

Graham Heimberg

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Education	University of California at San Francisco 2011- current Ph.D. in Biomedical Informatics Expected graduation: 2017
	University of Illinois at Urbana-Champaign 2007 - 2011 B.S. Electrical Engineering, Minor Bioengineering
Expertises & Interests	single cell RNA-seq · signal processing · unsupervised machine learning · linear algebra big data · precision medicine · immunology · biotech startups
Research Experience	Hana El-Samad & Matt Thomson Labs Joint Graduate Student UC San Francisco 2011 – Present Thesis title: <i>Low Dimensionality in Gene Expression - How we can exploit transcriptional correlations in bulk and single cells to make new measurements and analyses.</i> Current project: Feature-based representations of scRNA-seq data enable quantitative comparisons between patient samples. Thesis Committee: Professors Joe DeRisi, Hao Li, Hana El-Samad and Matt Thomson
	Sheng Zhong Lab Undergraduate researcher University of Illinois Urbana-Champaign 2010-2011 Using DNA sequence data and gene expression data to determine whether orthologs have conserved expression patterns across human and mouse.
	Illinois iGEM Founding team member, Director University of Illinois Urbana-Champaign 2008, 2009 Obtained \$30,000 to establish first synthetic biology undergraduate team at UIUC. Led 2009 team through brainstorming, project execution and presentation. Designed biological parts for digital logic functions in bacteria using small RNAs.
	Laboratory of Optical Physics Undergraduate researcher University of Illinois Urbana-Champaign 2007-2009 Fabricated and tested different microplasma display devices.
	Experimental Cosmology Group High school volunteer UC Santa Barbara 2004-2007 Processed raw image data to evaluate a location for telescope placement.
Awards & Grants	UCSF Graduate Division Travel Award February 2017 \$700 grant to cover conference and travel costs.
	NSF Innovation-Corps Summer 2016 \$50,000 grant and seven week intensive course for commercializing academic research.
	Mary Anne Koda-Kimble Seed Award for Innovation February, 2016 \$20,000 UCSF grant to stratify Rheumatoid Arthritis patients using scRNA-seq.
Publications	Low dimensionality in gene expression data enables the accurate extraction of transcriptional programs from shallow sequencing April, 2016, <i>Cell Systems</i> (Featured on the cover) <u>Heimberg G*</u> , Bhatnagar R*, El-Samad H [†] , Thomson M [†]

Transcription factor competition allows embryonic stem cells to distinguish authentic signals from noise

August, 2015, *Cell Systems*

Sokolik C, Liu Y, Bauer D, McPherson J, Broecker M, Heimberg G, Qi L, Sivak D, Thomson M

Specific gene repression by CRISPRi system transferred through bacterial conjugation

August, 2014, *ACS Synthetic Biology*

Ji W, Lee D, Wong E, Dadlani P, Dinh D, Huang V, Kearns K, Teng S, Chen S, Haliburton J, Heimberg G, Heineke B, Ramasubramanian A, Stevens T, Helmke KJ, Zepeda V, Qi LS, Lim W

Fully Addressable, SelfAssembled Microcavity Plasma Arrays: Improved Luminous Efficacy by Controlling Device Geometry

May, 2008, *SID Symposium Digest of Technical Papers*

Kim KS, Yoon JK, Xie E, Kim TL, Heimberg G, Park SF, Eden JG

An astronomical site survey at the Barcroft Facility of the White Mountain Research Station

August, 2006, *New Astronomy*

Marvil J, Ansmann M, Childers J, Cole T, Davis GV, Hadjiyska E, Halevi D, Heimberg G, Kangas M, Levy A, Leonardi R, Lubin P, Meinhold P, O'Neill H, Parendo S, Quetin E, Stebor N, Vilella T, Williams B, Wuensche CA, Yamaguchi K

Teaching **UCSF Teaching Assistant - *Systems I*, Prof. Joe DeRisi** Fall 2012
Supervised student teams' progress in a 1st year graduate lab course where students sequenced DNA and RNA to identify mystery yeast strains.

Outreach **Mentor - *international Genetically Engineered Machines competition*** Summers 2012, 2013
Taught high school students fundamental concepts such as experimental design.
Designed interactive lessons on programming, data analysis and modeling for high school students.

Volunteer - *Science & Health Education Partnership* 2011
Designed and led four science lessons in the classroom kindergarteners and 1st graders.

Reserach Talks Winter Q-BIO Conference Kauai, HI 2017
UCSF Quantitative Biology Consortium retreat (invited) Asilomar, CA 2016
Cell Symposia: Technology. Biology. Data Science. Berkeley, CA 2016
NIGMS National Center for Systems Biology meeting Albuquerque, NM 2015
Biomedical Computation at Stanford Palo Alto, CA 2015
UCSF Center for Systems Biology San Francisco, CA 2014
Theory + Pizza San Francisco, CA 2013
iGEM Jamboree Cambridge, MA 2009