

Zida Li

Ph.D. candidate

Ann Arbor, Michigan | zidali@umich.edu | (+1) 734-353-8955 | <http://www-personal.umich.edu/~zidali>

Summary

- A PhD student passionate with problem solving and critical thinking
- Worked on interdisciplinary projects with quick learning capability
- Strong interpersonal skills and team building

Research Areas

- Nanomaterials, particularly carbon nanotubes
- Development of bioMEMS devices for clinical diagnostic tools
- Fluid dynamics and applications of microfluidics

Skills

- **Experimental:** microfabrication, cell biology lab basics, design prototyping, image analysis
- **Modeling/Simulation:** SolidWorks, AutoCAD, COMSOL, FLUENT
- **Programming:** Python (experienced), HTML, MATLAB, Mathematica, LabVIEW, Arduino
- **Language:** Mandarin Chinese, English

Academic Experiences

University of Michigan, Ann Arbor (UM)
Ph.D., Mechanical Engineering, GPA: 3.8/4.0
Advisor: Prof. Jianping Fu

Ann Arbor, MI
Aug. 2013 – **Apr. 2018** (expected)

Relevant courses: Human Physiology, Cell Biology, Cancer Biology, Machine Learning, Statistical Quality Control

University of Hong Kong (HKU)
Research Assistant, Mechanical Engineering
Advisor: Prof. Anderson Ho Cheung Shum

Hong Kong
July 2012 – June 2013

University of Science and Technology of China (USTC)
B.Eng., Mechanical Engineering, GPA: 3.84/4.3
Advisor: Prof. Liqun He

Hefei, Anhui, China
Aug. 2008 – June 2012

Tsinghua University (THU)
Exchange Student, Aerospace Engineering

Beijing, China
Sept. 2010 – Jan. 2011

Research Projects

Deposition of carbon nanotube (CNT) film assisted by 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

Miniaturized devices for point-of-care blood clot retraction testing UM
* Designed, fabricated, and validated the devices
* Performed FEM simulation with COMSOL for device optimization
* Set up the microcontroller and switch circuits for multiplex testing
* Batch-analyzed the experimental images using Python

A fluidic device for *in vitro* tumor invasion study UM
* Fabricated the devices, visualized the flow field, and simulated it using COMSOL
* Analyzed the imaging data and wrote the manuscript

A large-scale-image-analysis-based platform for the assessment of drug safety on pregnancy UM

- * Maintained human embryonic stem cell line, consolidated lab documentations, and conducted assays
- * Designed an algorithm for large image set processing and implemented it with Python

A droplet-microfluidics-based platform for single cell encapsulation UM

- * Fabricated microfluidic devices and established the microscope-based optical detection platform
- * Set up the control circuits centered on microcontroller for droplets screening

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., Lin, F., Wang, Y., Ward, K., & Fu, J. (2017). Capillary-assisted deposition of carbon nanotube film for strain sensing. *Applied Physics Letters*, 111(17), 173105.
- [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] 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.
- [7] 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.
- [8] 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] Oral talk. *8th International Symposium on Microchemistry and Microsystems*, Hong Kong, May 2016.
- [2] Oral talk, *Biomedical Engineering Society Annual Meeting*, Phoenix, GA, Oct 2017.
- [3] Poster, *Miniaturized Systems for Chemistry and Life Sciences (MicroTAS)*, Savannah, GA, Oct 2017.

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)

Outreach and Leadership

- Interim House Manager, North Campus Student Co-operative, UM Summer 2016 & 2017
- Volunteer, NanoCamp, Lurie Nanofabrication Facilities, UM Apr. 2014
- 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