Xiang (Sean) Li

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OBJECTIVE Seeking a summer 2015 mechanical engineering internship

SUMMARY

- Experienced in mechanical design, simulation, and manufacturing; strong hands-on skills
- Solid foundation in engineering fundamentals; quickly learn and master new techniques
- Detailed oriented and responsible character; constant strive for excellence
- Strong written and verbal communication skills and extensive teamwork experience

EDUCATION

University of Michigan, Ann Arbor, MI May 2017
Ph.D. Mechanical Engineering (GPA: 3.78/4.0)

Peking University, Beijing, China July 2012
B.S. Theoretical and Applied Mechanics (GPA: 3.70/4.0)

EXPERIENCE

Integrated Biosystems and Biomechanics Lab, U of M September 2012-present

Next-generation Tissue Culture Platform

- Designed a next-generation tissue culture platform that enables the spontaneous formation and growth of millimeter-scale 3D tissues outside the body
- Performed detailed **finite element analysis** to optimize the platform design
- Built prototypes of the tissue culture platform using **3D printing** and replica molding
- Developed customized **high-precision CNC milling** schemes with accuracy of 50 μm
- Applied the tissue culture platform to generate tissues with stem cell derived cardiomyocytes, proving the their high relevancy in drug screening and personalized medicine
- Patent application in process

Desktop Aligner for Multilayer MEMS Devices

- Designed a desktop aligner for aligning the features on multiple layers of MEMS devices
- **System-level design** with more than 20 different components
- Sourcing suitable components with both **performance and economy** in mind
- Machined customized mechanical parts using **water jet cutting and milling**
- Conducted experiments to quantify the aligner performance, showing an high accuracy of 20 μm

CAD Automation

- Developed **AutoCAD plug-ins** using object-oriented C++ and APIs
- Created **customized command** that generate complex geometries through one-click; the command triggers a GUI that accept parameter input from the user
- Reduced repetitive work and saved time by 90%

LEADERSHIP

Microfluidics in Biomedical Sciences Student Organization, U of M May 2014 - Present
President

- Applied and obtained $6,000 funding from U of M Rackham Graduate School
- Planned bi-weekly seminars with speakers from U of M and other institutions
- Session organizer in 2014 U of M NanoCamp to teach 60 K-12 students microfluidics technology

SKILLS

Design:	AutoCAD, Solidworks, L-edit (proficient)
Simulation:	COMSOL (proficient); Abaqus, Fluent (familiar)
Programming:	C++, Python, R, MATLAB (proficient); Labview (familiar)
Prototyping:	milling, laser cutting, replica molding (proficient); 3D printing (familiar)
Microfabrication:	photolithography, thin film processing, RIE, DRIE, PVD, SEM (proficient)
Biology:	tissue culture, microscopy, immunostaining (proficient);

PUBLICATIONS

[1] **Xiang Li**, Zeta Tak For Yu, Dalton Geraldo, and Jianping Fu, Desktop aligner for multilayer soft lithography. To be submitted. 2015.

[2] Weiqiang Chen, Steven 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. Under review. 2015.

[3] Weiqiang Chen, Yue Shao, **Xiang Li**, and Jianping Fu. Nanotopograghical surfaces for stem cell fate control: Engineering mechanobiology from the bottom. *Nano Today*. In press, 2014. DOI: 10.1016/j.nantod.2014.12.002.

[4] **Xiang Li**, Weiqiang Chen, Zida Li, Ling Li, Hongchen Gu, and Jianping Fu. Emerging microengineering tools for functional analysis and phenotyping of blood cells. *Trends in Biotechnology*. vol. 32, pp. 586-594, 2014.

[5] **Xiang Li**, Weiqiang Chen, Guangyu Liu, Wei Lu, and Jianping Fu. Continuous-flow microfluidic blood cell sorting for unprocessed whole blood using surface-micromachined microfiltration membranes. *Lab on a Chip*. vol. 14, pp. 2565-2575, 2014.

[6] Weiqiang Chen, Nien-Tsu Huang, **Xiang Li**, Zeta Tak For Yu, Katsuo Kurabayashi, and Jianping Fu. Emerging Microfluidic Tools for Functional Immunophenotyping: A New Potential Paradigm for Immune Status Characterization. *Frontiers in Oncology*. vol. 3, 98, 2013.

[7] Weiqiang Chen, Shinuo Weng, Feng Zhang, Steven Allen, **Xiang Li**, Liwei Bao, Raymond H.W. Lam, Jill A. Macoska, Sofia D. Merajver, and Jianping Fu. Nanoroughened Surfaces for Efficient Capture of Circulating Tumor Cells without Using Capture Antibodies. *ACS Nano*, vol. 7, 1, pp. 566-575, 2012.