Zida Li, Ph.D.

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Biomedical Engineering, Shenzhen University
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Research Interests

- Droplet-based digital immunoassays and nucleic acid tests
- Single-cell analysis and high throughput screening
- Microfluidics and bioMEMS

Positions and Employment

Shenzhen University (SZU) — Shenzhen, China
Associate Professor, Biomedical Engineering — Jan. 2024 – present
Assistant Professor, Biomedical Engineering — June 2018 – Dec. 2023

University of Michigan, Ann Arbor — Ann Arbor, MI, US
Graduate Student Research Assistant, Mechanical Engineering — Sept. 2013 – Apr. 2018
Graduate Student Teaching Assistant, Mechanical Engineering — Sept. 2014 – Apr. 2018

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

Education

University of Michigan, Ann Arbor (UM) — Ann Arbor, MI, US
Ph.D., Mechanical Engineering — Aug. 2013 – Apr. 2018
Dissertation: *Micro-Engineered Devices for Point-of-Care Blood Clot Retraction Testing*
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

Tsinghua University — Beijing, China
Exchange Program – C9 University League — Sept. 2010 – Feb. 2011

Honors and Awards

- ACS Best Oral Presentation, Annual Conference of Analytical Chemistry, Chinese Chemical Society (2023)

- Shenzhen Best Scientific Paper Award, Shenzhen Science and Technology Association (2023)
- Outstanding Undergrad Mentor Award, SZU (2022)
- Outstanding Undergrad Instructor Award, SZU (2022)
- Tier Three Award in Equipment Design for Laboratory Classes, 6th National Competition of Teaching Innovation, Chinese Association of Higher Education, Ministry of Education, China (2021)
- Advisor Award for Distinguished Undergrad Thesis (advisee: Meichi Jin), SZU (2021)
- University Teaching Award, SZU (2021)
- Excellence in Faculty Performance Evaluation, SZU (2020)
- Baxter Young Investigator Award First-Tier, Baxter Healthcare Inc. (2016)
- Provincial Honored Graduate, Department of Education, Anhui Province, China (2012)
- National Scholarship, Ministry of Education, China (2011)
- National Encouragement Scholarship, Ministry of Education, China (2010)
- Qian Jun Scholarship, USTC (2009)

Research Grants

- General Grant (面上基金), Science and Technology Agency, Guangdong (PI, ￥100K, 2026-2028)
- General Grant (面上基金), Shenzhen Natural Science Foundation (PI, ￥300K, 2026-2028)
- Biotech Development Grant, Shenzhen Medical Research Fund (PI, ￥1M, 2025-2026)
- Research Excellence Award, SZU (PI, ￥500K, 2024-2025)
- Faculty Professional Development Fund, Dept. of BME, SZU (PI, ￥100K, 2024)
- Early Career Award (青年基金), National Natural Science Foundation of China (PI, ￥300K, 2024-2026)
- Industrial collaboration grant for research in single-cell RNA sequencing (PI, ￥300K, 2022-2023)
- Faculty Professional Development Fund, Department of Biomedical Engineering, SZU (PI; ￥100K, 2019)
- General Grant (面上基金), Science and Technology Agency, Guangdong (PI, ￥100K, 2019-2021)
- Grant for Research in Medical Science, Committee of Hygiene and Health, Guangdong (PI, ￥10K, 2019-2021)
- Faculty Startup Grant, Shenzhen (PI, ￥2.7M, 2020-2022)
- Faculty Startup Grant, SZU (PI, ￥200K, 2019-2022)

Selected Publications

[#]first authors; *corresponding author(s); underscore: student advisees.

[1] Meichi Jin,[#] Jingyi Ding,[#] Yu Zhou, Jiazhao Chen, Yi Wang, and **Zida Li*** (2024). StratoLAMP: Label-free, multiplex digital loop-mediated isothermal amplification based on visual stratification of precipitate. ***Proceedings of the National Academy of Sciences***, 121(2), e2314030121

[2] Linzhe Chen,[#] Jingyi Ding,[#] Hao Yuan, Chi Chen*, and **Zida Li*** (2022). deep-dLAMP: deep learning-enabled polydisperse emulsion-based digital loop-mediated isothermal amplification. ***Advanced Science***, 9(9), 2105450

[3] Yujuan Chai, Xiaoxiang Hu, Qi Fang, Yuanyuan Guo, Binmao Zhang, Hangjia Tu, and **Zida Li*** (2025). Embracing Poisson encapsulation statistics for improved droplet digital immunoassay. ***Analytical Chemistry***, 97(1), 444–453

[4] Jiazhao Chen,[#] Jingyi Ding,[#] Rui Deng, Yi Wang,* and **Zida Li*** (2025). StratoLAMP-2: A Microfluidics-Free, Deep-Learning Platform for Multiplex Digital Molecular Diagnostics. ***Analytical Chemistry***, 97(40), 22259–22269

[5] Kai Wu,[#] Qi Fang,[#] Zhantao Zhao, and **Zida Li*** (2023). CoID-LAMP: Color-encoded, intelligent digital LAMP for multiplexed nucleic acid quantification. ***Analytical Chemistry***, 95(11), 5069–5078

Journal Publications (full list)

[#]first authors; *corresponding author(s); underscore: student advisees.

[1] Yuchong Zheng, Wanjun Yao, Zerui Wu, Liqun He, Weidong Zheng,* and **Zida Li*** (2025). Flow-LAMP: Label-free Digital LAMP using Scatter-based Flow Cytometry on Vortex-Generated Polydisperse Gel Beads. ***Analytical Chemistry***, 97(41), 22878–22886

[2] Jiazhao Chen,[#] Jingyi Ding,[#] Rui Deng, Yi Wang,* and **Zida Li*** (2025). StratoLAMP-2: A Microfluidics-Free, Deep-Learning Platform for Multiplex Digital Molecular Diagnostics. ***Analytical Chemistry***, 97(40), 22259–22269

[3] Jiazhao Chen, Kai Wu, Jingyi Ding, and **Zida Li*** (2025). Materials-Driven Innovations in Digital Nucleic Acid Amplification Technologies: Transforming Molecular Diagnostics. ***Chemical Engineering Journal***, 519, 165127

[4] Wenkai Fan, Donghao Li, Jingyi Ding, and **Zida Li*** (2025). Reimagining POCT assays: Automated digital microfluidics for multiplex in vitro diagnostics. ***Talanta***, 294, 128270

[5] Zerui Wu,[#] Wanjun Yao,[#] Jinyu Chen, Yonghao Chen, **Zida Li**, Weiping Ding,* Liqun He,* and Peng Hu* (2025). Droplet digital PCR-based single aptamer selection. ***Talanta***, 292, 127924

[6] Yujuan Chai, Xiaoxiang Hu, Qi Fang, Yuanyuan Guo, Binmao Zhang, Hangjia Tu, and **Zida Li*** (2025). Embracing Poisson encapsulation statistics for improved droplet digital immunoassay. ***Analytical Chemistry***, 97(1), 444–453

- Selected as Front Cover story by *Analytical Chemistry*.

[7] Zhantao Zhao, Heng Zhai, Peng Zuo, Tao Wang, Run Xie, Mu Tian, Ruyuan Song, Xiaonan Xu, and **Zida Li*** (2024). Image-activated pico-injection for single cell analysis. ***Talanta***, 272, 125765

[8] Meichi Jin,[#] Jingyi Ding,[#] Yu Zhou, Jiazhao Chen, Yi Wang, and **Zida Li*** (2024). StratoLAMP: Label-free, multiplex digital loop-mediated isothermal amplification based on visual stratification of precipitate. ***Proceedings of the National Academy of Sciences***, 121(2), e2314030121

[9] Meichi Jin, Kai Wu, Mengzhen Wang, Yang Zhang, Chengbin Yang, and **Zida Li*** (2023). High resolution, multiplex antibody patterning using micropillar-focused droplet printing and microcontact printing. ***Advanced Biology***, 7(8), 2300111, 2023

[10] Kai Wu,[#] Qi Fang,[#] Zhantao Zhao, and **Zida Li*** (2023). CoID-LAMP: Color-encoded, intelligent digital LAMP for multiplexed nucleic acid quantification. ***Analytical Chemistry***, 95(11), 5069–5078

[11] Run Xie,[#] Yang Liu,[#] Xuyang Shi, Shiyu Wang, Zhantao Zhao, Longqi Liu, Ya Liu,* and **Zida Li*** (2023). Combinatorial perturbation sequencing on single cells using microwell-based droplet random pairing. ***Biosensors & Bioelectronics***, 220, 114913

[12] Yang Liu,[#] Shiyu Wang,[#] Menghua Lyu,[#] Run Xie, Weijin Guo, Ying He, Xuyang Shi, Yang Wang, Jingyu Qi, Qianqian Zhu, Hui Zhang, Tao Luo, Huaying Chen, Yonggang Zhu, Xuan Dong, **Zida Li**, Ying Gu, Feng

Mu, Longqi Liu,* Xun Xu,* and Ya Liu* (2022). Droplet microfluidics forward for tracing target cells at single-cell transcriptome resolution. ***Bioengineering***, 9(11), 674

[13] Yang Zhang, Taozhao Yu, Jingyi Ding, and **Zida Li*** (2023). Bone-on-a-chip platforms and integrated biosensors: towards advanced *in vitro* bone models with real-time biosensing. ***Biosensors & Bioelectronics***, 219, 114798

[14] Menghua Lyu,[#] Xuyang Shi,[#] Xiaopan Liu,[#] Xijun Zhu, Yang Liu, Lijuan Liao, Shiyu Wang, Na Sun, Hongyan Zhao, Linzhe Chen, Linyuan Fan, Qumiao Xu, Qianqian Zhu, Kai Gao, Huaying Chen, Yonggang Zhu, **Zida Li**, Weijin Guo, Yue Zheng, Ying Gu, Longqi Liu,* Meiniang Wang,* and Ya Liu* (2022). Generation and screening of antigen-specific nanobodies from mammalian cells expressing BCR repertoire library using droplet-based microfluidics. ***Analytical Chemistry***, 94(22), 7970–7980, 2022

[15] Linzhe Chen, Donghao Li, Xinyu Liu, Yihan Xie, Jieying Shan, Haofan Huang, Xiaxia Yu, Yudan Chen, Weidong Zheng, and **Zida Li*** (2022). Point-of-care blood coagulation assay based on dynamic monitoring of blood viscosity using droplet microfluidics. ***ACS Sensors***, 7(8), 2170–2177

- Selected as Front Cover story by *ACS Sensors*

[16] Linzhe Chen,[#] Jingyi Ding,[#] Hao Yuan, Chi Chen*, and **Zida Li*** (2022). deep-dLAMP: deep learning-enabled polydisperse emulsion-based digital loop-mediated isothermal amplification. ***Advanced Science***, 9(9), 2105450

[17] Donghao Li,[#] Xinyu Liu,[#] Yujuan Chai,[#] Jieying Shan, Yihan Xie, Yong Liang, Susu Huang, Weidong Zheng, and **Zida Li*** (2022). Point-of-care blood coagulation assay enabled by printed circuit board-based digital microfluidics. ***Lab on a Chip***, 22(4), 1473-0197

[18] **Zida Li**,[#,*] Feng Lin,[#] Shue Wang, Xufeng Xue, and Yue Shao* (2022). Single-cell sequencing to unveil the mystery of embryonic development. ***Advanced Biology***, 6(2), 2701-0198

[19] Shiyu Wang,[#] Yang Liu,[#] Yijian Li, Menghua Lv, Kai Gao, Ying He, Wenbo Wei, Yonggang Zhu, Xuan Dong, Xun Xu, **Zida Li**,* Longqi Liu,* and Ya Liu* (2022). High-throughput functional screening of antigen-specific T-cells based on droplet microfluidics on single-cell level. ***Analytical Chemistry***, 94(2), 918–926

- Selected as Front Cover story by *Analytical Chemistry*

[20] Linzhe Chen, Guoliang Zhang, Longqi Liu,* and **Zida Li*** (2021). Emerging biosensing technologies for improved diagnostics of COVID-19 and future pandemics. ***Talanta***, 225, 121986

- ESI Highly Cited Paper in the academic field of Chemistry as of July/August 2021

[21] Lanzhu Huang,[#] Xinyu Liu,[#] Yuanbin Ou, Haofan Huang, Xia Zhang, Yize Wang, Yong Liang, Xiaxia Yu, Weidong Zheng, Huisheng Zhang, and **Zida Li*** (2020). Micro-engineered flexural post rings for effective blood sample fencing and high throughput measurement of clot retraction force. ***ACS Sensors***, 5(12), 3949-3955

- Selected as Front Cover story by *ACS Sensors*
- Highlighted in Introducing Our Authors by *ACS Sensors* (2020, 5(12), 3653–3654)

[22] Zhourui Xu, **Zida Li**, Yihang Jiang, Gaixia Xu, Mingwei Zhu, Wing-Cheung Law, Ken-Tye Yong, Yanshuai Wang, Chengbin Yang, Biqin Dong, and Feng Xing* (2020). Recent advances in solar-driven evaporation system. ***Journal of Materials Chemistry A***, 8, 25571-25600

[23] Xue Chen, Nicolo Simone Villa, Yanfeng Zhuang, Linzhe Chen, Tianfu Wang, **Zida Li**,* and Tiantian Kong* (2020). Stretchable supercapacitors as emergent energy storage units for health monitoring bioelectronics. ***Advanced Energy Materials***, 10(4), 1902769

[24] Yi Zheng, Xufeng Xue, Yue Shao, Sicong Wang, Sajedeh Nasr Esfahani, **Zida Li**, Jonathon M. Muncie, Johnathon N. Lakins, Valerie M. Weaver, Deborah L. Gumucio, and Jianping Fu* (2019). Controlled modeling of human epiblast and amnion development using stem cells. ***Nature***, 573(7774), 421-425

[25] Yuanyuan Zheng,[#] Xufeng Xue,[#] Agnes M. Resto Irizarry, **Zida Li**, Yue Shao, Yi Zheng, Gang Zhao,* and Jianping Fu* (2019). A patterned model for neural tube development studies by human embryonic stem cells in a biomimetic niche. ***Science Advances***, 5(12), eaax5993

[26] Sajedeh Nasr Esfahani, Yue Shao, Agnes M Resto Irizarry, **Zida Li**, Xufeng Xue, Deborah L Gumucio, and Jianping Fu* (2019). Microengineered human amniotic ectoderm tissue array for high-content developmental phenotyping. ***Biomaterials***, 216, 119244

[27] Luoquan Li[#], Ping Wu[#], Zhaofeng Luo, Lei Wang, Weiping Ding, Tao Wu, Jinyu Chen, Jinlong He, Ying Chen, Guibo Li, **Zida Li**,* and Liqun He* (2019). Dean flow assisted single cell and bead encapsulation for high performance single cell expression profiling. ***ACS Sensors***, 4(5), 1299-1305

[28] **Zida Li**,* Luoquan Li, Meixiang Liao, Liqun He, and Ping Wu* (2019). Multiple splitting of droplets using multi-furcating microfluidic channels. ***Biomicrofluidics***, 13(2), 024112

[29] Feng Lin, Yue Shao, Xufeng Xue, Yi Zheng, **Zida Li**, Chunyang Xiong, Jianping Fu* (2019). Biophysical phenotypes and determinants of anterior vs. posterior primitive streak cells derived from human pluripotent stem cells. ***Acta Biomaterialia***, 86, 125-134

[30] **Zida Li**, Yize Wang, Xufeng Xue, Brendan McCracken, Kevin Ward, and Jianping Fu* (2018). Carbon nanotube strain sensor based hemoretractometer for blood coagulation testing. ***ACS Sensors***, 3(3), 670-676

[31] **Zida Li**, Xufeng Xue, Feng Lin, Yize Wang, Kevin Ward, and Jianping Fu* (2017). Capillary-assisted coating of carbon nanotube thin film as a strain gauge. ***Applied Physics Letters***, 111(17), 173105

[32] Koh Meng Aw Yong, **Zida Li**, Sofia D. Merajver, and Jianping Fu* (2017). Analysis of tumor invasion front using long-term fluidic tumoroid culture. ***Scientific Reports***, 7(1), 10784

[33] Xufeng Xue, Xiaowei Hong, **Zida Li**, Cheri X. Deng, and Jianping Fu* (2017). Acoustic tweezing cytometry enhances osteogenesis of human mesenchymal stem cells through cytoskeletal contractility and YAP activation. ***Biomaterials***, 134, 22-30

[34] Jianming Sang, Xiang Li, Yue Shao, **Zida Li**, and Jianping Fu* (2016) Controlled tubular unit formation from collagen film for modular tissue engineering. ***ACS Biomaterials Science & Engineering***, 3(11), 2860-2868

[35] **Zida Li**, Xiang Li, Brendan McCracken, Yue Shao, Kevin Ward, and Jianping Fu* (2016). A miniaturized hemoretractometer for blood clot retraction testing. ***Small***, 12(29), 3926-3934.

- Selected as Frontispiece story by *Small*

[36] Ping Wu, Zhaofeng Luo, Zhifeng Liu, **Zida Li**, Chi Chen, Lili Feng, and Liqun He* (2015). Drag-induced breakup mechanism for droplet generation in dripping within flow focusing microfluidics. ***Chinese Journal of Chemical Engineering***, *23*(1), 7-14

[37] **Zida Li**, Sze Yi Mak, Alban Sauret, and Ho Cheung Shum* (2014). Syringe-pump-induced fluctuation in all-aqueous microfluidic system implications for flow rate accuracy. ***Lab on a Chip***, 14(4), 744-749

[38] Sze Yi Mak, **Zida Li**, Arnaud Frere, Tat Chuen Chan, and Ho Cheung Shum* (2014). Musical Interfaces: Visualization and Reconstruction of Music with a Microfluidic Two-Phase Flow. ***Scientific Reports***, 4, 6675

[39] Xiang Li, Weiqiang Chen, **Zida Li**, Ling Li, Hongchen Gu, and Jianping Fu* (2014). Emerging microengineered tools for functional analysis and phenotyping of blood cells. ***Trends in Biotechnology***, 32(11), 586-594

Book Chapters

[1] **Zida Li*** and Anderson Ho Cheung Shum* (2019). Nanotechnology and microfluidics for biosensing and biophysical property assessment: implications for next generation *in vitro* diagnostics. ***Nanotechnology and Microfluidics***, 83-107, John Wiley & Sons

Patents

[1] **Zida Li**, Qi Fang, Yujun Chai, Xiaoxiang Hu (2024). A Method, Device, and Related Medium for Droplet Digital Enzyme-Linked Immunosorbent Assay. *Chinese Patent Application* ZL202410149722.7.

[2] **Zida Li**, Meichi Jin, Jingyi Ding, Yi Wang, and Yu Zhou (2024). The method, device, and medium for multiplex nucleic acid quantification based on precipitation bright-field image processing. *China Patent Application* ZL202310028332.X

[3] **Zida Li**, Linzhe Chen, Weidong Zheng, Jieying Shan, Yihan Xie, and Xinyu Liu (2023). A device and method for the assessment of blood viscosity using microfluidics. *China Patent Application* ZL202110639057.6

[4] **Zida Li** and Zhantao Zhao (2023). An image-activated pico-injection method, system and equipment. *China Patent Application* ZL202211516857.X

[5] **Zida Li**, Qi Fang, and Kai Wu (2023). Method, device, and medium for multiple digital detection of nucleic acid with deep learning. *China Patent Application* ZL202211516857.X

[6] **Zida Li**, Xiaxia Yu, Xinyu Liu, Jieying Shan, and Yihan Xie (2023). Simulation system and method of in vitro diagnostics. *China Patent Application* ZL202110750662.0

[7] **Zida Li**, Lanzhu Huang, and Weidong Zheng (2022). A fabrication method and application of soft post rings for clot retraction testing. *China Patent Application* ZL202010260648.8

[8] Jianping Fu, Kevin Ward, **Zida Li**, and Xiang Li (2017). A microscale device for blood coagulation assay. *U.S. Patent Application* 62/304,385

[9] Ho Cheung Shum, Alban Sauret, **Zida Li**, and Yang Song (2013). System and method for generation of emulsions with low interfacial tension and measuring frequency of vibrations in the system. *U.S. Patent Application* 13/839,072

Conference Presentations

[1] StratoLAMP: Label-free, multiplex digital loop-mediated isothermal amplification based on visual stratification of precipitate. **Panel Speech**. *Conference of Micro-Total Analysis System (MicroTAS 2024)*, Montreal, Canada, Oct. 2024

[2] Label-Free Multiplex Digital LAMP Based on Intelligent Droplet Analysis. **Panel Speech**. *Microsystems & Nanoengineering Young Academic Salon 2024*, Xi'an, China, Sep. 2024

[3] High throughput combinatorial single-cell chemical transcriptomic analysis using droplet microfluidics. **Panel Speech**. *14th Chinese Chemical Society National Conference on Analytical Chemistry*, Shenzhen, China, Nov. 2023

[4] High throughput combinatorial single-cell chemical transcriptomic analysis using droplet microfluidics. **Panel Speech**. *10th Forum on Lab-on-a-Chip Advances*, Suzhou, China, Sep. 2023

[5] Single-cell chemical transcriptome profiling for drug screening. **Panel speech.** *15th IEEE International Conference on Nano/Molecular Medicine & Engineering.* Online, Nov. 2021

[6] Micro-engineered devices for point-of-care blood clot retraction testing. **Panel Speech**. *3rd International Conference of Microfluidics, Nanofluidics, and Lab-on-a-Chip*, Shenzhen, China, July 2021

[7] Micro-engineered devices for point-of-care blood clot retraction testing. **Panel Speech**. *8th Conference on Micro-Total Analysis*, Shenzhen, China, Apr. 2021

[8] Micro-engineered devices for point-of-care blood clot retraction testing. **Panel Speech**. *4th Conference of Microfluidics Technology and Innovation*, Shenzhen, China, Dec. 2020

[9] Dean flow assisted single cell and bead encapsulation for high performance single cell expression profiling. **Panel Speech**. *7th Forum on Lab-on-a-Chip Advances*, Dalian, China, Nov. 2019

[10] Dean flow assisted single cell and bead encapsulation for high performance single cell expression profiling. **Panel Speech**. *9th International Multidisciplinary Conference on Optofluidics,* Hong Kong, China, June 2019

[11] Capillary-facilitated coating of carbon nanotube thin film as a strain gauge for blood retraction testing. **Poster Presentation**. *Conference of Micro-Total Analysis System*, Savannah, GA, USA, Oct. 2017

[12] Capillary-assisted coating of carbon nanotube thin film for blood retraction testing. **Panel Speech**. *Biomedical Engineering Society Annual Meeting 2017*, Phoenix, AZ, USA, Oct 2017

[13] A miniaturized hemoretractometer for blood clot retraction testing. **Panel Speech**. *8th International Symposium on Microchemistry and Microsystems*, Hong Kong, May 2016

Invited Seminars

[1] Digital analysis of nucleic acids and proteins using droplet microfluidics. Department of Biomedical Engineering, **Xi'an Jiaotong University**, Xi'an, China, Sep. 2024

[2] Digital analysis of nucleic acids and proteins using droplet microfluidics. Department of Mechanical and Aerospace Engineering, **New York University**, New York, USA, Aug. 2024

[3] Microfluidics-based single molecule detection of nucleic acids and protein. Division of Biomedical and Health Engineering, **Shenzhen Institute of Advanced Technology**, Shenzhen, China, Jan. 2024

[4] Droplet microfluidics-based nucleic acid quantification and single cell analysis. School of Physical Science and Technology, **ShanghaiTech University**, Shanghai, China, Sep. 2023

[5] Droplet microfluidics-based nucleic acid quantification and single cell analysis. Department of Biomedical Engineering, **Northeastern University**, Shenyang, China, Sep. 2023

[6] Droplet microfluidics-based nucleic acid quantification and single cell analysis. Department of Mechanical Engineering, **University of Science and Technology of China**, Hefei, China, Mar. 2023

[7] Droplet microfluidics-based nucleic acid quantification and single cell analysis. Department of Chemical Engineering, **Zhejiang University**, Hangzhou, China, Mar. 2023

[8] Point-of-care blood coagulation assays using droplet microfluidics and digital microfluidics. **magAssist Inc.**, Mar. 2023

[9] Droplet microfluidics-based nucleic acid quantification and single cell analysis. Department of Mechanical Engineering, **Northern Arizona University**, Online, Feb. 2022

[10] Single-cell analysis using microfluidics. College of Engineering, **Peking University**, Online, Nov. 2021

[11] Droplet microfluidics and single cell analysis. Department of Thermal Science and Energy Engineering, **University of Science and Technology of China**, Hefei, China, Nov. 2019

[12] Micro/Nano-engineered tools for mechanobiology. Department of Mechanical and Electrical Engineering, **Guilin University of Electronic Technology**, Guilin, China, Dec. 2018

[13] Micro-engineered blood coagulation tests. Department of Thermal Science and Energy Engineering, **University of Science and Technology of China**, Hefei, China, Mar. 2018

Student Advising

- Master's students

[1] Wanjun Yao 姚婉君 (2025). “Quantitative Method for Epstein-Barr Virus Based on Polydisperse Gel Microsphere Flow Cytometric Analysis.”

[2] Heng Zhai 翟恒 (2025). “Single cell RNA sequencing based on droplet pairing.”

[3] Qi Fang 方琪 (2025). “Label-Free Digital LAMP Based on Electrical Impedance Analysis.”

[4] Meichi Jin 金美池 (2024). “Multiplex digital nucleic acid detection using precipitation intensity stratification.”

[5] Jingyi Ding 丁婧怡 (2024). “Digital nucleic acid detection using polydisperse droplets.”

[6] Zhantao Zhao 赵展陶 (2024). “Image-activated pico-injection for single-cell analysis.”

[7] Donghao Li 李东豪 (2023). “Point-of-care blood coagulation assays using digital microfluidics.”

[8] Kai Wu 武凯 (2023). “Multiplex digital LAMP using droplet color-coding and intelligent image analysis.”

[9] Run Xie 谢润 (2023). “High throughput analysis of chemical transcriptomes using droplet pairing and single-cell RNA sequencing.”

[10] Linzhe Chen 陈琳喆 (2022). “Point-of-care testing based on droplet microfluidics.”

[11] Tao Wang 汪涛 (2022). “Single-cell isolation using droplet-based microfluidics.”

[12] Lanzhu Huang 黄兰蛛 (2021). “Flexible post rings for high throughput testing of clot retraction force.”

- Bachelor’s students

[1] Rui Deng 邓蕊 (2025). “Micro-well Array-Based Single-Cell Capture Chip and AI Classification System.”

[2] Yihan Xie 谢以瀚 (2023). “Single-cell RNA sequencing from sorted cells with low number.”

[3] Yunzhu Wan 万芸竹 (2022). “Digital nucleic acid amplification tests using non-uniform compartments.”

[4] Jieying Shan 单洁滢 (2022). “Digital microfluidics and its biomedical applications.”

[5] Jinying Cai 蔡金颖 (2021). “Digital microfluidics for reagent processing in *in vitro* diagnostics.”

[6] Meichi Jin 金美池 (2021). “Antibody patterning using micropillar-focused droplet printing.”

Student Awards

[1] SZU “Elite University Advancement Scholarship” (Meichi Jin, Top 1%, 2024)

[2] National Scholarship for Master’s Students (Top 5%, Qi Fang, 2023, Jiazhao Chen, 2025)

[3] Second Prize, Oral Presentation, Guangdong Graduate Forum on Life and Health (Kai Wu, 2023)

[4] SZU “Outstanding Master’s Thesis Award” (Linzhe Chen, Top 2%, 2022)

[5] SZU “Tencent Innovation Scholarship” (Donghao Li, Top 1%, 2022)

[6] Outstanding Master’s Graduate of SZU (Linzhe Chen, 2022; Donghao Li, 2023; Meichi Jin & Jingyi Ding, 2024; Qi Fang, 2025)

[7] Special Prize, “Liyuan Challenge” Innovation and Entrepreneurship Competition, SZU (Donghao Li, Top 2%, 2021; Jingyi Ding, 2022)

[8] Top 100 Outstanding Undergraduate Theses of SZU (Meichi Jin, Top 2%, 2021)

Teaching

- Undergraduate Level

[1] Probability Theory and Mathematical Statistics. 2025.

[2] Calculus for Medical Students. 2018-2024. Average student rating: Top 10%.

[3] Biomedical Sensors and Applications. 2019. Student rating: Top 10%.

[4] Single Cell Sequencing (short course). 2019-2020.

- Graduate Level

[5] Scientific Reading and Writing (Master's). 2018-2021.

[6] Microfluidics and applications (PhD level). 2025.

Professional service

- **Peer Review for Journals**:

  Nature Communications, *Advanced Science*, *Stem Cell Reports*, *Cell Reports Medicine*, *Analytical Chemistry*, *ACS Sensors*, *Lab on a Chip*, *Advanced Functional Materials*, *Microsystems & Nanoengineering*, *Small Methods*, *Talanta*, *Biomicrofluidics*, *Analyst*, *Scientific Reports*, *Physics of Fluids*, *Sensors and Diagnostics*, *Biotechnology Journal*, *Light: Advanced Manufacturing*, *Micromachines*, *Electrophoresis*, *Computers in Biology and Medicine*, *Canadian Journal of Chemical Engineering*.

- **Conference Organization**:

  a. Technical Program Committee Member: The 18th IEEE International Conference on Nano/Molecular Medicine and Engineering (IEEE-NANOMED, 2025)

  b. Organizing Committee Member: 14th Chinese Chemical Society National Conference on Analytical Chemistry (2023).

  c. Organizing Committee Member: Shenzhen University Medical-Engineering Interdisciplinary Forum (2023)