

Maria Nattestad

Founder and CEO of OMGenomics

PhD in bioinformatics from Cold Spring Harbor Laboratory

Website: OMGenomics.com, marianattestad.com

Email: maria@omgenomics.com

Education

PhD, Bioinformatics

Aug 2013 – Feb 2017

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

- Thesis entitled: “Computational methods for analysis and visualization of long-read sequencing data in cancer genomics”
- Analyzed long-read PacBio sequencing data from a breast cancer cell line named SK-BR-3. Developed software along the way to aid in the analysis: Assemblytics for assembly-based variant-calling; SplitThreader for analysis of long-range variants and copy number; and Ribbon for visualization of complex structural variation. These three are all web applications and include customized data visualization created with D3.js.

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

Experience

Founder and CEO of OMGenomics

March 2017 - Present

OMGenomics is a bioinformatics data visualization software company. At OMGenomics I created Circa, a desktop software program for constructing circos plots, built entirely using D3.js. A demo video of Circa is available at omgenomics.com/circa. As of 3 months after launch, Circa has over 100 customers around the world. At OMGenomics, I have also done significant content marketing through YouTube, Twitter, and an email newsletter with the aim of guiding new entrants into the bioinformatics field.

Publications

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

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

Maria Nattestad, Chen-Shan Chin, Michael C. Schatz. Ribbon: Visualizing complex genome alignments and structural variation. *BioRxiv*.

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.

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 ~ Outstanding Graduate in Biological Sciences, University of the Pacific.

Research presentations

Invited talk at Harvard Medical School, DBMI. 2017.

Talk at PAG 2017.

Talk at AGBT (Advances in Genome Biology and Technology) 2016.

Talk at AACR (American Association for Cancer Research) 2016.

Invited talk at PacBio East Coast User Group Meeting 2016.

Invited talk at PacBio SMRT Informatics Developers Meeting 2016

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

Talk at Genome Informatics, CSHL. 2015.

Talk at Festival of Genomics California 2015.

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

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.

Managing editor, Current Exchange 2014 - 2016

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.