

Yubing Sun, Ph.D.

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EDUCATION

University of Michigan, Ann Arbor (UMich)

PhD. Mechanical Engineering.

Thesis advisor: Prof. Jianping Fu

Ann Arbor, MI

June. 2015

University of Science and Technology of China (USTC)

Bachelor of Science, Materials Science and Engineering

Honors degree program in physical science.

Hefei, Anhui

Aug. 2010

RESEARCH EXPERIENCE

University of Massachusetts, Amherst

Assistant Professor

Department of Mechanical and Industrial Engineering

Adjunct Assistant Professor

Department of Chemical Engineering

Faculty Member

Institute for Applied Life Sciences

Faculty Member

Molecular and Cellular Biology Graduate Program

Leadership Team

Soft Materials for Life Sciences National Research Traineeship

Faculty Member

Center for Biological Physics

Amherst, MA

Jan. 2016 -

University of Michigan, Ann Arbor

Research Fellow

Department of Mechanical Engineering

Ann Arbor, MI

Aug. 2015 – Dec. 2015

University of Michigan, Ann Arbor

Graduate Student Research Assistant

Integrated Biosystems and Biomechanics Laboratory (IBBL)

- Micropatterning for cell shape mediated temporal responses of hPSCs to Wnt signal activation
- Microengineered surfaces for rigidity-dependent motor neuron differentiation of pluripotent stem cells
- Acoustic tweezing cytometry for control of intracellular contractile forces and stem cell apoptosis
- Mechanically tunable biomaterials for study of multi-scale mechanoresponsive cellular behaviors
- Nanotopographical surfaces for stem cell fate control
- Microfluidics platforms for flow-mediated endothelial mechanotransduction

Ann Arbor, MI

Aug. 2010 - Aug. 2015

University of Science & Technology of China

Undergraduate Research Assistant

Functional Nanomaterials Laboratory (FNL)

- Synthesis and characterization of Ag-Iron oxide hybrid nanoparticles
- Magnetically responsive superparamagnetic colloidal photonic crystals

Oct. 2008 - July 2010

TEACHING EXPERIENCE

University of Massachusetts, Amherst

• Instructor, MIE 597MB, Molecular, cellular and tissue biomechanics

• Instructor, MIE 230, *Thermodynamics*

Fall 2016, 2017

Spring 2016

University of Michigan, Ann Arbor

- Graduate Student Instructor, *Thermodynamics* Sept. 2013 - Dec. 2013
- Guest Lecturer, *Molecular, cellular and tissue biomechanics* Nov. 2012
- Graduate Student Instructor, *Thermodynamics* Jan. 2012 - Apr. 2012

AWARDS AND RECOGNITION

- ProQuest Distinguished Dissertation Awards, Honorable Mention, UMich 2015
- Chinese Government Award for Outstanding Self-Financed Students Abroad, CSC 2014
- Robert M. Caddell Memorial Award for Research, UMich 2014
- Rackham Conference Travel Grant, UMich 2012, 2013, 2014
- Rackham International Students Fellowship, UMich 2011
- Department Fellowship, Department of Mechanical Engineering, UMich 2010
- Lixun Scholarship, Institute of Metal Research, Chinese Academy of Sciences 2009
- Ya Yang Scholarship, USTC Alumni Foundation 2008
- Outstanding Student Scholarship (Grade1), USTC 2007, 2008
- National Lizhi Scholarship, Ministry of Education of the P. R. China 2007
- 813 Award, USTC Alumni Foundation 2007

REFEREED PUBLICATIONS

(*: equal contribution; #: corresponding author; graduate students/postdoctoral fellows mentored)

At the University of Massachusetts Amherst:

- [1] Weiqiang Chen, Shuo Han, Weiyi Qian, Shinuo Weng, Haiou Yang, Yubing Sun, Luis G. Villa-Diaz, Paul H. Krebsbach, and Jianping Fu. Nanotopography Regulates Motor Neuron Differentiation of Human Pluripotent Stem Cells. *Nanoscale*, in press, 2018.
- [2] Bin Zhao, Casey O'Brien, Aruni P. K. Karunanayake Mudiyansele, Ningwei Li, Yousef Bagheri, Rigumula Wu, **Yubing Sun**, and Mingxu You. Visualizing Intercellular Tensile Forces by DNA-Based Membrane Molecular Probes. *Journal of the American Chemical Society*, vol. 139, 18182. 2017.
- [3] Nariman Banaei, Anne Foley, JeanMarie Houghton, **Yubing Sun**[#], and Byung Kim[#]. Multiplex detection of pancreatic cancer biomarkers using a SERS-based immunoassay. *Nanotechnology*, vol. 28, 45, 2017.
 - a. Selected as the *Annual Highlights of 2017* by Nanotechnology
- [4] Xin Cui, Weijin Guo, **Yubing Sun**, Baoce Sun, Shuhuan Hu, Dong Sun, Raymond HW Lam. A microfluidic device for isolation and characterization of transendothelial migrating cancer cells. *Biomicrofluidics*, vol. 11, 014105, 2017.
- [5] Tianfa Xie, Jamar Hawkins, **Yubing Sun**[#]. Traction Force Measurement Using Deformable Microposts. In: Rittié L. (eds) *Fibrosis. Methods in Molecular Biology*, vol. 1627, Humana Press, New York, NY, 2017.
- [6] Koh Meng Aw Yong, **Yubing Sun**, Sofia D. Merajver, and Jianping Fu. Mechanotransduction-induced reversible phenotypic switching in prostate cancer cells. *Biophysical Journal*, vol.112, pp. 1236-1245, 2017.

Before UMass:

- [2] Yi Zheng, **Yubing Sun**, Xinwei Yu, Yue Shao, Ping Zhang, Guohao Dai, and Jianping Fu. Angiogenesis in liquid tumors: An in-vitro assay for leukemic cell induced bone marrow angiogenesis. *Advanced Healthcare Materials*, vol. 5, pp. 1014-1024, 2016.
- [3] Hui Wang, Jing Di, **Yubing Sun**, Jianping Fu, Zengyan Wei, Hiroshi Matsui, Alejandra del C. Alonso, and Shuiqin Zhou. Biocompatible PEG-chitosan@carbon dots hybrid nanogels for two-photon fluorescence imaging, near-infrared light/pH dual-responsive drug carrier and synergistic therapy. *Advanced Functional Materials*, vol. 25, pp. 5537-5547, 2015.

- [4] **Yubing Sun**, Yue Shao, Xufeng Xue, and Jianping Fu. Emerging roles of YAP/TAZ in mechanobiology. *Molecular and Cellular Mechanobiology* (edited by Shu Chien, Adam J. Engler, and Yingxiao Wang), the American Physiological Society, 2015.
- [5] Di Chen*, **Yubing Sun***, Cheri X. Deng, and Jianping Fu. Improving survival of disassociated human embryonic stem cells by mechanical stimulation using acoustic tweezing cytometry. *Biophysical Journal (Biophysical Letter)*, vol. 108, pp. 1315-1317, 2015.
- [6] Hui Wang, **Yubing Sun**, Jinhui Yi, Jianping Fu, Jing Di, Alejandra del Carmen Alonso, and Shuiqin Zhou. Fluorescent porous carbon nanocapsules for two-photon imaging, NIR/pH dual-responsive drug carrier, and photothermal therapy. *Biomaterials*, vol. 53, pp. 117-126, 2015
- [7] Di Chen, **Yubing Sun**, Madhu S. R. Gudur, Yising Hsiao, Ziqi Wu, Jianping Fu, and Cheri X. Deng. Two bubble acoustic tweezing cytometry for biomechanical probing and stimulation of cells. *Biophysical Journal*, vol. 108, pp. 32-42, 2015.
- [8] Lin Han, Jing Zhou, **Yubing Sun**, Yu Zhang, Jung Han, Jianping Fu, and Rong Fan. Single-crystalline, nanoporous gallium nitride films with fine tuning of pore size for stem cell engineering. *ASME Journal of Nanotechnology in Engineering and Medicine*, vol. 5, 041004, 2014.
- [9] **Yubing Sun** and Jianping Fu. Harnessing mechanobiology of human pluripotent stem cells for regenerative medicine. *ACS Chemical Neuroscience*, vol. 5, pp. 621-623, 2014.
- a. Selected as the front cover page story by *ACS Chemical Neuroscience*.
- [10] **Yubing Sun**, Koh Meng Aw Yong, Luis G. Villa-Diaz, Xiaoli Zhang, Weiqiang Chen, Renee Philson, Shinuo Weng, Haoxing Xu, Paul H. Krebsbach and Jianping Fu. Hippo/YAP-mediated rigidity-dependent motor neuron differentiation of human pluripotent stem cells. *Nature Materials*, vol. 13, pp. 599-604, 2014.
- a. Commentary by Emily Rhodes Lowry & Christopher E. Henderson, *Nature Materials*, vol. 13, pp. 543-544, 2014.
- b. Commentary by Ning Wang, *Cell Stem Cell*, vol. 14, pp. 701-703, 2014.
- c. Highlighted by *Michigan News, UM ME Dept News, Detroit Local 4 News, Crain's Detroit Business, ABC 7 Sarasota - WWSB, ABC News Radio, Headlines & Global News, Red Orbit, The Doctor Will See You Now, Consultant360, Guardian Liberty Voice, The Australian, International Business Times UK, The Times of India, Israel Herald, Business Standard, Milwaukee Wisconsin Journal Sentinel, Scicasts, Wired.co.uk, Medical News Today, Phys.org, and ScienceDaily*.
- [11] Zhenzhen Fan*, **Yubing Sun***, Di Chen*, Weiqiang Chen, Cheri Deng, and Jianping Fu. Acoustic tweezing cytometry for live-cell subcellular control of intracellular cytoskeleton contractility. *Scientific Reports*, vol. 3, 2176, 2013.
- [12] Shinuo Weng, Yue Shao, **Yubing Sun**, and Jianping Fu. Micromachined elastomeric microposts and their applications for mechanotransduction research. *Dynamic Control of the Cellular Microenvironment* (book chapter, edited by Wendy Liu and Elliot Hui), Springer, 2013.
- [13] **Yubing Sun** and Jianping Fu. Mechanobiology: A new frontier for human pluripotent stem cells. *Integrative Biology*, vol. 5, pp. 450-457, 2013.
- a. Selected as the front cover page story and HOT article by *Integrative Biology*.
- [14] Weiqiang Chen, **Yubing Sun**, and Jianping Fu. Microfabricated nanotopological surfaces for study of adhesion-dependent cell mechanosensitivity. *Small*, vol. 9, pp. 81-89, 2013.
- a. Selected as the front cover page story by *Small*.
- [15] **Yubing Sun**, Liang-Ting Jiang, Ryoji Okada, and Jianping Fu. UV-modulated substrate rigidity for multiscale study of mechanoresponsive cellular behaviors. *Langmuir*, vol. 28, pp. 10789-10796, 2012.

- [16] **Yubing Sun**, Shinuo Weng, and Jianping Fu. Microengineered synthetic cellular microenvironment for stem cells. *Wiley Interdisciplinary Reviews (WIREs): Nanomedicine and Nanobiotechnology*, vol. 4, pp. 414-427, 2012.
- [17] **Yubing Sun**, Christopher S. Chen, and Jianping Fu. Forcing stem cells to behave: A biophysical perspective of cellular microenvironment. *Annual Review of Biophysics*, vol. 41, pp. 519-542, 2012.
- [18] **Yubing Sun**, Luis G. Villa-Diaz, Raymond Hiu-Wai Lam, Weiqiang Chen, Paul H. Krebsbach, and Jianping Fu. Matrix mechanics regulates fate decisions of human embryonic stem cells. *PLoS ONE*, vol. 7, e37178, 2012.
- a. Highlighted by *ESC & iPSC News*, *UM ME Dept News*, and *UM CoE News*.
 - b. Top 10% most cited PLOS ONE articles.
- [19] Weiqiang Chen, Luis G. Villa-Diaz, **Yubing Sun**, Shinuo Weng, Raymond Hiu-Wai Lam, Paul H. Krebsbach, and Jianping Fu. Nanotopography influences adhesion, spreading, and self-renewal of human embryonic stem cells. *ACS Nano*, vol. 6, pp. 4094-4103, 2012.
- a. Highlighted by *ESC & iPSC News*, *C&EN Online Story*, *UM ME Dept News*, and *UM CoE News*.
- [20] Raymond Hiu-Wai Lam, **Yubing Sun**, Weiqiang Chen, and Jianping Fu. Elastomeric microposts integrated into microfluidics for flow-mediated endothelial mechanotransduction analysis. *Lab on a Chip*, vol. 12, pp. 1865-1873, 2012.
- [21] Jennifer M. Mann*, Raymond Hiu-Wai Lam*, Shinuo Weng, **Yubing Sun**, and Jianping Fu. A silicone-based stretchable micropost array membrane for monitoring live-cell subcellular cytoskeletal response. *Lab on a Chip*, vol. 12, pp. 731-740, 2012.
- a. This paper was selected as one of the top 10% of all *Lab on a Chip* articles published in year 2012.
- [22] Hui Wang*, **Yubing Sun***, Yifei Yu, Jian Chen, Ran Li, Kai Cheng, Qianwang Chen. A general route to synthesize water-dispersive noble metal-iron oxide bifunctional hybrid nanoparticles. *Dalton Transactions*, vol. 41 (2), pp. 346-350, 2012.
- [23] Ran Li, Qianwang Chen, Hao Zhang, Xiankai Kong, **Yubing Sun**, Hao Zhong, Hui Wang, Shuai Zhou. Experimental investigations on the weakening effect of magnetic fields on surface-enhanced Raman scattering. *The Journal of Raman Spectroscopy*, vol. 44, pp. 525-530, 2012.
- [24] Hui Wang, Qianwang Chen, Yifei Yu, Kai Cheng, and **Yubing Sun**. Size- and solvent-dependent magnetically responsive optical diffraction of carbon-encapsulated superparamagnetic colloidal photonic crystals. *The Journal of Physical Chemistry C*, vol. 115 (23), pp. 11427-11434, 2011.
- [25] Hui Wang, Qianwang Chen, **Yubing Sun**, Mingsheng Wang, Lixia Sun. Synthesis of necklace-like magnetic nanorings. *Langmuir*, vol. 26 (8), pp. 5957-5962, 2010.
- [26] Hui Wang, Qianwang Chen, **Yubing Sun**, Mengyuan He. Synthesis of superparamagnetic colloidal nanochains as magnetic-responsive Bragg reflectors. *The Journal of Physical Chemistry C*, vol. 114 (46), pp. 19660-19666, 2010.
- [27] Mingsheng Wang, Jie Xiong, **Yubing Sun**, Qianwang Chen. Assembly of non-crystalline Co particles into nanowires under external magnetic fields. *CrystEngComm*, vol. 12 (10), pp. 3262-3266, 2010.
- [28] Hui Wang, **Yubing Sun**, Qianwang Chen, Yifei Yu and Kai Cheng. Synthesis of carbon-encapsulated superparamagnetic colloidal nanoparticles with magnetic-responsive photonic crystal property. *Dalton Transactions*, vol. 40 (39), pp. 9565-9569, 2010.
- [29] Hui Wang, Yifei Yu, **Yubing Sun** and Qianwang Chen. Magnetic nanochains: A review. *Nano*, vol. 6 (1), pp. 1-17, 2010.

REFEREED CONFERENCE PROCEEDINGS

- [1] **Yubing Sun**, Luis G. Villa-Diaz, Raymond Hiu-Wai Lam, Weiqiang Chen, Paul H. Krebsbach, and Jianping Fu. Micromechanical elastomeric devices for investigations of mechanobiology in human embryonic stem cells. *Proc. 16th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μ TAS 2012)*, Okinawa, Japan, Oct. 2012, pp. 1714-1716.
- [2] Jennifer M. Mann, Raymond Hiu-Wai Lam, **Yubing Sun**, Shinuo Weng, and Jianping Fu. A microengineered stretching platform for live-cell mechanotransductive response analysis. *Proc. 15th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μ TAS 2011)*, Seattle, USA, Oct. 2011, pp. 9-11.
- [3] Weiqiang Chen, **Yubing Sun**, and Jianping Fu. Nanotopographic control of human embryonic stem cell function. *Proc. 15th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μ TAS 2011)*, Seattle, USA, Oct. 2011, pp. 36-38.

CONFERENCE PODIUM TALKS AND POSTER PRESENTATIONS

At the University of Massachusetts Amherst:

- [1] Nader Hamzavi, **Yubing Sun**, "Biomechanics of Neural Tube Closure in Mammalian Embryos", *Biomedical Engineering Society (BMES) 2017 Annual Meeting*, Phoenix, AZ, Oct. 2017. (oral presentation)

Before UMass:

- [1] Yi Zheng, **Yubing Sun**, Xinwei Yu, Yue Shao, Ping Zhang, Guohao Dai and Jianping Fu. "Angiogenesis in liquid tumors: An in-vitro assay for leukemic cell induced bone marrow angiogenesis", *38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBCX16)*, Orlando, FL, Aug. 2016.
- [2] **Yubing Sun**. "Acoustic tweezing cytometry for mechanobiology and stem cell applications", *ASME 2015 4th Global Conference on Nanoengineering for Medicine and Biology (NEMB 2015)*, Minneapolis, MN, Apr. 2015. (oral presentation)
- [3] **Yubing Sun**, Koh Meng Aw Yong, Weiqiang Chen, Renee Philson, Shinuo Weng, and Jianping Fu. "Hippo-YAP dependent mechanosensitive motor neuron differentiation of human pluripotent stem cells", *Biomedical Engineering Society (BMES) 2014 Annual Meeting*, San Antonio, TX, Oct. 2014. (oral presentation)
- [4] **Yubing Sun**, "Acoustic tweezing cytometry for mechanobiology and stem cell applications", *7th World Congress of Biomechanics*, Boston, MA, Jul. 2014. (invited oral presentation)
- [5] **Yubing Sun**, Koh Meng Aw Yong, Luis G. Villa-Diaz, Xiaoli Zhang, Haoxing Xu, Paul H. Krebsbach and Jianping Fu. "Biophysical regulation of functional motor neuron generation from human pluripotent stem cells", *2014 Keystone Symposia Conference Z3: Engineering Cell Fate and Function*, Olympic Valley, CA, Apr. 2014. (oral presentation)
- [6] **Yubing Sun**, Luis G. Villa-Diaz, Raymond H. W. Lam, Weiqiang Chen, Paul H. Krebsbach, and Jianping Fu. "Micromechanical elastomeric devices for investigations of mechanobiology in human embryonic stem cells", *16th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μ TAS 2012)*, Okinawa, Japan, Oct. 2012. (poster presentation)
- [7] **Yubing Sun**, Luis G. Villa-Diaz, Raymond H. W. Lam, Weiqiang Chen, Paul H. Krebsbach, and Jianping Fu. "Dissecting mechanobiology of human embryonic stem cells using micromechanical elastomeric devices", *Biomedical Engineering Society (BMES) 2012 Annual Meeting*, Atlanta, GA, Oct. 2012. (oral presentation)
- [8] Weiqiang Chen, Luis G. Villa-Diaz, **Yubing Sun**, Shinuo Weng, Paul H. Krebsbach, and Jianping Fu. "Nanotopography mediates functional responses of human embryonic stem cells", *2012 Biomedical Engineering Society (BMES) Annual Meeting*, Atlanta, GA, Oct. 2012. (poster presentation)

- [9] **Yubing Sun**, Luis G. Villa-Diaz, Raymond H. W. Lam, Weiqiang Chen, Paul H. Krebsbach, and Jianping Fu. "Investigation of mechanoresponsive behaviors of human embryonic stem cells using microfabricated elastomeric post arrays", *2012 ASME Summer Bioengineering Conference*, Fajardo PR, Jun. 2012. (oral presentation)
- [10] Weiqiang Chen, Luis G. Villa-Diaz, **Yubing Sun**, Shinuo Weng, Jin Koo Kim, Paul H. Krebsbach, and Jianping Fu. "Nanotopography directs fate of human embryonic stem cells", *2012 ASME Summer Bioengineering Conference*, Fajardo PR, Jun. 2012. (oral presentation)
- [11] Weiqiang Chen, **Yubing Sun**, and Jianping Fu. "Cellular sensing and responses to nanotopography", *2011 Biomedical Engineering Society (BMES) Annual Meeting*, Hartford, CT, Oct. 2011. (poster presentation)
- [12] Jennifer M. Mann, Raymond Hiu-Wai Lam, Shinuo Weng, **Yubing Sun**, and Jianping Fu. "Dynamic biomechanical responses of single smooth muscle cells to cell stretch", *2011 Biomedical Engineering Society (BMES) Annual Meeting*, Hartford, CT, Oct. 2011. (oral presentation; rated as one of the top abstracts in the Cellular and Molecular Bioengineering Track)
- [13] Jennifer M. Mann, Raymond Hiu-Wai Lam, **Yubing Sun**, Shinuo Weng, and Jianping Fu. "A microengineered stretching platform for live-cell mechanotransductive response analysis", *15th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μ TAS 2011)*, Seattle, WA USA, Oct. 2011. (oral presentation; only 8% abstracts selected oral presentation)
- [14] Weiqiang Chen, **Yubing Sun**, and Jianping Fu. "Nanotopographical control of cell function", *15th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μ TAS 2011)*, Seattle, WA USA, Oct. 2011. (oral presentation; only 8% abstracts selected oral presentation)

MANUSCRIPTS UNDER DEVELOPMENT

(*: equal contribution; #: corresponding author)

- [1] Weiqiang Chen, Steven G. Allen, Shuo Han, Xiang Li, Chelsea Fournier, **Yubing Sun**, Liwei Bao, Raymond H. W. Lam, Sofia D. Merajver, and Jianping Fu. Functional and biophysical phenotyping of inflammatory breast cancer stem cells. *Scientific Reports*, under review, 2018.
- [2] Xufeng Xue*, **Yubing Sun***#, Agnes Resto-Irizarry, Koh Meng Aw Yong, Yi Zheng, Shinuo Weng, Yue Shao, Lorenz Studer, and Jianping Fu#. Emergent patterning of neuroectoderm tissue from human pluripotent stem cells. *Nature Materials*, under review, 2018.

MEDIA EXPOSURE

- "UMass Amherst Engineer Yubing Sun Receives \$400,000 NSF Grant to Study the Mechanics that Cause Neural Tube Birth Defects" UMass News, Nov. 21, 2017.
- "Not so silly: Ingredient in Silly Putty boosts stem cell growth" ABC News Radio, April 15, 2014.
- "Two important research papers accepted for publication in ACS Nano and PLoS ONE", UMich ME News, June 11, 2012.
- "New ways to direct the development of embryonic stem cells", UMich College of Engineering News, June 11, 2012.
- "Texture of surroundings influences human embryonic stem cell behavior", Chemical & Engineering News (C&EN), April 24, 2012.

INVITED CONFERENCE TALKS

- The 54th Society of Engineering Science (SES) Annual Technical Meeting, Boston, MA 2017
- EITA-New Materials 2017, Ann Arbor, MI 2017
- The 12th IEEE Conference on Nano/Micro Engineered and Molecular Systems, Los Angeles, CA 2017
- The 10th IEEE International Conference on Nano/Molecular Medicine and Engineering, Macau 2016
- 7th World Congress of Biomechanics, Boston, MA 2014
- Keystone Symposia Conference Z3: Engineering Cell Fate and Function, Olympic Valley, CA 2014

INVITED SEMINAR TALKS

- Department of Mechanical Engineering, Worcester Polytechnic Institute, Worcester, MA 2017
- Department of Mechanical Engineering, University of Connecticut, Storrs, CT 2017
- Department of Polymer Science and Engineering, University of Massachusetts, Amherst, MA 2017
- Department of Biomedical Engineering and Scientific Instrument, Tianjing University 2015
- Department of Mechanical Engineering, Massachusetts Institute of Technology 2015
- Department of Mechanical and Industrial Engineering, University of Massachusetts, Amherst 2015

STUDENTS MENTORED

At UMass-Amherst

Postdoctoral Fellow

- Ningwei Li, Postdoctoral Fellow, 2017-
- Nader Hamzavi Zarghani, Postdoctoral Fellow, 2016 – 2017

Graduate Students

- Tianfa Xie, PhD student, (Mechanical & Industrial Engineering), 2016 – present
- Peiran Zhu, Master student, (Mechanical & Industrial Engineering), 2016 – present
- Feiyu Yang, PhD student, (Mechanical & Industrial Engineering), 2017 – present
- Nariman Banaei, PhD student, (Mechanical & Industrial Engineering), 2016- present

Undergraduate Students

- Elizabeth Humble, (Chemical Engineering), 2016 – 2017. Current position: Assistant Scientist, Bristol-Meyers-Squib, Devens, MA
- Gene Munnis, Undergraduate students, (Mechanical and Industrial Engineering), 2017-2017
- Eric Brazell, Undergraduate students, (Mechanical and Industrial Engineering), 2016 – 2017
- Jamar Hawkins, (Mechanical and Industrial Engineering), 2016 – present
- Jacob Hancock, (Mechanical and Industrial Engineering), 2017 – present
- Isaac Fitts-Sprague, (Mechanical and Industrial Engineering), 2017 – present
- Denise Buciuman-Coman, Undergraduate students, (Chemical Engineering), 2016 – present
- Priyanka Ghosh, Undergraduate students, (Chemical Engineering), 2017 – present
- Sid Virpura, Undergraduate students, (Chemical Engineering), 2017 – present
- Andrew Sheu, Undergraduate students, (Chemical Engineering), 2017 – present

At UMich-Ann Arbor

- Agnes M Resto, SROP student (Mechanical Engineering, University of Puerto Rico), 2015
- Chunnan Huang, Visiting Undergraduate Student (Precision Instrument, Tsinghua University), 2014
- Sawan Dutta, Undergraduate Student (Biomedical Engineering, UMich), 2014
- Heng Yang, Visiting Undergraduate Student (Automobile Engineering, Tsinghua University), 2014
- Renee Philson, Undergraduate Student (Biomedical Engineering, UMich), 2012-2014
- Kristin Schimert, Rotating Graduate Student (Biophysics, UMich), 2013
- Ryoji Okada, Master Student (Aerospace Engineering, UMich), 2011-2012

Others

- Sophia Fang, High School Student, Amherst High, 2016-2017
- Xiaofei Song, Visiting Scholar, South China University of Technology, 2017-present

PROFESSIONAL ACTIVITIES

- Member of American Society of Mechanical Engineers (ASME), Biomedical Engineering Society (BMES), American Heart Association (AHA)
- *Ad hoc* panelist, NSF Review Panel for CBET Biotechnology and Biochemical Engineering (2017)
- *Ad hoc* reviewer, *Research Grant Awards*, Human Frontier Science Program (2017)

- Reviewer for the following journals: Scientific Reports, PLoS ONE, Chemical Engineering Journal, ASME Journal of Nanotechnology in Engineering and Medicine, RSC Advances, Tissue Engineering, Journal of Materials Chemistry B, Cellular and Molecular Bioengineering, Biomacromolecules, ACS Applied Materials and Interfaces, Advanced Biosystems, Journal of Biomedical Materials Research: Part A, Chemistry – A European Journal, Integrative Biology.
- Reviewer for BMES Annual Meeting (2017)
- Session Organizer and Chair: IEEE NEMS 2017 (Los Angeles, CA); Session co-chair: Current Topics in Biomechanics session and Biomechanics of Biomaterials session, BMES 2017 (Phoenix, AZ)
- Guest Editor: Thematic Issue: “Letters: Micro/Nanosystems Mechanobiology” for The IEEE Transactions on Nanotechnology. (2017)
- Editorial Board Member: Nature - Scientific Reports. 2017-
- Steering Committee Member, New Materials Research, EITA Meeting. 2017-

RECOGNITIONS RECEIVED BY MENTEES

Jamar Hawkins (undergraduate and perspective graduate student), UMass Rising Researcher Award 2017
 Nariman Banaei (graduate student), Second Place, UMass Innovation Challenge MinutePitch 2017

CURRENT AND PENDING SUPPORT

Ongoing Research Support

\$400,000 07/15/2017-06/30/2020

CMMI-1662835, National Science Foundation

Biomechanical Regulation in Human Neural Induction

The major goal of this award is to reveal the functional roles of biomechanical cues, and their interactions with biochemical factors in human neural induction, using novel human pluripotent stem cells based, microengineered integrative model systems.

Role: PI

Completed Research Support

\$50,000 09/01/2016-08/31/2017

Seed Grant, Institute for Applied Life Sciences, University of Massachusetts, Amherst

Self-powered integrated blood separation and SERS-based immunoassay (SIBSI) device for point of care analysis of pancreatic cancer biomarkers

The major goal of this project is to generate an integrated microfluidics technology platform for point-of-care analysis of pancreatic cancer biomarkers in serum using surface-enhanced Raman spectroscopy (SERS).

Role: PI