Isaac Wong

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EDUCATION

University of Rochester **Anticipated May 2019**

- *Bachelor of Science in Computational Biology* GPA 3.52 out of 4.00
- *Bachelor of Arts in Computer Science, concentration in Artificial Intelligence and Machine Vision*

RELEVANT COURSES AND LABS

- Organic Chemistry with Lab, Genetics with Lab, Biostatistics with Lab, Molecular Biology, Quantitative Genomics with Lab, Computational Biology with Lab, Applied Genomics with Lab
- Data Structures & Algorithms, Discrete Mathematics, Computational & Formal Systems, Artificial Intelligence, Computer Vision, Linear Algebra with Differential Equations, Computational Statistics

RESEARCH EXPERIENCE

University of Rochester – Department of Biology Rochester, New York

Independent Research under Dr. Amanda Larracuente *August 2018 – Present*

- Developed computational model for the evolution of satellite DNA arrays using Bayesian analysis. Based on my model, I hope to infer how varying recombination rates and fitness functions affect the expansion and collapse of individual arrays across large timescales.

Freie Universität – Department of Biochemistry Berlin, Germany

Independent Research under Dr. Helge Ewers, DAAD RISE Fellowship *May 2018 – August 2018*

- Developed computational tools and molecular protocols to measure and analyze the movement of magnetic nanoparticles bound to cell membrane proteins and manipulated by an external magnet in order to understand the 3D structure of the cell membrane.

University of Rochester – Department of Biology Rochester, New York

Independent Research under Dr. Amanda Larracuente *January 2017 – May 2018*

- Developed computational tools for predicting individual satellite DNA array size from whole genome shotgun sequencing reads in order to learn more about the evolution of satellite DNA, especially where high-resolution sequencing data is not available.
- Developed computational tools for the quantification of *Drosophila* satellite DNA copy number variation for all loci in a genome across a population. From my research, I learned more about the evolution of satellite arrays and how their size and location affect nearby gene expression.
- Assisted in computational analysis, construction of genome assembly, and genome annotation of multiple firefly species with a focus on repetitive elements.
- Developed the first protocol for Fluorescent *in Situ* Hybridization to firefly chromosomes and imaged the first karyotype showing probe hybridization to canonical telomere sequence.

POSTER PRESENTATIONS

- Isaac Wong, Arif Kodza. “Complex Satellite DNA variation within and between populations of *Drosophila melanogaster*,” 59th Annual Drosophila Research Conference, Philadelphia, PA, 2018.
- Isaac Wong, “Canonical Telomeres in *Photinus pyralis*,” 59th Annual Drosophila Research Conference, Philadelphia, PA, 2018.
- Isaac Wong, “A Method for Fluorescence *in Situ* Hybridization to Firefly Chromosomes.” Annual Undergraduate Program in Biology & Medicine Poster Session. Rochester, New York, 2017.

PEER REVIEWED PAPERS

- Fallon, Timothy R, et al. “Firefly Genomes Illuminate Parallel Origins of Bioluminescence in Beetles.” 2017, doi:10.1101/237586. Awaiting publication in eLife.

CO-CURRICULAR AND LEADERSHIP EXPERIENCE

Hult Prize, Singapore Regional Finalist *November 2017 – March 2018*

- Developing a social enterprise to improve the lives and health outcomes of older adults by creating a unified digital platform which facilitates access to social events, volunteering opportunities, and community resources.

SKILLS

- fluorescent *in situ* hybridization, fluorescence microscopy, super resolution microscopy, single particle tracking, general molecular techniques, cell culture
- Proficient in Java, R. Familiar with C, Python, Perl