

## Summary

*C. elegans* enthusiast with roots in Computer Science. Creates/structures/refines quantitative analyses of bio-data. Passionately seeking to untangle complex biological questions.

In the summer of 2018, Yifan wrote her first lines of code in MATLAB to simulate diffusion-limited aggregation—a fractal pattern that she observed in her high school Chemistry project. Two months later, she took an introductory course to programming in Life Sciences in McGill University from which she will be graduating two years later (2020) with a degree in Honours

Computer Science and Biology.

Having had the opportunities to partake in multiple research projects both *in vitro* and *in silico*, if she learned one thing in those days running experiments and mounting worms on agarose, it would be that biological data was messy and hard to gather. She is currently working in the Gerhold Lab (McGill) to design computational tools to leverage and wrangle the increasing amount of bio-image data, and to better derive meaning from the otherwise dizzyingly complexity of it all.

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## Education

### McGill University

**Honours BSc in Computer Science and Biology** (GPA: 3.98/4.00)

MONTREAL, CANADA  
2017 – 2020 (expected)

- Dean's Honour List
- James McGill Scholarship
- Faculty of Science Scholarship
- Golden Key Intl Honour Society Member
- Undergraduate Teaching Assistant for MATH 324 (Statistics) & 240 (Discrete Structures)
- Sheila Ann MacInnis Grant Science Undergraduate Research Award

### Centennial Secondary School

**British Columbia Dogwood Diploma**

COQUITLAM, CANADA  
2015 – 2017

- Governor General's Academic Medal
  - Indian Umbrella Club President
  - Science Club Co-President
  - National Biology Scholar with Distinction
  - British Columbia International Student Ambassador Scholarship
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## Research Experience

### Research Assistant, Gerhold Lab

MONTREAL, CANADA

May '19 – present

- Designs automated algorithms for centrosome pairing in cells that undergo mitosis
- Conducts *in situ* live-cell imaging experiments of *C. elegans* germline stem cells (GSCs)
- Characterizes mitotic spindle assembly in GSCs under various environmental conditions
- Training in spinning disk confocal microscopy, MetaMorph & worm mounting techniques

### 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 against datasets from multiple biochemistry experimental studies
- Identified possible causes of inaccurate model predictions

### Summer Research Intern, Canada's Digital Health Hub

SURREY, CANADA

Jul '18 – Aug '18

- Reviewed extensive literature on stress paradigm and memory consolidation
- Tested a variety of biosensors to design stress stimulation experiments
- Operated electroencephalography (EEG) tests for control and autistic children
- Assisted with EEG data pre-processing using MATLAB *FieldTrip* Toolbox

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## Volunteering & Extracurricular Activities

### Vice President of Student Affairs, Canadian Organization for Undergraduate Health Research

MONTREAL, CANADA

Jul '18 – present

- Initiates and maintains contact with Principal Investigators
- Develops of a comprehensive database of PIs with matched students
- Promotes positive student relations and advocated for co-curricular needs of the students

### Volunteer Coordinator, McGill SSMU Volunteer Service

MONTREAL, CANADA

Sep '18 – present

- Provides consultation services to help students find suitable volunteer commitments
- Assists with coordination and organization of bi-annual McGill volunteer fairs

### Vice President (*till Apr '19*), Guzheng Player & Senior Advisor

#### McGill Students Chinese Music Society

MONTREAL, CANADA

Sep '17 – present

- Runs weekly rehearsals in preparation for annual concerts
- Performs in Chinese traditional festivals and banquets

### Note-Taker, McGill Office for Students with Disabilities

MONTREAL, CANADA

Oct '17 – present

- Takes in-class notes for classmates with disabilities
- First- and second-year courses in Biology, Chemistry, Computer Science, Mathematics and Physics

### 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

### Child Health Clinic Volunteer, Fraser Health Newport Public Health

PORT MOODY, CANADA

Sep '16 – Aug '17

- Assisted with registration and trained incoming volunteers
- Carefully observed babies in case of reactions after vaccination

### Junior Instructor, UBC GEERing UP Summer Camp

VANCOUVER, CANADA

Jul '16 – Aug '16

- Assisted senior instructors with class management and delivering STEM themed activities

### Recreation Assistant, Burquitlam Lion's Care Centre

COQUITLAM, CANADA

Jun '15 – Feb '16

- Coordinated local church group visitations
- Assisted senior residents with walking and eating

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## Proficiencies

- **Natural Languages:** English, Mandarin Chinese, French, Wenzhounese
- **Programing Languages and Technologies:** Python (*Bioython*, *Matplotlib*, *scikit-learn*), MATLAB (*FieldTrip*), Java, C++, C, Jupyter Notebook,  $\LaTeX$ , Linux, git, bash, gdb, ImageJ (*TrackMate*, *CSBDeep*), MetaMorph
- **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

## Certification

- Standard First Aid & CPR/ AED Level C
- Safe Use of Biological Safety Cabinets
- Introduction to Biosafety
- Level Eight Guzheng Practical
- Workplace Hazardous Materials Information System 2015 Certificate
- Ethical Conduct for Research Involving Human Course on Research Ethics