Isaac Wong

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EDUCATION

University of Rochester **May 2019**

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

RESEARCH EXPERIENCE

Massachusetts General Hospital – Center for Genomic Medicine **Boston, Massachusetts**

Bioinformatics Specialist I – Talkowski lab *July 2019 – present*

- Developed computational pipelines to call copy number variants from exome sequencing data and perform automated cursory statistical analysis. To date, I have processed 183,000 exomes.
- Managed the file storage and costs for the Talkowski lab's HPC cluster, totaling 800TB across 29 users.
- Developed general purpose computational methods for processing of WGS data and analyzing results, with a focus on structural variants.

University of Rochester – Department of Biology **Rochester, New York**

Undergraduate research – Larracuente Lab *October 2016 – May 2019*

- Developed a computational model for evolution of satellite DNA arrays to infer how recombination rates and fitness functions drive expansion and collapse of individual arrays across large timescales.
- Developed computational tools to measure the age of satellite arrays to study factors driving evolution of satellite DNA in *Drosophila.*
- Developed computational methods for predicting individual satellite DNA array size from WGS data to study factors driving evolution of satellite DNA in *Drosophila.*
- Developed computational tools for quantification of *Drosophila* satellite copy number variation for all loci of a repeat family in a genome across a population from long read sequences.
- Developed a molecular protocol for fluorescent *in situ* hybridization to firefly chromosomes and imaged first karyotype showing probe hybridization to canonical telomere sequence.

Freie Universität – Department of Biochemistry **Berlin, Germany**

Independent Research – Ewers Lab, DAAD RISE Fellowship *May 2018 – August 2018*

- Developed computational tools to measure, analyze, and predict the movement of and forces on magnetic nanoparticles which were bound to cell membrane proteins and then manipulated by an external magnetic.

PUBLICATIONS

- Dyment, DA, O'Donnell-Luria, A, Agrawal, PB, *et al*. Alternative genomic diagnoses for individuals with a clinical diagnosis of Dubowitz syndrome. *Am J Med Genet Part A*. October 2020. doi.org/10.1002/ajmg.a.61926
- Hu S, Vich Vila A, Gacesa R, *et al*. Whole exome sequencing analyses reveal gene–microbiota interactions in the context of IBD. *Gut*. July 2020. dx.doi.org/10.1136/gutjnl-2019-319706
- Sproul J, Khost D, Eickbush D, *et* al. Dynamic Evolution of Euchromatic Satellites on the X Chromosome vin *Drosophila melanogaster* and the *simulans* Clade. *Molecular Biology and Evolution*. August 2020. doi.org/10.1093/molbev/msaa078
- Fallon T, Lower S, Chang C, *et al*. Firefly genomes illuminate parallel origins of bioluminescence in beetles. *eLife*. October 2018. doi.org/10.7554/eLife.36495

POSTER PRESENTATIONS

- Isaac Wong, "Dynamic evolution of euchromatic satellites on the X chromosome in *Drosophila*" 60th Annual Drosophila Research Conference, Dallas, Texas, 2019.
- Isaac Wong, "Complex Satellite DNA variation within and between populations of *Drosophila melanogaster*" 59th Annual Drosophila Research Conference, Philadelphia, Pennsylvania, 2018.

TECHINICAL SKILLS

- Programming languages: R, Java, Python 3, scripting in Linux/Bash environment. Workflow languages: WDL