

Maria Nattestad

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Education

PhD, Computational Biology

Aug 2013 - Present

Watson School of Biological Sciences, Cold Spring Harbor Laboratory, New York. Advised by Michael Schatz.

- Developing algorithms for long-read sequencing, genome assembly, variant-calling, tumor heterogeneity, and cancer genomics.

Bachelor of Science, Biological Sciences

Aug 2009 - May 2013

University of the Pacific, California. Summa Cum Laude, GPA 3.97

- 3 years undergraduate research: Optimizing a yeast protein expression system. Genetic studies of DNA repair enzymes in the fruit fly. Epidemiological modeling using scale-free networks.
- 3 years tutoring and teaching workshops in biology, chemistry, and computer science.
- Summer Undergraduate Research Fellowship at Rockefeller University

Honors and awards

Phi Beta Kappa ~ NSF Graduate Research Fellowship Program Honorable Mention ~ Phi Kappa Phi ~ University of the Pacific Regents Scholar ~ Thomas J. Long Scholarship for Excellence in General Education ~ Honors Program, University of the Pacific ~ Outstanding Graduate in Biological Sciences, University of the Pacific.

Publications

Maria Nattestad, Michael C. Schatz. Assemblytics: a web analytics tool for detection of variants from an assembly. *Bioinformatics*. DOI 10.1093/bioinformatics/btw369. *In press*.

Maria Nattestad, Marley Alford, Michael C. Schatz. SplitThreader: gene fusions and historical reconstruction using graphical analysis of the connectivity of highly rearranged cancer genomes. *In preparation*.

Maria Nattestad, Karen Ng, Sara Goodwin, Timour Baslan, Fritz Sedlazeck, James Gurtowski, Elizabeth Hutton, Marley Alford, Elizabeth Tseng, Jason Chin, Timothy Beck, Yogi Sundaravadanam, Melissa Kramer, Eric Antoniou, John McPherson, James Hicks, Michael C. Schatz, W. Richard McCombie. 2015. Comprehensive Genome and Transcriptome Structural Analysis of a Breast Cancer Cell Line using PacBio Long Read Sequencing. *In preparation*.

Hayan Lee, James Gurtowski, Shinjae Yoo, Maria Nattestad, Shoshana Marcus, Sara Goodwin, W. Richard McCombie, and Michael C. Schatz. Third generation sequencing and the future of genomics. *Under review*.

Staley CA, Huang A, Nattestad M, Oshiro K, Ray L, Mulye T, Li Z, Le T, Stephens JJ, Gomez SR, Moy A, Nguyen JC, Franz AH, Lin-Cereghino J, and Lin-Cereghino GP. 2012. Analysis of the 5' Untranslated Region (5' UTR) of the alcohol oxidase 1 (AOX1) gene in recombinant protein expression in *Pichia pastoris*. *Gene* 496:118-127.

Lin-Cereghino J, Lin-Cereghino GP, Stark CM, Kim D, Chang J, Shaheen N, Poerwanto H, Agari K, Moua P, Low L, Tran N, Huang AD, Nattestad M, Oshiro KT, Chang JW, Chavan A, Tsai JW. 2013. The Effect of α -Mating Factor Secretion Signal Mutations on Recombinant Protein Expression in *Pichia pastoris*. *Gene* 519: 311-317.

Research presentations

Talk at AGBT 2016.

Talk at PyData NYC to python developers and data scientists. 2015.

Talk at Genome Informatics, CSHL 2015.

Talk at AACR 2016.

Invited talk at Festival of Genomics California 2015.

Talk at ASHG (American Society of Human Genetics) Annual Meeting 2015.

Invited talk at PacBio East Coast User Group Meeting 2016.

Posters at Biology of Genomes 2015, Biology of Genomes 2016, Probabilistic Modeling in Genomics 2015.

In-house talks at the Quantitative Biology Seminar at Cold Spring Harbor Laboratory, April 2015, January 2016.

Leadership, teaching, and events

Teaching graduate students and researchers

2015-2016

- Gave lecture on structural variation at Mount Sinai for a Practical Cancer Genomics course. April 2016.
- Taught lecture on structural variation and cancer genomics for the Advanced Sequencing Course at CSHL, November 2015.
- Taught first-year graduate students an introduction to computational biology with Python at CSHL. August 2015.
- Organized and taught two workshops: 1) Scientific web application development. 2) Data analysis in R for biologists. 2015.

Mentor for Undergraduate Research Program, CSHL

June - August 2015

Advised an undergraduate student during the summer and helped her plan her research focus on graphical analysis of the translocations in a cancer genome. Mentored her in science, programming, career prospects, and presenting her research.

Speaker at the Board of Trustees

June 2015

Spoke about my teaching activities including the Hour of Code and Girls Who Code. First student ever to speak at a meeting of the Board of Trustees of Cold Spring Harbor Laboratory.

Organized Beyond the Bench

July 2015

Successfully applied for funding from ASCB for a local meeting, and co-organized this one-day conference with panels, talks, workshops, and Q&As about careers for scientists outside academia.

Outreach

Keynote speaker, Women's Partnership for Science

Sept 2015

Speaking at the Women's Partnership for Science Luncheon for CSHL donors and community about my career, science, and outreach activities.

Instructor, Girls Who Code club

Oct 2014 - May 2015

Started a Girls Who Code club to teach a group of fifteen high school girls from four schools how to code in JavaScript using Khan Academy.

Invited speaker, local high school career lecture series

March 2015

Spoke to high school students encouraging them to pursue science research and learn computational skills.

Managing editor, Current Exchange

April 2014 - Present

Popular science magazine at Cold Spring Harbor Laboratory. Solicited articles from authors, marketed the magazine to prospective sponsors, contributed articles on genomic privacy, STEM education, and why every child should learn to code.

Organizer and instructor, Hour of Code event

Dec 2014

Hosted, planned, and led an Hour of Code workshop attended by over 90 children and adults who started learning to code for the first time.

Curriculum designer, BioCoding summer camp

July 2014

Planned the one-week curriculum, built a Python tutorial, and taught the introductory lecture for the BioCoding summer camp at the DNA Learning Center, teaching 15 high school students the basics of coding in the context of bioinformatics.

Lab activity teacher, DNA Learning Center

Jan - April 2014

Taught middle school and high school students about the biology of DNA through laboratory activities that teach problem solving, discovery, and critical thinking as applied to DNA extraction and restriction analysis.