Yifan Zhao

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Education

Massachusetts Institute of Technology   CAMBRIDGE, UNITED SATES
    PhD in Medical Engineering and Medical Physics   *2020 − present*

McGill University   MONTREAL, CANADA
    Honours BSc in Computer Science and Biology   *2017 − 2020*

- First Class Honours with Distinction
- Dean's Honour List(2018)

Centennial Secondary School   COQUITLAM, CANADA
    British Columbia Dogwood Diploma   *2015 − 2017*

- Governor General's Academic Medal (2017)
- National Biology Scholar with Distinction (2017)
- British Columbia International Student Ambassador Scholarship (2017)

Research Experience

Rotation Student, Park Lab
CAMBRIDGE, UNITED STATES (REMOTE PROJECT)   *Sep '20 − present*

- Simulate synthetic diploid from normal single cell DNA samples
- Benchmark state-of-art single-cell copy number variation detection methods

Summer Research Intern, Li Lab
MONTREAL, CANADA   *May '20 − Aug '20*

- Developed a Bayesian inference model for single-cell clustering
- Performed pathway enrichment analyses to extract biological meanings from the embeddings

Honours Research Student, Gerhold Lab
MONTREAL, CANADA   *May '19 − May '20*

- Developed Centracker, an automated analysis pipeline for centrosome tracking and pairing
- Conducted *in situ* live-cell imaging experiments of *C. elegans* germline stem cells

Research Assistant, Yamanaka Lab
MONTREAL, CANADA   *Dec '18 − Apr '19*

- Created MiSeq-Analyzer, a tool that streamlines dynamic MiSeq sequencing data analyses
- Quantified and classified Cas9 RNA-guided endonucleases off-target sites to identify the clonal selection patterns during cancer progression in mice models of ovarian cancer

Research Student (BIOC396 Project), Akavia Lab
MONTREAL, CANADA   *Jan '19 − Apr '19*

- Assessed protein localization prediction in a human genome-scale metabolic model
- Cross-validated datasets from multiple biochemistry empirical studies

Summer Research Intern, Canada's Digital Health Hub
SURREY, CANADA   *Jul '18 − Aug '18*

- Tested biosensors to design stress stimulation experiments
- Operated electroencephalography (EEG) tests for healthy and autistic children
- Supervisors: Dr Greg Christie & Dr Andrey Zhdanov

Publications & Talks

1. Zellag M. R., **Zhao Y.,** Poupart V., Singh R., Labbé J-C., Gerhold A. R., CentTracker: a trainable, machine learning-based tool for large-scale analyses of C. elegans germline stem cell mitosis, bioRxiv: https://doi.org/10.1101/2020.11.22.393272 (2020)

2. Zellag M. R., **Zhao Y.,** Poupart V., Singh R., Labbé J-C., Gerhold A. R., CentTracker: a trainable, machine learning-based tool for large-scale analyses of C. elegans germline stem cell mitosis, XXVIe Scientific Day of the Molecular Biology Programs of Université de Montréal, on-line, Montréal, November 2020.

Awards & Scholarships

- Jacqueline Johnson Desoer Science Undergraduate Research Award (2020)

- Sheila Ann MacInnis Grant Undergraduate Research Award (2019)

- James McGill Scholarship (2017-2020)

- E Gordon Edwards Biology Award (2019)

- Faculty of Science Scholarship (2019)

- Governor General's Academic Medal (2017)

- National Biology Scholar with Distinction (2017)

- British Columbia International Student Ambassador Scholarship (2017)

Teaching & Volunteering

Undergraduate Teaching Assistant, McGill University

MONTREAL, CANADA   *Jan '19 – Dec '19*

- MATH 240 Discrete Structures (Fall 2019)
- MATH 324 Statistics (Winter 2019)

Media Relations Volunteer, Canadian Cancer Society (BC & Yukon Division)

VANCOUVER, CANADA   *Nov '16 – Aug '18*

- Translated and reviewed promotion and education materials on cancer prevention
- Composed wellness-related articles for publication in Herald Monthly, a Vancouver-based not-for-profit monthly Chinese newspaper

Proficiencies

- **Natural Languages:** English, Mandarin Chinese, French, Wenzhounese

- **Programing Languages:** Python, C++, R

- **Confocal Spinning Disk Microscopy:** Visualization of fluorescent molecules in *C. elegans* germline stem cells, time-lapse photography of *C. elegans* dividing cells

- ***C. elegans* Care and Husbandry:** Bleaching, worm picking, strain maintenance, whole-mounting