

Benjamin Siranosian

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EDUCATION

Stanford University, Stanford, California

Ph.D student in Ami Bhatt's lab, Department of Genetics.

Brown University, Providence, Rhode Island

Bachelor of Science in Computational Biology with Honors, May 2015 (Concentration GPA 3.8)

- Senior Biology Prize for Academic Excellence in Biological Sciences

Senior Honors Thesis: A Multi-Scale Ensemble Model of Chromatin Conformation

Activities: Computational Biology Department Undergraduate Group Leader, Brown Outing Club (Vice President),

Relevant coursework: Advanced Algorithms in Comp. Bio, Statistical Methods in Bioinformatics, Inference in Genomics and Molecular Biology, Stochastic Epidemic Models, Human Population Genomics, Stem Cell Biology, Evolutionary Genetics, Molecular Genetics, Computer Science.

Aquincum Institute of Technology, Budapest, Hungary. Study Abroad Fall Semester 2013

- Completed 6 courses in computational biology, data mining, network science and IT entrepreneurship.

WORK EXPERIENCE

Dr. Ami Bhatt's Laboratory, Stanford University Department of Genetics

April 2017 – Present: Ph.D student

- Developing methods for analyzing next-generation sequencing data from metagenomic samples

The Broad Institute of MIT and Harvard, Cambridge, MA

July 2015 – July 2017: Associate Computational Biologist, Connectivity Map (CMap) group, Cancer Program

- Collaboration with Dr. Uri-Ben David, Golub Lab: Profiled correlated genetic, transcription and drug response changes in supposedly identical cancer cell lines. Manuscript accepted at *Nature*.
- Algorithm development: Comparing patient-derived gene expression profiles with CMap.

Dr. Nicola Neretti's Laboratory, Brown University Department of Molecular and Cell Biology

January 2013 – May 2015: Undergraduate Researcher, Undergraduate Teaching and Research Award Fellow

- Senior Honors Thesis: A Multi-Scale Ensemble Model of Chromatin Conformation.
- Developed a Hi-C data processing pipeline to investigate chromatin structure changes in replicative cellular senescence. Manuscript published in *Science Advances*.

Freelance Writer, Corporate Writers LLC. May 2013 – May 2015

- Wrote weekly biotechnology, computer systems and social media content for company websites.

Teaching Assistant, Brown University. BIOL190R: Phage Hunters. Fall 2012 – Spring 2015

I was a Phage Hunters TA for three years at Brown. I devoted countless hours to administering phage and microbiology labs, advising students during their first year and leading motivated students in independent research projects. The experience has left me a better scientist, teacher and researcher.

Teaching Assistant, CSCI1820: Algorithmic Foundations of Computational Biology. Spring 2015

Dr. Maureen Conte's Laboratory, Marine Biological Laboratory, Woods Hole, MA

April 2010 - September 2011: Lab Assistant, NSF-REU Researcher

PUBLICATIONS

Ben-David, U., **Siranosian, B.**, et al. Genetic and transcriptional instability alters cancer cell line drug response. *Nature* (2018).

Criscione, S.W., Cecco, M.D., **Siranosian, B.**, Zhang, Y., Kreiling, J.A., Sedivy, J.M., Neretti, N. Reorganization of chromosome architecture in replicative cellular senescence. *Science Advances* (2016).

Siranosian, B., et al. Tetranucleotide usage highlights genomic heterogeneity among mycobacteriophages [version 2; referees: 2 approved]. *F1000Research* (2015).

Pope, W. H., ..., **Siranosian, B.**, ..., *et al.* Whole genome comparison of a large collection of mycobacteriophages reveals a continuum of phage genetic diversity. *eLife Sciences* (2015).

Siranosian, B., et al. Tetranucleotide usage in mycobacteriophage genomes: alignment-free methods to cluster phage and infer evolutionary relationships. *BMC Bioinformatics*, (Suppl 2):A7 (2015).

Siranosian, B. and Neretti, N., A multi-scale Ensemble Model of Chromatin Conformation. Brown University Senior Honors Thesis in Computational Biology (2015).

PRESENTATIONS AT PROFESSIONAL MEETINGS

2018 Intelligent Systems for Molecular Biology, Chicago, IL

- Oral and poster presentation in EvolCompGen COSI: “Genetic and transcriptional instability alters cancer cell line drug response,” award for outstanding oral presentation in the Student Council Symposium.

2016 Broad Institute Scientific Retreat, 2016 ISCB Student Council Symposium

- Poster presentation: Comparing patient-derived gene expression profiles with the Connectivity Map

2016 Systems Approaches to Cancer Biology: Marine Biological Laboratory, Woods Hole, MA

- Poster presentation: Integrating the Connectivity Map and the Cancer Genome Atlas

2014 International Society for Computational Biology Student Council Symposium

- Oral presentation and poster: Tetranucleotide usage in mycobacteriophage genomes

SEA-PHAGES Symposium: HHMI Janelia Farm Research Campus, Virginia

- 2015 poster, honorable mention: Characterization of palindrome usage in mycobacteriophage genomes
- 2014 poster, first place: Tetranucleotide usage in mycobacteriophage genomes

TECHNICAL AND LABORATORY SKILLS

Programming Languages: Experienced in R. Skilled with the plotly and shiny packages, and using them to create interactive web-based applications. Experienced in Python and Unix shell. Familiar with Java, HTML and CSS.

Bioinformatics Software: Experience with command line BLAST, the Tuxedo Suite (Bowtie, Tophat, Cufflinks), Trinity *de novo* transcript assembly, Picard Tools and integrating these tools into automated pipelines.

Graphic Design: Experienced in Adobe Illustrator for figure design and After Effects for scientific animation.

Laboratory Skills: Microbial DNA extraction, purification and library preparation. Bacteria and bacteriophage culturing, purification and analysis. Molecular biology, PCR and DNA analysis, transmission electron microscopy.

VOLUNTEERING, OUTREACH AND PROFESSIONAL SOCIETIES

I have volunteered for the **International Society for Computational Biology Student Council** since 2014. Most recently, I was the co-chair of the 2016 Student Council Symposium, a one-day international conference for students and early-career scientists in computational biology. My responsibilities included coordinating international volunteers, recruiting sponsorship from companies and administering day-of conference logistics. I am the managing the program and leading review of research abstracts for the 2017 conference.

Computational Biology Department Undergraduate Group, co-president: During my senior year at Brown, I organized outreach events, information sessions, study groups and research presentations for students interested in computational biology. I was also an advisor to several underclassmen students studying computational biology.

Sigma Xi: Member, Brown University chapter