Dionna Jacobson

Curriculum Vitae

Education

Sep 2018 **Master of Research, Modeling Biological Complexity**, *Department of Computer Science, University College London*, London, UK.

- Relevant Coursework: Statistics, Linear and Nonlinear Dynamics, Machine Learning, Bioinformatics, Clinical Pharmacology

June 2017 **Bachelor of Science, Biology, Honors and Distinction in Computational Biology**, *Department of Biology, Stanford University*, GPA: 3.75/4.0, Stanford, CA.

- Honors thesis focused on understanding the functional importance of site-specific and tissue-specific Adenosine-to-Inosine (A-to-I) RNA editing in *D. Melanogster*
- Relevant Coursework: Genetics, Biostatistics, Linear Algebra and Differential Calculus, Computational Biology, Programming Methodology and Abstractions, Machine Learning in Genomics

Research Experience

Apr 2018 – Present **Dept. of Medical Physics and Bioengineering**, University College London, London, UK.

Research advisors: Dr. Ilias Tachtsidis & Dr. Subha Mitra

- Developed a deep learning approach for identification of artefacts in broadband near-infrared spectroscopy (NIRS) data
- Applied convolutional neural networks to 2D image transformations of 1D staged artefact broadband spectra to identify patterns distinguishing artefacts in NIRS
- ML techniques outperformed the gold standard for artefact detection

Feb 2018 – Apr 2018 **Division of Immunity and Infection**, University College London, London, UK.

Research advisors: Dr. Judith Breuer & Dr. Richard Goldstein

- Processed and analyzed varicella-zoster virus NGS data to investigate recombination between virus lineages by using linkage disequilibrium
- Identified additional inter-clade recombination events and established genome-wide and local linkage disequilibrium patterns
- Findings elucidated impact of lower VZV recombination on evolution of functional regions

Dec 2017 – Feb 2018 **Institute of Child Health**, University College London, London, UK.

Research advisors: Dr. Joe Standing & Dr. Julie Bertrand

- Used pharmacodynamic approaches and mixed-effects modeling to examine hepatotoxicity of concomitant anti-TB and antiretroviral drugs
- Identified genetic and clinical features making certain individuals more susceptible to development of liver toxicity

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Oct 2014 – May 2017 **Li Lab, Department of Genetics**, Stanford University, Palo Alto, CA.
Research advisor: Dr. Jin Billy Li
- Designed independent project studying effects of perturbed A-to-I RNA editing events on *D. Melanogaster* behavior
- Created novel pipeline to perturb editing using CRISPR-Cas9 and conducted behavioral assays to show deviations from wild-type behavior as a result of defective editing
- Used mmPCR-seq to examine RNA editing in flies that had opto-genetically activated neural circuits

Awards and Fellowships

2016 Stanford Undergraduate and Advising Student Major Grant Recipient

2015 Stanford Bio-X Poster Session Award, Excellence of Poster and Presentation

2015 Stanford Bio-X Undergraduate Summer Fellowship

Publications and Presentations

Publications

Zhang R., Deng P., **Jacobson D.**, Li J.B. (2017). Evolutionary analysis reveals regulatory and functional landscape of coding and non-coding RNA editing. *PLoS Genetics* 13(2): e1006563. https://doi.org/10.1371/journal.pgen.1006563.

Yablonovitch A.L., Deng P., **Jacobson D.**, Li J.B. (2017). The evolution and adaptation of A-to-I RNA editing. *PLoS Genetics* 13(11): e1007064. https://doi.org/10.1371/journal.pgen.1007064.

Presentations

Jacobson D. (June 19, 2018). *Examining the recombination landscape of Varicella-Zoster Virus through linkage disequilibrium*. Virus Genomics and Evolution Conference, Poster Presentation, Cambridge, UK.

Jacobson D. (May 20, 2017). *The functional roles of site-specific and tissue-specific A-to-I RNA editing events in Drosophila melanogaster* . Achauer Honors Symposium, Poster Presentation, Stanford, CA.

Work Experience and Service

Apr 2017 – Sep 2017 **Gym Receptionist**, Uforia Studios, Palo Alto, CA.
- Greeted and checked clients into classes, and facilitated transitions between classes
- First responder to client and studio-based issues and ensured customer-focused service

Dec 2015 – June 2017 **Patient Care Advocate**, Arbor Free Clinics, Menlo Park, CA.
- Worked closely with physicians and pre-clinical students to determine most appropriate insurance and referral services for patients
- Engaged with diverse patient population

Relevant Skills

Research Data Science Research Methods, Pattern & Trend Recognition, Data Mining, Visualization of Data Insights

Computer python, R, C++, java, SQL, HTML, Unix/Linux, Microsoft Office Suite