JAMIN LIU

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Education

UC Berkeley - UC San Francisco — **Berkeley, CA; San Francisco, CA**
Joint Graduate Program in Bioengineering — 2017 - Present

Massachusetts Institute of Technology — **Cambridge, MA**
Bachelor of Science in Biological Engineering — Class of 2015
Member of the Tau Beta Pi Engineering Honor Society, Massachusetts Beta Chapter

Phillips Exeter Academy — **Exeter, NH**
Member of the *cum laude* Society — Class of 2011

Research Experience

Graduate Researcher - DeRisi Lab at UCSF — **May 2018 - Present**
Advisor: Prof Joseph L DeRisi — Mission Bay SF, CA

- Developing technologies for high throughput screening of host factors vital for viral egress through use of microfluidics and droplet generation techniques

Research Associate - Hung Lab at the Broad Institute — **August 2015 - August 2017**
Advisor: Dr Deborah T Hung · Supervisor: Dr Roby Bhattacharyya — Cambridge, MA

- Developed a rapid, RNA-based diagnostics platform for pathogen identification and antibiotic susceptibility testing.
- Characterized and validated transcriptional signatures of common hospital-borne pathogens following exposure to multiple classes of antibiotics using RNASeq and Nanostring.

EndoSpan - Summer Intern — **May 2015 - August 2015**
Research & Development — Herzlia, ISRAEL

- Prepared literature reviews on current standards of aortic arch repair using stent graft systems and summarized comparison results with proprietary stent designs.
- Summarized and safety requirements and results of fatigue and durability testing of proprietary stents for submission towards the FDA Medical Device Regulation application.

Mechanobiology Lab at MIT - Undergraduate Researcher — **September 2014 - May 2015**
Advisor: Prof Roger D Kamm · Supervisor: Michelle B Chen — Cambridge, MA

- Characterized epithelial permeability and quantified visual effects on cell junctions due to immune cell presence.
- Modeled fluid flow and diffusion through microfluidic devices used for mammalian tissue culture experiments.

Sabatini Lab at the Whitehead Institute - Undergraduate Researcher — **September 2012 - May 2014**
Advisor: Dr David M Sabatini · Supervisor: Dr Michael E Pacold — Cambridge, MA

- Purified PHGDH and other proteins for enzyme kinetics assays and high-throughput small molecule screens in collaboration with the NIH, culminating in a paper published in *Nature Chemical Biology*.
- Collected and cloned over 100 human oxidoreductase proteins from mRNA to produce a novel plasmid library ready for induced expression and purification in *E. coli* for large-scale, small molecule inhibitor screens.

Awards & Honors

2019 The Patrick Judy Young Fellowship
2018 The Frank Schwabacher Graduate Scholarship
2015 Tau Beta Pi Engineering Honor Society Membership
2015 Znaty-Merck Prize for Undergraduate Research
2014 Priscilla King Gray Public Service Leadership Council Grant
2014 Jeffrey L. Pressman Award for Political Science
2014 MITFCU People Helping People Service Award
2014 Priscilla King Gray Public Service Center Expedition Grant Finalist
2013 Tau Beta Pi Spring Philanthropy Fellowship
2013 DeFlorez Endowment Fund for Undergraduate Research
2012 Priscilla King Gray Public Service Center Grant

Publications

Bhattacharyya RP, Bandyopadhyay N, Ma P, Son SS, **Liu J**, He LL, Wu L, Khafizov R, Boykin R, Cerqueira GC, Pironti A, Rudy RF, Patel MM, Yang R, Skerry J, Nazarian E, Musser KA, Taylor J, Pierce VM, Earl AM, Cosimi LA, Shoresh N, Beechem J, Livny J, Hung DT. "Simultaneous detection of genotype and phenotype enables rapid and accurate antibiotic susceptibility determination." *Nature Medicine* 25:1858âĂŞ64 (2019)

Bhattacharyya RP, Walker M, Boykin R, Son SS, **Liu J**, Hachey AC, Ma P, Wu L, Choi K, Cummins KC, Benson M, Skerry J, Ryu H, Wong SY, Goldberg MB, Han J, Pierce VM, Cosimi LA, Shoresh N, Livny J, Beechem J, Hung DT. "Rapid identification and phylogenetic classification of diverse bacterial pathogens in a multiplexed hybridization assay targeting ribosomal RNA." *Scientific Reports.* 9(4516) (2019)

Liu J*, Garcia VE*, DeRisi JL. "Low-Cost Touchscreen Driven Programmable Dual Syringe Pump for Life Science Applications." *HardwareX*, Available online 22 May 2018, e00027, https://doi.org/10.1016/j.ohx.2018.e00027. (*co-first authors)

Pacold ME, Brimacombe KR, Chan SH, Rohde JM, Lewis CA, Swier LJ, Possemato R, Chen WW, Sullivan LB, Fiske BP, Cho S, Freinkman E, Birsoy K, Abu-Remaileh M, Shaul YD, **Liu CM**, Zhou M, Koh MJ, Chung H, Davidson SM, Luengo A, Wang AQ, Xu X, Yasgar A, Liu L, Rai G, Westover KD, Vander Heiden MG, Shen M, Gray NS, Boxer MB, Sabatini DM. "A PHGDH inhibitor reveals coordination of serine synthesis and one-carbon unit fate." *Nature Chemical Biology.* 12(6):452-8 (2016)

Posters & Presentations

Bhattacharyya RP, **Liu J**, Rudy RF, Patel MM, Livny J, Hung DT. Rapid antibiotic susceptibility testing in Klebsiella pneumonia and Acinetobacter baumanii using RNA transcriptional signatures. (Poster presentation) *2017 Cellular and Molecular Bioengineering Annual Conference*; 2017 Jan 3-7; Kohala Coast, HI

Bhattacharyya RP, **Liu J**, Rudy RF, Patel MM, Livny J, Hung DT. Rapid antibiotic susceptibility testing in Klebsiella pneumonia and Acinetobacter baumanii using RNA transcriptional signatures. (Poster presentation) *Broad Institute Twelfth Annual Retreat*; 2016 Dec 19-20; Cambridge, MA

Liu J, Chow D, Maragh A, Ok M, Omahan C, Wang R. Multi-pronged approach to prevention and detection of surface healthcare associated infections (Oral presentation) *Biological Engineering Senior Design Final Presentations*; 2015 May 12; Cambridge, MA

Liu J, Chen MB, Kamm RD. Exploration of the role of platelets in tumor cell extravasation using microfluidic devices (Oral presentation) *Znaty-Merck Research Prize Presentations*; 2015 May 1; Cambridge, MA

Teaching Experience

MIT Department of Biological Engineering **February - May 2015**
Tutor & Grader for 20.111J Physical Chemistry of Biomolecular Systems Cambridge, MA

- Designed review materials explaining and summarizing lecture topics, formula derivations, and models.
- Led weekly office hours and tutoring lessons, graded problem sets, and reviewed exams in a one-on-one section.

MIT Experimental Study Group **September 2014 - December 2014**
Facilitator for Seminar XL ESG.7012 (Introductory Biology) Cambridge, MA

- Designed learning resources, problem sets, and review materials to complement and reinforce lecture topics.
- Lectured at weekly recitation sections and conducted pre- and post-exam review sessions.
- Represented first line of support for at-risk students and conducted one-on-one tutoring sessions as necessary.

MIT Department of Biological Engineering **September - December 2013**
Tutor & Grader for 20.110J Thermodynamics of Biomolecular Systems Cambridge, MA

- Designed review materials explaining and summarizing lecture topics, formula derivations, and models.
- Led weekly office hours and tutoring lessons, graded problem sets, and reviewed exams in a one-on-one section.

Educational Outreach & Service

Bioengineering Association of Students (BEAST) **March 2019 - Present**
Bioengineering Student Talks Coordinator San Francisco, CA

- Schedule and administer a forum for Bioengineering students to practice talks, whether they be conference presentations, job talks, qualifying exams, or others.

Bioengineering Association of Students (BEAST) **March 2018 - Present**
Peer Advisor San Francisco, CA

- Help address the concerns of first year students and help them understand and adjust to the academic requirements our program.

Boston Open Science Laboratory **October 2016**
Volunteer Instructor Somerville, MA

- Leading hands-on lessons to introduce the theory and practice RNA interference in *C. elegans* to the general public.
- Designing a flexible, multi-week curriculum geared towards teaching basic synthetic biology and biological engineering techniques to both adult professionals and children alike in a DIY Biology Lab.

Alternate Spring Break **March 2012 - January 2015**
Student Presenter

- Coordinated with both MIT Priscilla King Gray Public Service Center and over 10 non-profit organizations to send 50 students/year on service learning trips in 8 States.
- Aided in the transition from a student run organization to an administration organized spring break activity.

Spokes America **January 2014 - August 2014**
Treasurer & Instructor San Francisco, CA to Washington D.C.

- Coached over 200 students, teachers, and community members at 10 teaching stops across the US in exploring STEM topics through guided, hands-on activities designed to present a new perspective on education.
- Fundraised and balanced a $40 000 budget for a 7 member cross-country cycling trip lasting over 60 days.

Four Weeks for America **January 2014**
Undergraduate Assistant Mission, SD

- Collaborated with a Teach For America alum to draft a calculus curriculum compatible with her teaching style.
- Taught high school students of various ages lessons in four standard math levels (Algebra I, Algebra II, Pre-calulus, and Calculus) both during class and in before- or after-school one-on-one sessions.
- Substituted as a stand-in math instructor to lead students in completing lessons and exercises.

Academic Teaching Initiative **February 2012 - October 2013**
SAT I Math Teacher Cambridge, MA

- Taught over 250 students across five independent semester-long SAT I Mathematics sections and raised the performance of 83% of students as compared to their respective diagnostic scores.
- Designed a SAT I Mathematics review curriculum specifically geared towards establishing basic algebra skills in students with a practice score of between of 200-400 out of 800 (~15th percentile).

Women's Initiative **January 2013**
Student Presenter Murphy, SC

- Introduced STEM professions as a possible future career option to over 400 primary and secondary school girls and dispelled common misconceptions on engineers through hands-on demonstrations and engaging presentations.
- Collaborated with local educators on developing new methods to expose all K-12 students to engineering subjects.