

Isaac Wong

(602) 639-2569 • iwong5@u.rochester.edu

EDUCATION

University of Rochester

Anticipated May 2019

- Bachelor of Science in Computational Biology
- Bachelor of Arts in Computer Science

GPA 3.54 out of 4.00

RESEARCH EXPERIENCE

University of Rochester – Department of Biology

Rochester, New York

Independent Research under Dr. Amanda Larracuente

August 2018 – Present

- Developed a computational model for the evolution of satellite DNA arrays to infer how recombination rates and fitness functions affect the expansion and collapse of individual arrays across large timescales.
- Developed tools to measure the age of satellite arrays in order to elucidate factors driving the evolution of satellite DNA.

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 which were bound to cell membrane proteins and which were manipulated by an external magnet to illuminate 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 shed light on factors driving evolution of satellite DNA.
- Developed computational tools for the quantification of *Drosophila* satellite DNA copy number variation for all loci of a repeat family in a genome across a population.
- 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, “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” *eLife* vol. 7 e36495. 16 Oct. 2018, doi:10.7554/eLife.36495

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, common molecular biology techniques, cell culture
- Proficient in Java, R. Familiar with Python, C, Perl. github.com/theisaacwong

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, Computational & Formal Systems, Artificial Intelligence, Linear Algebra with Differential Equations, Computational Statistics