Zida Li

Ph.D. candidate
1502 Gilbert Ct., T-23, Ann Arbor, MI 48105, USA | zidali@umich.edu
(+1) 734-353-8955 | http://www-personal.umich.edu/~zidali | Updated: Sept. 2017

Research Areas

- Nanomaterials, particularly carbon nanotubes
- Development of bioMEMS devices for clinical applications
- Fluid dynamics and applications of microfluidic two-phase system

Skills

- **Experimental**: microfabrication, biology lab basics, data acquisition/analysis, image analysis
- **Modeling/Simulation**: AutoCAD, COMSOL, FLUENT
- **Coding**: Python, HTML, MATLAB, Mathematica
- **Language**: Mandarin Chinese, English

Education

University of Michigan, Ann Arbor (UM) — Ann Arbor, MI
Ph.D., Mechanical and Biomedical Engineering — Aug. 2013 – **Dec. 2017** (expected)
Advisor: Prof. Jianping Fu

University of Science and Technology of China (USTC) — Hefei, Anhui, China
B.Eng., Mechanical Engineering — Aug. 2008 – June 2012
Advisor: Prof. Liqun He

Positions and Employments

University of Michigan, Ann Arbor — Ann Arbor, MI
Graduate Student Research Assistant, Mechanical Engineering
Graduate Student Instructor, Mechanical Engineering — Aug. 2013 - present

University of Hong Kong (HKU) — Hong Kong
Research Assistant, Mechanical Engineering — July 2012 – June 2013
Advisor: Prof. Anderson Ho Cheung Shum

Tsinghua University (THU) — Beijing, China
Exchange Student, Aerospace Engineering — Sept. 2010 – Jan. 2011

Research Projects

A deposition method for carbon nanotube (CNT) thin film fabrication using capillary action UM
* Designed and implemented a deposition method for CNT film using surfaces with micro-structures
* Optimized the fabrication method and characterized electromechanical properties
* Incorporated CNT thin film in a contraction-sensing device as a strain sensor

A miniaturized hemoretractometer for point-of-care blood clot retraction testing UM
* Designed, fabricated, and tested a miniaturized device to assess clotting functionality of blood samples
* Characterized the mechanical properties and optimized the design using FEM simulation with COMSOL
* Batch-processed the experimental images and quantified the clot retraction forces using Python

An *in vitro* model to study tumor invasion under nutrient gradients and interstitial pressures UM
* Fabricated the devices, visualized the flow field, and simulated it using COMSOL
* Analyzed the imaging data and wrote the manuscript

An *in vitro* neural teratogenicity testing platform based on early neural patterning UM

* Maintained human embryonic stem cells, streamlined the lab protocols, and performed assays
* Designed the algorithm for large image set processing and implemented it with Python

A single cell encapsulation platform using droplet microfluidics UM

* Fabricated microfluidic devices and set up the microscope-based photon detection platform
* Programed the microcontroller to coordinate the operation of each component

Teaching Experience

- Graduate Student Research Mentor, SURE Program (UM) May – Sept., 2016 & 2017
- Graduate Student Instructor, Mechanical Engineering (UM) Jan., 2015 – Apr. 2016

Publications

[1] Li, Z., Xue, X., Peyer, D., McCracken, B., Ward, K., & Fu, J. (2017). Capillary-facilitated coating of carbon nanotube thin film as a strain gauge. ***Applied Physics Letters***, submitted.

[2] Aw Yong, K., Li, Z., Merajver, S., & Fu, J. (2017). Analysis of tumor invasion front using long-term fluidic tumoroid culture. ***Scientific Reports***, 7.

[3] Xue, X., Hong, X., Li, Z., Deng, C. X., & Fu, J. (2017). Acoustic tweezing cytometry enhances osteogenesis of human mesenchymal stem cells through cytoskeletal contractility and YAP activation. ***Biomaterials***, *134*, 22-30.

[4] Sang, J., Li, X., Shao, Y., Li, Z., Fu, J. (2016) Controlled tubular unit formation from collagen film for modular tissue engineering. ***ACS Biomaterials Science & Engineering***.

[5] Li, Z., McCracken, B., Li, X., Shao, Y., Ward, K., & Fu, J. (2016). A miniaturized hemoretractometer for blood clot retraction testing. ***Small***, 12: 3926–3934.

[6] Wu, P., Luo, Z., Liu, Z., Li, Z., Chen, C., Feng, L., & He, L. (2015). Drag-induced breakup mechanism for droplet generation in dripping within flow focusing microfluidics. ***Chinese Journal of Chemical Engineering***, *23*(1), 7-14.

[7] Li, Z., Mak, S. Y., Sauret, A., & Shum, H. C. (2014). Syringe-pump-induced fluctuation in all-aqueous microfluidic system implications for flow rate accuracy. ***Lab on a Chip***, 14(4), 744-749.

[8] Mak, S. Y., Li, Z., Frere, A., Chan, T. C., & Shum, H. C. (2014). Musical Interfaces: Visualization and Reconstruction of Music with a Microfluidic Two-Phase Flow. ***Scientific reports***, 4, 6675.

[9] Li, X., Chen, W., Li, Z., Li, L., Gu, H., & Fu, J. (2014). Emerging microengineered tools for functional analysis and phenotyping of blood cells. ***Trends in biotechnology***, 32(11), 586-594.

Patents

[1] Fu, J., Ward, K., Li, Z., & Li, X. (2017). A microscale device for blood coagulation assay. *U.S. Patent Application* 62/304,385.

[2] Shum, H. C., Sauret, A., Li, Z., & Song, Y. (2013). System and method for generation of emulsions with low interfacial tension and measuring frequency vibrations in the system. *U.S. Patent Application* 13/839,072.

Conference Presentations

[1] Li, Z., McCracken, B., Li, X., Shao, Y., Ward, K., & Fu, J. A miniaturized hemoretractometer for blood clot retraction testing. **Oral**. *8th International Symposium on Microchemistry and Microsystems*, Hong Kong, May 2016.

Awards

- Baxter Young Investigator Award (First Tier), Baxter Healthcare Corporation (2016)
- Provincial Honored Graduate, Department of Education, Anhui Province, China (2012)
- National Scholarship, Ministry of Education, China (2011)

Leadership and Management

- House Facilitator for Chinese visiting student group, North Campus Co-operative July 2016 – Aug. 2016
- Class President, Class of 2012, Mechanical Engineering, USTC Sept. 2011 – June 2012
- Director of Fundraising and Liaison, Student English Club, USTC Sept. 2009 – Jan. 2010