

Samantha Zarate

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Education

<i>Current</i> <i>Aug 2019</i>	Ph.D. Student in Computational Biology, Schatz Lab Department of Computer Science, Johns Hopkins University
<i>June 2016</i> <i>Sept 2012</i>	Bachelor of Science in Biomedical Computation, Stanford University Relevant classes: Computational Molecular Biology (BIOCHEM 218), Representations and Algorithms for Computational Molecular Biology (BIOMEDIN 214), Translational Bioinformatics (BIOMEDIN 217), A Computational Tour of the Human Genome (BIOMEDIN 273A), Design and Analysis of Algorithms (CS 161) Completed a Notation in Science Communication, creating an ePortfolio of artifacts depicting growth and development in the realm of science communication.

Work and Research Experience

<i>Aug 2019</i> <i>Aug 2016</i>	Scientist at DNAexus , Mountain View, CA <ul style="list-style-type: none">Implemented popular bioinformatics tools on the DNAexus platform, including structural variation tools such as Parliament2Documentation co-lead, including structuring the content, writing and editing pages, and helping prioritize product documentation; co-created a new site for DNAexus documentationProvided scientific and bioinformatics services for all customers in the country of Singapore, including the Genome Institute of Singapore and the National University of SingaporeWorked with various other customers to support, accelerate, and productionize their bioinformatics pipelinesMentored a summer intern, helping her develop and productionize a DNAexus-recommended RNA-seq analysis workflow
<i>Sept 2015</i> <i>June 2015</i>	Bioinformatics Intern at DNAexus , Mountain View, CA <ul style="list-style-type: none">Productionized and parallelized tools for the DNAexus platform including WGS, CNVnator, and SomaticSniperProductionized and parallelized structural variant calling and analysis tools for the DNAexus platform such as Parliament, Lumpy, Delly, and PindelAttended the PacBio SMRT Informatics developers' conference as well as the Genome in a Bottle conference, both at the National Institute for Standards and Technology in Gaithersburg, MD, where work on Parliament was presented
<i>June 2015</i> <i>Apr 2013</i>	Research Assistant at Luo Lab , Stanford University, Stanford, CA Understanding the function of <i>Rai1</i> <ul style="list-style-type: none">Using Mosaic Analysis with Double Markers (MADM) in mice, conducted dendritic spine density analysis and cell quantification in various regions of the brainAnalyzed <i>Rai1</i> expression in embryonic carcinoma murine stem cells differentiated into neurites and muscle cells and differential expression of <i>Rai1</i> using RNA-seq transcription and microarray dataConducted bioinformatics analysis of RNA-Seq and microarray data

Preprints & Manuscripts

P1. Parliament2: Fast Structural Variant Calling Using Optimized Combinations of Callers. **S. Zarate**, A. Carroll, O. Krasheninina, F. J. Sedlazeck, G. Jun, W. Salerno, E. Boerwinkle, R. Gibbs (2018) *bioRxiv* doi: <https://doi.org/10.1101/424267>

Posters

- Parliament2: Fast Structural Variant Calling Using Optimized Combinations of Callers. **S. Zarate**, A. Carroll, O. Krasheninina, F. Sedlazeck, G. Jun, W. J. Salerno, E. Boerwinkle, R. A. Gibbs (2019) Advances in Genome Biology and Technology (AGBT), Marco Island, FL.

- Parliament2: Benchmarking a Structural Variant Consensus Caller Compared to Individual Methods. A. Carroll, **S. Zarate**, W. J. Salerno, F. Sedlazeck, O. Krasheninina, R. Gibbs (2018) 23andMe Genome Research Day, Mountain View, CA.
- Parliament2: Benchmarking a Structural Variant Consensus Caller Compared to Individual Methods. A. Carroll, **S. Zarate**, W. J. Salerno, F. Sedlazeck, O. Krasheninina, R. Gibbs (2018) Biology of Genomes, Cold Spring Harbor, NY.
- CHORUS: Enabling the sharing of federated genomic data associated with subjects from varied Singapore ethnic groups. **S. Zarate**, J. Ow, Y. Hwang, Y. Men, P. Lim, P. Ng (2017) Biology of Genomes, Cold Spring Harbor, NY.
- Analyzing the function of Smith Magenis Syndrome-associated gene *Rai1*. **S. Zarate**, C. Guenther, L. Luo (2014) SURPS (Symposium of Undergraduate Research and Public Service) poster session, Stanford, CA.
- Understanding the function of RAI1 through genetic mosaic analysis in mice. **S. Zarate**, C. Guenther, L. Luo (2013) Bio-X Undergraduate Fellow poster session, Stanford, CA.

Skills

- **Scientific:** R, SciPy, NumPy, MATLAB, \LaTeX , popular bioinformatics software (e.g. BWA-MEM, Samtools, GATK, etc.), structural variant callers (e.g. Lumpy, Breakdancer, Delly, etc.)
- **Technical:** Python, Bash, Docker, C, C++, Java, version control (GitHub, Git, Mercurial), cloud software (AWS, Google Cloud)
- **Other:** Scientific communication and technical writing, moderate grasp of Spanish