Y. Zhao. 2011. Fabrication and Characterization of A Microscale Cellular Loading Device for Cellular Biomechanical Study. In: ASME International Mechanical Engineering Congress and RD&D Expo (IMECE2011). Denver, CO: 65188.
20. Q. Wang, and Y. Zhao, 2011. Miniaturized Cell Mechanical Stimulator with Controlled Strain Gradient for Cellular Mechanobiological Study. Proceeding of 15th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS 2011). Seattle, WA: 1113-1115.
21. B. Kim, C. J. Roberts, A. M. Mahmoud, D. M. Grzybowski, P. Weber, and Y. Zhao, 2011. Effect of Topographic Cues on In Vitro Cultured Trabecular Meshwork Endothelial Cells, Proceeding of 15th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS 2011). Seattle, WA: 801-803.
22. H. Zeng and Y. Zhao. 2011. A Bioinspired 3D Artificial Compound Eye with Focus-Tunable Single Lenses. In: Proceeding of 15th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS 2011). Seattle, WA: 1980-1982.
23. B. Kim, H. Borteh, and Y. Zhao. 2011. Programmable Micropatterning of Nanofibers Using Floating Electrodes for Functional Tissue Engineering. In: Proceeding of the 16th International Conference on Solid-State Sensors and Actuators and Microsystems (Transducers 2011). Beijing, China: 2343 - 2346.
24. H. Borteh, B. Kim, and Y. Zhao. 2011. Porous Microfluics: A Unique Platform for Transvascular Study. In: Technical Digest of the 23rd IEEE International Conference on Micro Electro Mechanical Systems (MEMS 2011), Cancun, Mexico: 952-955.

25. B. Kim, and Y. Zhao. 2010. Programmable Micropatterning of Polymer Nanofibers. In: ASME International Mechanical Engineering Congress and RD&D Expo (IMECE2010). Vancouver, BC, Canada: 315-320.
26. H. Zeng and Y. Zhao. 2010. Biomimetic Liquid State Inertial Sensor. In: ASME International Mechanical Engineering Congress and RD&D Expo (IMECE2010). Vancouver, BC, Canada: 667-673.
27. W. Gu, B. Kim, and Y. Zhao. 2010. Exploring Electrical Impedance Spectroscopy As An Innovative Tool for On-Chip Analysis of Human Trabecular Meshwork. In: ASME International Mechanical Engineering Congress and RD&D Expo (IMECE2010). Vancouver, BC, Canada: 297-303.
28. B. Kim, D. M. Grzybowski, P. Weber, C. J. Roberts, and Y. Zhao. 2009. Electrospun Micro/Nanofiber Assisted In Vitro Construction of Trabecular Meshwork for Glaucoma Investigation. In: Proceeding of the 13th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS2009). Jeju Island, Korea: 1192-1194.
29. H. Zeng, and Y. Zhao. 2009. Cell Manipulation by Rotating Ferromagnetic Nanowires. In: Proceeding of the 13th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS2009). JeJu Island, Korea: 1128-1130.
30. H. Zeng, and Y. Zhao. 2009. Creating Microstructures in Electrospun Nanofibers Using a Micropatterned Collector Chip. In: Proceeding of the 15th International Conference on Solid-State Sensors and Actuators and Microsystems (Transducers2009). Denver, CO: 1099-1102.
31. H. Zeng, and Y. Zhao. 2009. Design and Implementation of Liquid Droplet Based Motion Sensing. In: Proceeding of the 15th International Conference on Solid-State Sensors and Actuators and Microsystems (Transducers2009). Denver, CO: 680-683.
32. H. Zeng, and Y. Zhao. 2009. Electrical Discharge Based Microfabrication on Electrospun Nanofibers. In: Technical Digest of the 22nd IEEE International Conference on Micro Electro Mechanical Systems (MEMS2009). Sorento, Italy: 559-562.
33. H. Zeng and Y. Zhao. 2009. On-Chip Blood Viscometer Towards Point-of-Care Hematological Diagnosis. In: Technical Digest of the 22nd IEEE International Conference on Micro Electro Mechanical Systems (MEMS'09). Sorento, Italy: 240-243.
34. H. Zeng, Y. Zhao, B. Wu, C. Taylor, R. Jacobsen, Y. Gao. 2009. Picosecond Laser Ablation of Polydimethylsiloxane (PDMS). In: Proceeding of ASME international Manufacturing Science and Engineering Conference 2009 (IMECE2009). West Lafayette, IN: 631-635.
35. Y. Zhao. 2008. Microchip for the Regulation of Skeletal Muscle Differentiation. In: Technical Digest of the 21st IEEE International Conference on Micro Electro Mechanical Systems (MEMS2008). Tucson, AZ. (January): 288-291.
36. H. Zeng and Y. Zhao. 2008. Study of Whole Blood Viscosity Using a Microfluidic Device. In: 2008 ASME International Mechanical Engineering Congress and Exposition (IMECE2008). Boston, MA (October): 223-229.
37. H. Zeng, F. Haq, T. Best, S. Agarwal, T. Butterfield and Y. Zhao. 2008. Biomechanical Device Towards Quantitative Massage. In: 2008 ASME International Mechanical Engineering Congress and Exposition (IMECE2008). Boston, MA (October): 151-157.
38. H. Zeng, F. Wang, J. Guan, Y. Zhao. 2008. Micro-Electrodes Assisted Micro-Patterning on Nanofiber. In: Materials Research Society Symposium Proceedings (MRS2008). Boston, MA.
39. H. Zeng, J. Ebel, and Y. Zhao. 2008. Rapid Cell Manipulation by Rotating the Nanowires. In: Materials Research Society Symposium Proceedings (MRS2008). Boston, MA.
40. S.W. Price, B. Kim, C.J. Roberts, D.M. Grzybowski and Y. Zhao. 2008. Investigating the Porosity of Trabecular Meshwork Using Microfabricated Structures for Glaucoma Treatments. In: Proceeding of the 12th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS2008). San Deigo, CA: 543-545.
41. Y. Zhao. 2008. Closely Spaced Polymer Microstructures as a Unique Tool for Characterization at the Small Scales. In: Technical Digest of the 21st IEEE International Conference on Micro Electro Mechanical Systems (MEMS2008). Tuscon, AZ: 459-462.

42. Y. Zhao. 2007. Investigation of Interstructural Collapse of PDMS Microstructures. In: Proceeding of the 11th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS2007). Paris, France: 521-523.
43. Y. Zhao. 2007. Skeletal Myoblast Proliferation and Fusion Regulated by Microelectrode Arrays. In: Proceeding of the 11th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS2007). Paris, France: 760-762.
44. Y. Zhao. 2007. Three-dimensional Micro-Topography Enhances Directional Myogenic Differentiation of Skeletal Precursor Cells. In: Microelectromechanical Systems--Materials and Devices, Materials Research Society Symposium Proceedings (MRS2007). Boston, MA: DD3.27.
45. Y. Zhao and X. Zhang. 2006. Directional Reassembly of Myofibrils in Cultured Cardiac Myocytes Using a Three-Dimensional Polymeric Substrate. In: Technical Digest of IEEE Solid-State Sensor and Actuator Workshop (Hilton Head2006). Hilton Head Island, SC: 410-411.
46. Y. Zhao and X. Zhang. 2006. Failure Investigation of Polymer Mechanical Components. In: Mechanics of Biological and Bio-Inspired Materials, Materials Research Society Symposium Proceedings (MRS2006). Boston, MA: DD06-09.
47. Y. Zhao and X. Zhang. 2006. Mechanical Properties Evolution of Polydimethylsiloxane During Crosslinking Process. In: Mechanics of Biological and Bio-Inspired Materials, Materials Research Society Symposium Proceedings (MRS2006). Boston, MA: DD06-07.
48. Y. Zhao, D. Mabius, J. Regis, and X. Zhang. 2006. Pressure-Assisted Micropatterning of Non-Photodefinable Polymers. In: Proceeding of the 10th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS2006). Tokyo, Japan: 1439-1443.
49. Y. Zhao, X. Zheng, J. Regis, D. Mabius, and X. Zhang. 2006. Creating Silicon Nanostructures with Controllable Sidewall Profiles by Using Fluorine-Enhanced Oxide Passivation. In: Proceeding of the 10th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS2006). Tokyo, Japan: 1444-1448.
50. Y. Zhao and X. Zhang. 2005. Creating Nanostructures with Controllable Sidewall Profile for Mechanical Sensor Applications. In: Materials Research Society Symposium Proceedings (MRS2005). Boston, MA: O12-07.
51. Y. Zhao, and X. Zhang. 2005. A Three Dimensional Substrate for Cardiac Myocyte Orientation and Contraction Force Measurements. In: Proceeding of the 9th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MRS2005). Boston, MA: 166-168.
52. Y. Zhao, and X. Zhang. 2005. Contraction Force Measurements in Cardiac Myocytes Using PDMS Pillar Arrays. In: Proceeding of the 18th IEEE International Conference on Micro Electro Mechanical Systems (MEMS2005). Miami Beach, FL: 834-837.
53. Y. Zhao, F. Li, and X. Zhang. 2005. Determination of Deformations in Polymeric Nanostructures Using Geometric Moire Techniques for Biological Applications. In: Proceeding of the 13th International Conference on Solid-State Sensors and Actuators and Microsystems (Transducers2005). Seoul, Korea: 1748-1751.
54. Y. Zhao, H. Yu, and X. Zhang. 2005. Creating Polymer-based Microstructures with Various Aspect Ratios from a Single Template for Cellular Force Measurements. In: Proceeding of the 18th IEEE International Conference on Micro Electro Mechanical Systems (MEMS2005). Miami Beach, FL: 496-499.
55. H. Yu, Y. Zhao, B. Li, and X. Zhang. 2004. Three-dimensional Microvalves based on Single-layered SU-8 for Lab-on-chip Applications. In: Proceeding of the 8th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS2004). Malmo, Sweden: 73-75.
56. Y. Zhao, and X. Zhang. 2004. A Novel Pressure Indicator for Continuous Flow PCR Chip Using Micro Molded PDMS Pillar Arrays. In: Applications of Micron and Nanoscale Materials in Biology and Medicine, Materials Research Society Symposium Proceedings (MRS2004). Boston, MA: AA5.10.

57. Y. Zhao, and X. Zhang. 2004. In Situ Force Probing for Cardic Myocyte Using Micro PDMS Pillar Array. In: Proceeding of the 8th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS2004). Malmo, Sweden: 430-432.
58. Y. Zhao, and X. Zhang. 2004. Micropump Evaluation for Cryopreservation in On-chip Cell Culture. In: Proceeding of the 8th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS2004). Malmo, Sweden: 82-84.
59. Y. Zhao, B. Li, and X. Zhang. 2004. Investigation upon Mechanical Properties of Thin Film Silicon under Cryogenic Temperature. In: Materials for Space Applications, Materials Research Society Symposium Proceedings (MRS2004). Boston, MA: NN5.6.
60. Y. Zhao, B. Li, D. Ludlow, and X. Zhang. 2004. Mechanical Performance of Silicon Diaphragm for Space Application. In: ASME International Mechanical Engineering Congress and RD&D Expo (IMECE2004). Anaheim, CA: IMECE2004-62175.
61. Y. Zhao, B. Li, D. Ludlow, and X. Zhang. 2004. Pumping Capacity and Reliability Study on Silicon-based Cryogenic Micro Pump. In: Proceeding of Nanotechnology Conference and Trade Show (Nanotech2004). Boston, MA: 406-409.
62. Y. Zhao, D.J. Ludlow, B. Li, and X. Zhang. 2004. Evaluation of Design and Performance of a Cryogenic MEMS Micropump Realized with Si-based Diaphragm Using Combination of ZYCO/WYKO Interferometer and Raman Spectroscopy. In: Micro- and Nanosystems, Materials Research Society Symposium Proceedings (MRS2004). Boston, MA: A5.52.
63. Y. Zhao, H. Yu, B. Li, and X. Zhang. 2004. Micro Molded PDMS Structures for Cardiac Myocyte Restoring Force Measurements. In: Technical Digest of IEEE Solid-State Sensor and Actuator Workshop (Hilton Head2004). Hilton Head Island, SC: 394-395.
64. H. Yu, A. Gruntzig, Y. Zhao, A. Sharon, B. Li, and X. Zhang. 2003. Rapid Prototyping 3D Microstructures on Soft and Rigid Templates Using a Scanning Laser System. In: Proceeding of the 7th International Conference on Miniaturized Chemical and BioChemical Analysis Systems (μTAS2003). Squaw Valley, CA: 347-350.

Peer-Reviewed Conference Papers (Abstract Refereed)

1. Scott K. Crawford, Yi Zhao and Thomas M. Best. 2015. Mechanical Work of Massage after Eccentric Exercise in a Rabbit Model. The 39th American Society of Biomechanics, Columbus, OH.
2. Qian Wang, Kang Wei, Yi Zhao. 2014. A Microdevice for Simultaneous Applications of Topographic Cues and Cyclic Tensile Strains to Live Cells. Biomedical Engineering Society Annual Meeting. San Antonio, TX.
3. Xu Zhang, Yi Zhao. 2014. A Microdevice For Studying Intercellular Electromechanical Transduction In Adult Cardiac Myocytes. Biomedical Engineering Society Annual Meeting. San Antonio, TX.
4. Xu Zhang, Yi Zhao. 2014. Three-Compartment Microfluidic Device For Generating Heterogeneous Shear Stress Pattern. Biomedical Engineering Society Annual Meeting. San Antonio, TX.
5. Xu Zhang, and Yi Zhao, 2013. Selective Electrical Stimulation of Adult Carduinyocytes For Studying Intercellular Mechanical Transmission, ASME Summer Bioengineering Conference, Sunriver, OR.
6. Qian Wang, and Yi Zhao, 2013. Microdevice for Delivering Homogeneous Equi-Biaxial Strain To Live Cells Without the Use of Platen Structures, ASME Summer Bioengineering Conference, Sunriver, OR.
7. Kang Wei and Yi Zhao, 2012. Benchtop PDMS Surface Wrinkling for Cellular Mechanotransduction Studies, BMES 2012 Annual Meeting, Atlanta, GA.
8. Xu Zhang and Yi Zhao, 2012. Cell Patterning Using Electrosprayed Microparticles, BMES 2012 Annual Meeting, Atlanta, GA.
9. Qian Wang and Yi Zhao, 2012. A Microdevice for Investigating Intercellular Communication under Uniaxial Strain Gradient, BMES 2012 Annual Meeting, Atlanta, GA.
10. Qian Wang and Yi Zhao, 2012. A Microdevice with Varying Thickness Membranes for Live Cell Equi-Biaxial Straining, BMES 2012 Annual Meeting, Atlanta, GA.

11. B. Kim, H. Borteh, A. Mahmond, C. Roberts, and Y. Zhao. 2011. Cellular Response of Trabecular Meshwork Endothelium on Micro/Nano Scale Features. ASME 2011 International Mechanical Engineering Congress & Exposition, Denver, CO.
12. B. Kim, and Y. Zhao. 2011. Topographic Effect of Micro/Nanoengineered Polymer Substrates on Cultured Trabecular Meshwork Cells. ARVO 2011 Annual Meeting.
13. C. Haas, T. Butterfield, Y. Zhao, and T. Best. 2011. Cyclic Compressive Loading Facilitates Acute and Accumulated Recovery of Viscoelastic Properties of Skeletal Muscle Following Eccentric Exercise. American Society of Biomechanics Annual Meeting.
14. C. Haas, F. Haq, Y. Zhao, T. Butterfield, T. Best. 2010. Effect of Cyclic Compressive Loading on Muscle Mechanical Properties Following Eccentric Exercise. 2010 Biomedical Engineering Society Annual Meeting. Austin, Texas, USA.
15. B. Kim, D. Grzybowski, C. Roberts, P. Weber, and Y. Zhao. 2010. Nanoengineered Polymer Scaffold with Controllable Porosity towards 3D In Vitro Trabecular Meshwork Model. ARVO 2010 Annual Meeting, Reducing Disparities in Eye Disease and Treatment. Fort Lauderdale, FL.
16. B. Kim, C. J. Roberts, D. M. Grzybowski, P. A. Weber, and Y. Zhao. 2009. ECM Expression in Three-Dimensional Electrospun Micro/nanofibrous Polymer Scaffolds for the Modeling of Human Trabecular Meshwork. 2009 Biomedical Engineering Society Annual Fall Meeting. Pittsburgh, PA.
17. B. Kim, C. J. Roberts, D. M. Grzybowski, P. Weber, and Y. Zhao. 2009. Development of In vitro 3D Model of Human Trabecular Meshwork Using Polymer Microfibers. ARVO's 2009 Annual Meeting, Reducing Disparities in Eye Disease and Treatment . Fort Lauderdale, FL.
18. D. J. Barna, H. Zeng, B. Kim, and Y. Zhao. 2009. Programmable Electro-spun Nanofibers: Towards Functional Tissue Engineering Scaffolds. 2009 Biomedical Engineering Society Annual Fall Meeting. Pittsburgh, PA.
19. H. Zeng, and Y. Zhao. 2009. Liquid Droplet for Motion Sensing. 2009 Biomedical Engineering Society Annual Fall Meeting. Pittsburgh, PA.
20. Y. Zhao, B. Kim, C. J. Roberts, D. M. Grzybowski, P. Weber. 2009. Investigation of Microtopography Regulated Human Trabecular Meshwork Culture for Glaucoma Treatment. ARVO's 2009 Annual Meeting, Reducing Disparities in Eye Disease and Treatment. Fort Lauderdale, FL.
21. H. Zeng, F. Haq, T. Best, S. Agarwal, T. Butterfield, and Y. Zhao. 2008. Development of A Medical Device for Quantitative Physical Therapies. Journal of Medical Devices. no. 2: 027530.
22. H. Zeng, F. Haq, T. Best, S. Agarwal, T. Butterfield, Y. Zhao. 2008. Development of A Medical Device for Quantitative Physical Therapies. Design of Medical Devices Conference.
23. T. A. Butterfield, Y. Zhao, S. Agarwal and T. M. Best. 2008. Cyclic Compressive Loading Facilitates Functional and Histological Recovery Following Strain Induced Damage in Skeletal Muscle. American Society of Biomechanics Annual Meeting.
24. X. Zheng, Y. Zhao, and X. Zhang. 2006. Determination of Residual Deformation of Polymeric Nanostructures using Microscopic Moire Interferometry. Optics East 2006.
25. Y. Zhao and X. Zhang. 2005. Engineering Polymeric Microstructures for Cell Alignment and Force Measurement. Materials Research Society Fall Meeting
26. Y. Zhao and X. Zhang. 2005. Using Geometric Moiré to Measure the Deformation in Polymeric Nanostructures. 52nd International 52nd International Symposium of the American Vacuum Society.
27. H. Yu, Y. Zhao, B. Li, and X. Zhang. 2004. Rapid 3D Manufacture of Freeform Single-layered SU-8 Microstructures and Microdevices by Using a Scanning Laser System. IEEE Solid-State Sensor and Actuator Workshop.
28. Y. Zhao and X. Zhang. 2004. Evaluation of Contraction Performance Cardiac Myocyte Using Micro Molded Pillars. BMES Annual Fall Meeting.
29. Y. Zhao, and X. Zhang. 2004. Micro Molded PDMS Structures for Cardiac Myocyte Contraction Force Measurements. BioMEMS & NANOtech World.

30. Y. Zhao, and X. Zhang. 2004. Nanomachined Structures for Cell Migration and Traction Force Measurements. Thin Film & Thin Film & Small Scale Mechanical Behavior, Gordon Research Conference.
31. Y. Zhao, B. Li, and X. Zhang. 2004. Determination of Young's Modulus for Silicon Membrane in Cryogenic Micropump using Laser Michaelson Interferometry. 47th International Symposium of the American Vacuum Society.
32. Y. Zhao, B. Li, and X. Zhang. 2004. Pumping Capacity and Reliability of Silicon-Based Micro Pump for Satellite Instrumentation. IEEE Solid-State Sensor and Actuator Workshop.
33. Y. Zhao, H. Yu, and X. Zhang. 2004. Microchip for Subcellular Mechanics Study in Living Cells. BioMEMS & NANOtech World.

Book Chapters

1. X. Zhang, Y. Zhao, and X. Zheng. 2009. Micro/nanostructures for Measuring Cellular Forces in Cardiac Myocytes. In Nanomanufacturing. Edited by Shaochen Chen. Santa Clarita, CA: American Scientific Publishers. 213-233.
2. Y. Zhao and X. Zhang. 2007. Nanobiotechnology: an Engineer's Foray into Biology. In *Advances in Computers*. Edited by Marvin Zelkowitz. Netherlands: Elsevier. 39-102.

Patents

1. Y. Zhao, and H. Zeng. Artificial Compound Eye With Adaptive Microlenses. US 8964019 B2. (Published on Feb 24, 2015)

FUNDED RESEARCH

1. 2015 – 2018. Collaborative Research: A Bioinspired Reconfigurable Optofluidic Device with Tunable Field-of-View and Adaptive Focusing Power. National Science Foundation. PI: Yi Zhao (OSU is the leading institute)
2. 2014 – 2016.I-Corps: Commercialization of A High Throughput Cell Mechanical Stimulator. National Science Foundation. PI: Yi Zhao
3. 2011 – 2014. NUE: Integrative Biomedical Nanotechnology Laboratory Course. National Science Foundation. PI: Yi Zhao
4. 2011 – 2012. Classroom-Based Interactive Learning Experience in BME Undergraduate Domain Courses of Bioimaging and Biomedical Micro/Nanotechnology. OSU College of Engineering. PI: Yi Zhao.
5. 2010 – 2016. CAREER: Integrated micro-electro-mechanical-system for cellular mechanotransduction studies. National Science Foundation. PI: Yi Zhao.
6. 2010 – 2015. Training in Congenital and Acquired Heart Disease. National Institute of Health. Training Grant. PI: Terry Elton. Role: Participating Faculty
7. 2010 – 2011. Nanoengineered in vitro trabecular meshwork (TM) model for systematic investigation of aqueous humor outflow resistance. The Glaucoma Research Foundation. PI: Yi Zhao.
8. 2011. Polymeric Artificial Compound Eye for Advanced Endoscopic Imaging. Institute for Materials Research, The Ohio State University. Research Grant. PI: Yi Zhao
9. 2009 –2014. Massage Therapy in Eccentric Exercise Induced Muscle Weakness and Inflammation. National Institute of Health. Research Grant. Grant/Contract Number: GRT00011626 PI: Thomas Best. Role: Co-I.
10. 2009 – 2010. Microstructured Polymer Nanofibers for Skeletal Muscle Restoration. NSF MRSEC Center for Emergent Materials. Grant/Contract Number: DMR-0820414 PI: Yi Zhao
11. 2009. Development of A Hybrid Microcantilever for Bi-directional Sensing and Actuating at the Small Scale. Institute for Materials Research, OSU. PI: Yi Zhao
12. 2009. Molecular interactions within the cell: Network, scale, and complexity. Mathematical Bioscience Institute. PI: Yi Zhao

13. 2008. Understanding Cell Behavior From the Cell-Environment Mechanical Interactions Using Micro/Nanofabricated Devices: A synergistic Coupling of Experimental Work with Mathematic Modeling. Mathematical Biosicence Institute, OSU. PI: Yi Zhao
14. 2008. Lorentz-Force Based MEMS Device for Controllable Mechanical Loading on Single Cell. Institute of Materials Research, OSU. Research Grant. PI: Yi Zhao
15. 2008. Professional Development Grant, TERL at Ohio State University. PI: Yi Zhao
16. 2007. Manufacture of Non-Photodefinable Polymer Nanostructures Using Pressure-Assisted Nanopatterning. Institute of Materials Research, OSU. Research Grant. PI: Yi Zhao

STUDENT MENTORING

Postdoctoral Researchers (Advisor)

Year	Student	Research Topic/Current Position
2015 - present	Dr. Ting Si	• multiphase microencapsulation
2010	Dr. Shiyou Xu	• piezoelectric actuation in microfluidics currently a material scientist at Henkel AG & Co. KGaA
2010	Dr. Hassan Borteh	• programmable electropinning currently faculty at Cleveland State University

Ph.D. Students (Advisor)

Graduation Year	Student	Research Topic/Current Position
2020 (expected)	Ye Niu	• MEMS devices for continuous flow mechanical characterization of particulate species
2019 (expected)	Lin Qi	• microscale particulate structures for actuation and controlled releasing
2019 (expected)	Hanyang Huang	• optical aberration deduction for liquid lenses
2017 (expected)	Shuai Yuan	• electrospray of multiphase functional microstructures
2015	Dr. Kang Wei	• bio-inspired reconfigurable elastomer-liquid lens currently an optical/mechanical engineer at Alcon, a Novartis company
2015	Dr. Xu Zhang	• microengineered approach for quantitative assessment of intercelluar communication in cell doublets and microscale tissue models currently a project manager at Technology Entrepreneurship Center of OSU Fisher College of Business
2014	Dr. Qian Wang	• elastomer-based cellular micromechanical stimulators for mechanobiological study currently a biomedical system R&D engineer at Bertec Corporation
2013	Dr. Wenwen Gu	• electrophoresis and electrical impedance measurement currently an assistant professor at Southwest University, China
2012	Dr. Hansong Zeng	• bioinspired inertial sensors for human body motion measurement currently a senior engineer at Instrumentation Laboratory, A Werfen Company

2011	Dr. Bongsu Kim	• multidisciplinary engineered approaches to investigate human trabecular meshwork endothelial cells in regulation of intraocular pressure currently a research scientist at OSU Havener Eye Institute

Master Students (Advisor)

Year	Student	Current Position
2016 (expected)	Matthew Rudy	• applied neuroscience intern at Wright Patterson
2014	Juefei Wang	• research engineer at Honda Research
2013	Lisa Hahn	• project engineer at Stryker
2010	Ned Heffner	• legal instruments examiner at USPTO

Selected Students' Achievements

Student	Achievements
Dr. Hansong Zeng	• Received $1.6 million industrial fund as principal investigator within 9 month of graduation • Finalist in 2011 OSU Fisher Business Competition • Best poster award at 2010 International Mechanical Engineering Congress and Exposition • Best poster award in 2009 OSU Biomedical Engineering Conference • Finalist in 2008 Hayes Graduate Research Forum • Recipient of Alumni Grants for Graduate Research and Scholarship (AGGRS) • Recipient of OSU Presidential Fellowship
Dr. Bongsu Kim	• The 1st place award in 2009 OSU Ophthalmology Research Symposium • Ophthalmology departmental fellowship
Dr. Qian Wang	• Finalist, 2013 ASME SBC Student Paper Competition
Dr. Kang Wei	• NSF travel award • Semi-Finalist of 2012 OSU Fisher Business Competition • Recipient of University Fellowship • 2011 HHMI Med into Grad Scholar • 2013 Pelotonia Graduate Fellowship • 2014 SPIE Travel Award
Dr. Xu Zhang	• NSF travel award • The 3rd place award in 2012 Hayes Graduate Research Forum • 2012 HHMI Med into Grad Scholar • NSF I-Corps Entrepreneur fellow

PROFESSIONAL ACTIVITIES

Associate Editor

2010 – present Journal of Tissue Engineering Research.

Editorial Board

2012 – present Journal of Regenerative Medicine and Tissue Engineering
2010 – present Journal of Biochips & Tissue Chips.
2010 – present Journal of Tissue Science & Engineering.

Guest Editor

2011	Special Issue: Biomolecules and Biomimetic Materials, Journal of Tissue Science & Engineering.

Section Editor

2010	Encyclopedia of Nanotechnology. (Book)

Journal Reviewer

Medical Engineering & Physics; PLoS One; IEEE Sensors; Lab Chip; ACS Applied Materials&Interfaces; Applied Physics Letters; Annals Biomedical Engineering; Analytical and Bioanalytical Chemistry; International Journal of Biomedical Nanoscience and Nanotechnology; Micro & Nano Letters; Biomicrofluidics; Microfluidics and Nanofluidics; Scientia Iranica; Nanoscale Research Letters; International Journal of Biological Sciences; International Journal of Biomedical Nanoscience and Nanotechnology; Acta Biomaterialia; Applied Surface Science; IEEE Transactions on Nanotechnology; Nanotechnology; Sensors; Nano Life; Journal of Chromatography A; Biosensors and Bioelectronics; Langmuir; Smart Materials and Structures; Measurements Science and Technology; Journal of Micro/Nanolithography, MEMS and MOEMS; Journal of Microengineering and Micromechanics; Sensors and Actuators A: Physical; Sensors and Actuators B: Chemical.

Grant Review

2010 – present	Innovation Partnership (IPart).
2009 – present	Florida Department of Health.
2008 – present	National Science Foundation (CMMI, ECCS, DBI, IIP, EEC, GRFP, NRT).

Conference Participation

2011	Founding Track Chair. NanoEngineering for Medicine and Biology, ASME International Mechanical Engineering Congress & Exposition. Denver, CO.
2010	Program Committee Member. The 3rd International Conference on BioMedical Engineering and Informatics. Yantai, China.
2008	Session Organizer and Chair. Biomechatronic and Biomedical Robotics. ASME International Mechanical Engineering Congress & Exposition.
2008	Session Chair. Nano, Bio, Cellular, and Nonlinear Materials. ASME International Mechanical Engineering Congress & Exposition.
2008	Symposium Co-Chair. Manufacture Effectiveness for Miniaturized Lab-On-Chip Systems. ASME International Conference on Manufacturing Science & Engineering.
2008	Member. Microfluidic Executive Committee. ASME International Mechanical Engineering Congress & Exposition.

Outreach Activities and Community Service

2012 - present	Mentor, Metro High School internship program
2012	BME faculty Representative, Women in Engineering Banquet
2011	How Learning Works. Attendee. University Center for Advancement of Teaching. Longaberger Alumni House. Columbus, OH, 43210.
2010	Game-based Learning Brown-bag Discussion, University Center for Advancement of Teaching, Columbus, OH, 43210
2010	Goldberg Teaching Colloquium: "No Child Left Behind", University Center for Advancement of Teaching. Columbus, OH, 43210.
2009 – 2010	Faculty Representative. Young Scholars Program. Lectures. OSU Office of Minority Affairs.
2009	Faculty Volunteer. 2nd Annual Festival of Physics. Center of Science and

	Industry (COSI), Columbus, OH.
2009	Faculty Representative for Student Orientation. OSU Women in Engineering Summer Program.
2007 – present	Workshop Organizer. BME workshop in Engineers in Motion Program. Women in Engineering.

Service to Student Affairs

2015 – present	Faculty Advisor, OSU SPIE Student Chapter
2008 – present	Judge. Freshman Engineering Honor Program. OSU College of Engineering
2008 – present	Judge. Hayes Graduate Research Forum. OSU Graduate School.
2007 – present	Judge. Denman Undergraduate Research Forum. The University Honors & Scholars Center.

College/Departmental Activities

2013	OSTEP Mid-Career & Senior Faculty Program
2010	Quarter to Semester Task Force Committee, Panelist.
2010 - present	Graduate Study Committee, Member.
2009 - present	Diversity Committee, Member.
2009 – 2014	Computing Service Committee, Member.
2008, 2013	Faculty Search Committee, Member.

Memberships

2011 – present	Faculty Member. Food Innovation Center, OSU.
2011 – 2013	Member. ASME Tissue and Cellular Engineering Committee
2010 – 2013	Member. ASME Nanotechnology Council.
2009 – 2010	Member. NSF MRSEC Center for Emergent Materials. Activity Committee.
2012 - present	P status Faculty Member. Mechanical Engineering, OSU
2008 - present	P status Faculty Member. Biophysics Graduate Program, OSU
2012 – present	Adjunct Associate Professor, Department of Ophthalmology
2009 – 2012	Adjunct Assistant Professor, Department of Ophthalmology
2007 - present	Member. Institute for Materials Research, OSU
	Active Member. ASME, IEEE, ARVO, BMES, MRS