Siddharth **Reed**

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Education

Master of Science - Computational Biology
Sep. 2020 - Apr. 2022

Carnegie Mellon University — *Pittsburgh, PA, USA*

- Relevant Coursework: Algorithms, Statistics, Programming, Machine Learning, Genomics

Honours Bachelor of Science - Molecular Biology & Genetics Co-op
Sep. 2015 - Apr. 2020

McMaster University — *Hamilton, ON, Canada*

- Relevant Coursework: Software Development, Mathematical Modelling, Bioinformatics, Microbial & Human Genetics

Experience

MCDS, Carnegie Mellon University
May 2021 - Present

11-637 Course Developer (Course Page)

- Helped to develop a new course project for MSc. students developing data science skills
- Created teaching materials that relate to core data science concepts with a specific focus on bioinformatics
- Collaborating with professors to provide comprehensive background and support learning objectives for students
- Provided weekly updates on materials and process to senior staff and TAs

Hoffman Lab, University Of Toronto
May 2019 - Aug. 2019

Research Assistant Co-op (Lab Site)

- Comparing transcriptomic data between publicly available placental, cancer and “normal” tissues
- Extensively cleaning and pre-processing data in a clear, explainable, reproducible manner
- Self-taught and applied linear models to differential expression analysis and correcting for batch effects
- Creating clear intuitive visuals to help communicate and understand patterns in biological data

Golding Lab, McMaster University
Sep. 2018 - Apr. 2019

Undergraduate Thesis Student (Github)

- Investigated the relationship between horizontal gene transfer rates and CRISPR-Cas systems using novel techniques
- Built and end-to-end pipeline to download, process, analyze and visualize public genomic data
- Applied methods in network theory and statistics to reach conclusions about biological phenomena
- Presented my work in a clear, engaging way as both a final presentation and manuscript

Adapsyn, McMaster University
Jan. 2018 - Aug. 2018

Data Science Co-op (Github)

- Preformed various analyses with many kinds of biological data to accelerate natural products discovery
- Applied statistics and statistical learning techniques to help direct chemists in natural products discovery
- Communicated effectively with wet lab scientists to address problems from a computational perspective
- Became adept at working under constant deadlines and effectively multitasking

Extracurriculars

fainhD: filtering and identifying non-host DNA pipeline
Feb. 2021 - March. 2021

Personal Project (Github)

- Helped assemble pipeline to detect viral reads in human RNASeq data and preform functional analysis
- Use Snakemake to create a simple, easy to use pipeline that handles all dependencies itself
- Collaborated with group members using git

SELEXzyme: Generating DNAzymes with a Genetic Algorithm
Sep. 2020 - Dec. 2020

Personal Project (Github)

- Implemented a genetic algorithm and trained an SVM model to simulate SELEX sequence optimization *in silico*
- Developed a simple, organized, well-documented codebase using Go and python
- Wrote a detailed README explaining implementation details and choices, usage details and a video demo
- Empirically validated my program results on real world data and writing a summary report

Dry Lab, McMaster iGEM Team
Mar. 2017 - Nov. 2017

Member (Github)

- Implementing a genetic algorithm and neural network to simulate SELEX sequence optimization *in silico*
- Collaborated with a team to build the project, manage documentation and version control using git
- Updating and explaining the computational aspects of the project to other members and the public

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

Honours & Awards

2017 **Recipient**, NSERC Undergraduate Student Research Award
2016/17 **Recipient**, McMaster Dean's Honor List

Skills

Programming Proficient: Python, Bash, Vim, Git, LaTeX, R, Go, Jupyter
Familiar: Bioconductor, ggplot2, Pandas, NCBI, Cluster Computing (slurm, sungrid)
Research Literature Review, Data Analysis, Data Visualization, Experimental Design, Scientific Writing
Languages English, French