Siddharth **Reed**

slreed@andrew.cmu.edu | DJSiddharthVader | Sid-Reed

Education

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

Carnegie Mellon University — *Pittsburgh, PA, USA*

- Relevant Coursework: Algorithms, Statistics, Modelling, 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, Modelling, Bioinformatics, Microbial & Human Genetics

Experience

Computational Biology Department, Carnegie Mellon University
Sep. 2021 - Present

Teaching Assistant

- Assisted with the courses Programming for Scientists (02-601) and Advanced Data Structures and Algorithms (02-613)
- Ran recitations, introducing new material to students with live coding demos and presentations
- Consulted students on concepts homework and projects, both with conceptual and practical challenges

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

Research Assistant Co-op (Lab Site)

- Compared transcriptomic data between publicly available placental, cancer and “normal” tissues
- Extensively cleaned and pre-preprocessed data in a rigorous, reproducible manner
- Created clear intuitive visuals to help communicate and understand patterns in biological data

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

Undergraduate Thesis Student (Github)

- Characterized relationship between horizontal gene transfer rates and CRISPR-Cas systems using original methods
- Built 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

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 statistical learning techniques to help direct chemists in natural products discovery
- Became adept at working under constant deadlines and effectively multitasking

Projects

How Quorum Sensing Interactions Affect Population Structure
Oct. 2021 - Dec. 2021

Personal Project (Github)

- Extended model of quorum sensing from literature to understand population dynamics also using empirical data
- Developed clear, extensible, well-documented code to use the model and create insightful visualizations
- Transparently and reproducibly organized data, code and analysis, available on GitHub

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

Personal Project (Github)

- Assembled pipeline to detect viral reads in human RNASeq data and preform functional analysis
- Used 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
- Empirically validated my program results on real world data and writing a summary report

Skills

Programming Proficient: Python, Bash, Vim, Git, LaTeX, R, Go, Jupyter
Familiar: Bioconductor, ggplot2, Pandas, NCBI, Cluster Computing (slurm, sungrid)

Languages English, French