

# Siddharth Reed

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## Professional Summary

Masters student in Computational Biology at Carnegie Mellon. Wanting to work on bioinformatics research problems, specifically interested in bacterial genetics and networks.

## Education

### Master of Science - Computational Biology

CARNEGIE MELLON UNIVERSITY

Pittsburgh, PA

2020 - Present

### Honours Bachelor of Science - Molecular Biology & Genetics Co-op

MCMASTER UNIVERSITY

Hamilton, ON

2015 - 2020)

- Relevant Coursework: Software Development, Bioinformatics, Microbial Genetics
- Wet Lab Skills: Bacterial Transformation, Gel Electrophoresis, PCR, Microscopy

## Skills

**Languages** English, French

**Soft Skills** Multitasking, Organization, Personable, Critical Thinking

**Research** Literature Review, Data Mining, Data Analysis, Data Visualization, Experimental Design

**Programming** Proficient: Python, Bash, Vim, Git, LaTeX, R

Familiar: Matlab, Perl, Java, Cluster Computing (slurm, sungrid)

## Experience

### Hoffman Lab, University Of Toronto

May 2019 - Aug. 2019

RESEARCH ASSISTANT CO-OP (GITHUB LINK)

- Worked on trying comparing transcriptomic data between publicly available placental, cancer and “normal” tissues
- Working extensively with bioconductor packages to collect, clean and process transcriptomic data and associated metadata
- Working to trouble shoot data analysis and cleaning, while preparing weekly progress reports in an online notebook
- Learning about the application of linear models to differential expression analysis and dealing with batch effects

### Golding Lab, McMaster University

Sep. 2018 - April 2019

UNDERGRADUATE THESIS STUDENT (GITHUB LINK)

- Working on studying the relationship between bacterial horizontal gene transfer rates and CRISPR-Cas systems
- Building and end-to-end pipeline to download, process, analyze and visualize public genomic data
- Using methods in network theory and network statistics to reach conclusions about biological phenomena
- Experience presenting my work in a clear, engaging way, both as a presentation and manuscript

### Adapsyn, McMaster University

Jan. 2018 - Aug. 2018

DATA SCIENCE CO-OP (GITHUB LINK)

- Worked on many different problems surrounding natural products discovery
- Used statistics and statistical learning techniques to address help increase the rate of discovery of natural products
- Communicated effectively with chemists and microbiologists to understand their problems and how best address them from a computational perspective
- Became adept at working under sudden deadlines and switching tasks frequently

### Golding Lab, McMaster University

May 2017-Aug. 2017 (Paid)

RESEARCH ASSISTANT (GITHUB LINK)

Sep. 2017-Dec. 2017 (Volunteer)

- Received an NSERC USRA to work over the summer, currently continuing as a volunteer to finish the project
- Building a pipeline to help analyze horizontal gene transfer rates for bacteria with and without CRISPR-Cas systems
- Writing weekly reports in LaTeX with a full overview of current progress and next steps
- Working with DNA and protein sequence assemblies in GenBank and Fasta formats

### Metro Liquor

Aug. 2020 - Present

CASHIER/STOCKER

Kelowna

- Organizing and stocking shelves and the fridge
- Handling transactions and customer requests

## Extracurriculars

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### Dry Lab, McMaster iGEM Team

MEMBER (GITHUB LINK)

May 2017 - Present

- Implementing a genetic algorithm and neural network to complement SELEX sequence optimization
- Working collaboratively with a team to build the project, manage documentation and version control using git
- Updating and explaining the use and build of the project to other members of the iGEM team in an engaging and accessible manner

### Canadian Society for Epidemiology and Biostatistics

BLOG CONTRIBUTOR

Sep. 2016 - April 2017

- Wrote informative blog posts to try and engage the public in epidemiology.
- Used demonstrations to explain concepts, making them accessible to a broad audience.

### Frontier College

VOLUNTEER TUTOR

Sep. 2015 - April 2017

- Drop in tutoring for high school students, mostly involving math and biology.
- Going over concepts thoroughly, helping student understand difficult concepts.

### S.I.R Disease Model

PERSONAL PROJECT (GITHUB LINK)

Summer 2016

- Three compartment SIR model for spreading of disease for any population size
- Teaching myself Python and Matplotlib to further my own understanding of disease models

### Allele Frequency Model

PERSONAL PROJECT (GITHUB LINK)

Fall 2016

- Model to simulate a Hardy-Weinberg Equilibrium and graph allele frequency changes in allele frequency over time
- Teaching myself Python and Matplotlib to visualize and further understand biological principles

### Configuration Files and Scripts

PERSONAL PROJECT (GITHUB LINK)

March 2018 - Present

- Writing concise, robust, readable bash scripts for personal utilities
- Testing the functionality of individual scripts and their interactions to ensure proper functionality

## Honours & Awards

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|---------|---|
| 2017    | <b>Recipient</b> , NSERC Undergraduate Student Research Award |
| 2016/17 | <b>Recipient</b> , McMaster Dean's Honor List                 |
| 2015    | <b>Recipient</b> , McMaster Undergraduate Entrance Award      |