

Yifan Zhao

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Education

Massachusetts Institute of Technology

PhD in Medical Engineering and Medical Physics

- Thesis Advisor: Dr. Peter J. Park

CAMBRIDGE, UNITED STATES

2020 – present

McGill University

Honours BSc in Computer Science and Biology

- First Class Honours with Distinction
- Thesis Advisor: Dr. Abigail R. Gerhold

MONTREAL, CANADA

2017 – 2020

Research & Teaching Experience

PhD Student, Park Lab

CAMBRIDGE, UNITED STATES

Dec '20 – present

- Copy number analysis on single-cell DNA-sequencing samples of human brain

Summer Research Intern, Li Lab

MONTREAL, CANADA

May '20 – Aug '20

- Developed single-cell Embedded Topic Model (scETM), a Bayesian inference model for single-cell RNA-seq data integration and transfer learning with interpretable latent dimensions
- Benchmarked state-of-the-art single-cell RNA-seq clustering methods

Honours Research Student, Gerhold Lab

MONTREAL, CANADA

May '19 – Apr '20

- Developed CentTracker, 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

- Automated dynamic MiSeq sequencing data analysis
- 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

Undergraduate Teaching Assistant, McGill University

MONTREAL, CANADA

Jan '19 – Dec '19

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

1. Zhao Y.†, Cai H.†, Zhang Z., Tang J.*, Li Y.* (2021). Learning interpretable cellular and gene signature embeddings from single-cell transcriptomic data, *Nature Communications* (in press); pre-print at [bioRxiv 2021.01.13.426593](https://doi.org/10.1101/2021.01.13.426593); †equal contribution, *co-corresponding authors).
 2. Zellag M. R., Zhao Y., Poupart V., Singh R., Labbé J-C., Gerhold A. R. (2021). CentTracker: a trainable, machine learning-based tool for large-scale analyses of *C. elegans* germline stem cell mitosis, *Molecular Biology of the Cell*, Jan 27:mbcE20110716.
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Awards & Scholarships

- Jacqueline Johnson Desoer Science Undergraduate Research Award (2020)
 - Sheila Ann MacInnis Grant Undergraduate Research Award (2019)
 - E Gordon Edwards Biology Award (2019)
 - Faculty of Science Scholarship (2019)
 - Dean's Honour List (2018)
 - James McGill Scholarship (2017-2020)
 - Governor General's Academic Medal (2017)
 - National Biology Scholar with Distinction (2017)
 - British Columbia International Student Ambassador Scholarship (2017)
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Proficiencies

- **Programming Languages:** Python, R, C++
- **Natural Languages:** Chinese, English, French, Wenzhounese
- **Laboratory techniques:** Confocal spinning disk microscopy, *C. elegans* care and husbandry