Jonathan Lin

San Jose, CA
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EDUCATION

David Geffen School of Medicine at UCLA, Los Angeles, CA 07/2011 - Present
M.D., Expected 2021
Medical Scientist Training Program

UCLA Henry Samueli School of Engineering, Los Angeles, CA 07/2013 - Present
Ph.D. in Bioengineering, Expected 2018
Thesis Advisor: Dino Di Carlo

Northwestern University, Evanston, IL 09/2007 - 06/2011
B.S. in Biomedical Engineering
Magna Cum Laude

WORK EXPERIENCE

Development Engineer, Omega Biosystems, Inc. 02/2015 – 01/2017

- Designed and executed biological proof-of-concept studies to demonstrate the utility of imaging cytometry. Forged collaborations with university partners to perform real world imaging cytometry experiments.
- Designed and implemented algorithms for imaging flow cytometry software. Developed algorithms for time domain analysis of frequency-encoded imaging data for potential use in image-based sorting applications. Developed vectorized algorithms for rapid analysis of large data sets and heterogeneous signals.
- Developed core systems of the Vulcan imaging cytometer. Designed and fabricated flow cells and fluid handling systems for imaging and parallel flow cytometer prototypes. Performed system testing and validation for parallel flow cytometer prototype.

RESEARCH

Graduate Research Assistant, UCLA 07/2013 - Present
Laboratory of Dino Di Carlo, Department of Bioengineering

- Investigated applications of inertial microfluidics in the measurement of cellular biomechanical properties, detection of rare cell populations and label-free disease detection.
- Developed a frequency-multiplexed, microfluidic parallel flow cytometer for high-throughput screening.
- Developed a microfluidic platform with integrated ultra-high-speed fluorescent imaging for high-throughput biochemical and physical phenotyping of single cells and biomechanical measurements of subcellular compartments.

Summer Graduate Research Assistant, Caltech 06/2012 - 08/2012
Laboratory of James R. Heath, Department of Chemistry

- Developed synthetic peptide capture agents against E.coli virulence factors that lead to pyelonephritis. Targeted for the developing world, these capture agents are heat stable and possess high sensitivity and specificity.

Summer Graduate Research Assistant, UCLA 06/2012 - 08/2012
Laboratory of Dino Di Carlo, Department of Bioengineering

- Investigated the use of microfluidic cell trapping in capturing and quantifying leukocytes for monitoring and managing HIV infection.

Undergraduate Research Assistant, Northwestern University 01/2008 - 06/2011
Laboratory of Vinayak P. Dravid, Department of Materials Science and Engineering

- Investigated the usage of targeted magnetic nanostructures in the detection, characterization, and therapy of human disease with an emphasis on cancer and neurodegenerative disease.

High School Research Assistant, UCLA 06/2005 - 07/2007
Laboratory of David K. Jacobs, Department of Life Sciences

- Investigated the effects of geological change on the evolution with an emphasis on the effects of the opening of the Gulf of California on estuarine fish.

PUBLICATIONS & PATENT APPLICATIONS

*(*equally contributing authors)*

Pushkarsky I, Tseng P, Black, D, France B, Warfe L, …, **Lin J**, et al. Elastomeric sensor surfaces for high-throughput single-cell force cytometry. *Nature Biomedical Engineering* 2018; **2**: 124-137.

Wang CE, Yumul RC, **Lin J**, Cheng Y, Lieber A, Pun SH. Junction opener protein increases nanoparticle accumulation in solid tumors. *Journal of Controlled Release* 2018; **272**: 9-16.

Lin J*, Kim D*, Tse HTK, Tseng P, Peng L, *et al*. High-throughput physical phenotyping of cellular differentiation. *Microsystems and Nanoengineering* 2017; **3**: 17013.

Diebold E, Owsley K, **Lin J**. "Fluorescence Imaging Flow Cytometry with Enhanced Image Resolution." U.S. Provisional application No. 62/335,359, filed 12 May 2016.

Diebold E, Owsley K, **Lin J**. "Cell Sorting using a High Throughput Fluorescence Imaging Flow Cytometer." U.S. Provisional application No. 62/308,806, filed 17 March 2016.

Diebold E, **Lin J**, Owsley K. "Multi-Modal Fluorescence Imaging Flow Cytometry System ." U.S. Provisional application No. 62/240,894, filed 13 October 2015.

Kong JE*, Koh J*, **Lin J***, Di Carlo D. Research highlights: translating chips. *Lab Chip* 2015; **15**: 1984–1988.

Tseng P, **Lin J**, Owsley K, Kong J, Kunze A, Murray C *et al.* Flexible and Stretchable Micromagnet Arrays for Tunable Biointerfacing. *Adv Mater* 2015; **27**: 1083–1089.

Wu C-Y*, Adeyiga O*, **Lin J***, Di Carlo D. Research highlights: increasing paper possibilities. *Lab Chip* 2014; **14**: 3258.

Lin J, Ku SK, Joshi HM, Dravid VP. Biological Applications of Size-Controlled Iron Oxide Magnetic Nanostructures. *Nanoscape* 2010; **7**: 38–43.

PRESENTATIONS

Lin J, Owsley K, Bahr M, Diebold E, Di Carlo D. "A frequency-multiplexed parallel flow cytometer for high-throughput screening and drug discovery." MicroTAS, International Conference on Miniaturized Systems for Chemistry and Life Sciences, October 9-13, 2016. Oral Presentation

Lin J, Owsley K, Bahr M, Diebold E, Di Carlo D. "A frequency-multiplexed parallel flow cytometer for high-throughput screening and drug discovery." Congress of the International Society for Advancement of Cytometry, June 11-15, 2016. Oral Presentation

Lin J, Owsley K, Diebold E, Di Carlo D. “A frequency-multiplexed parallel flow cytometer for high-throughput screening and drug discovery.” Society for Laboratory Automation and Screening Annual Meeting, January 23-27, 2016. Oral Presentation

Lin J, Kim D, Peng L, Tse HTK, Tseng P, Di Carlo D. “High-throughput, label-free mapping of physical phenotypic spaces for characterizing cellular differentiation.” MicroTAS, International Conference on Miniaturized Systems for Chemistry and Life Sciences, October 25-29, 2015. Poster Presentation.

Lin J, Kim D, Peng L, Tse HTK, Tseng P, Di Carlo D. “High-throughput, label-free mapping of physical phenotypic spaces for characterizing cellular differentiation.” Annual Southern California Micro and Nanofluidics Symposium, June 11, 2015. Oral Presentation.

HONORS & AWARDS

2016 SLAS Annual Meeting Innovation Award Finalist 2016
Tau Beta Pi Engineering Honor Society 2010
Northwestern University, Center for Nanotechnology Excellence, Research Experience for Undergraduates 2008-2010
Dean’s Scholar, McCormick School of Engineering 2007-2011

VOLUNTEERING & OUTREACH

Volunteer, UCLA Mobile Clinic Project, Los Angeles, CA 12/2011 - 04/2013
Clinic Medical Leadership 04/2012 - 04/2013
Provided acute and chronic care for the Los Angeles homeless population. Secured clinic funding and managed clinic budget, staffing and logistics.

Coordinator, David Geffen School of Medicine Global Health Selective 03/2012 - 03/2013
Designed global health curriculum to provide students with broad overview of current problems and ongoing projects in global health. Worked closely with faculty and experts in global health to coordinate a series of lectures, journal clubs, and student projects.

Coordinator, UCLA Global Health Awareness Week 09/2011 – 03/2012
Organized a series of lectures by global health experts to provide students and faculty with unique perspectives on problems and ongoing efforts in global health.

Volunteer, Mather Pavilion, Evanston, IL 03/2010 - 06/2011
Guided physical therapy and aided in memory support for retirement home residents.

Volunteer, Rehabilitation Institute of Chicago, Chicago, IL 05/2010 – 01/2011
Facilitated and guided physical therapy sessions for postoperative spinal injury patients.

OTHER SKILLS

Laboratory techniques: Tissue culture, immunohistochemistry, flow cytometry, microscopy (fluorescence, high-speed, transmission electron), microfluidics, soft lithography, peptide synthesis, bioconjugation chemistry, nanoparticle synthesis, calorimetry, DNA analysis (extraction, purification, amplification, cloning, sequencing), protein analysis (western blotting, silver staining), statistics (multivariate regression, machine learning, hypothesis testing)
Software/programming: Proficient in MATLAB, FlowJo, Python, R; familiar with C++ and Java.