

Ford Fishman

Biology graduate student passionate about solving complex computational questions with innovative solutions. Eager to augment data science teams with my diverse quantitative skill set following my graduation this spring.

Contact

913 E. Grimes LN
Bloomington, IN 47401
847-637-7334
fordfishman@gmail.com
github.com/fordfishman
fordfishman.github.io

Skills

Machine learning
Dimension reduction
Data imputation
Data cleaning
Feature selection
Data visualization
Multiprocessing
Agent-based modeling
Simulation modeling
Network modeling
HPC job submission

Programming Languages

Python (NumPy, Pandas,
Scikit-learn, Matplotlib)
R (ggplot2, tidyverse)
SQL
Bash
Git
Java
HTML, CSS
Markdown, \LaTeX

Relevant Coursework

Applied Machine Learning
Applied Statistical Methods
Bayesian Data Analysis
Multivariable Calculus
Software Design
Mathematical Biology
Quantitative Biodiversity

Hobbies

basketball analytics
book reviews
sci-fi and fantasy fiction

Education

2019–Present

Master's in Biology (3.96/4.00)
Evolution, Ecology, & Behavior Program
Carl H. Eigenmann Biology Scholarship
NSF Graduate Research Fellowship Honorable Mention

Indiana University, Bloomington, IN

2015–2019

BS Biology, Mathematics Minor (3.98/4.00)
Summa cum laude, *Phi Beta Kappa*, Patterson Memorial Prize in Biology, Sigma Xi, TriBeta Biological Honor Society, Hope College Presidential Scholarship

Hope College, Holland, MI

Relevant Experience

2019–Present

Graduate Researcher

Indiana University, Bloomington, IN

- Assembled simulation models of stochastic processes to estimate how many bacterial species exist on the planet
- Collected ancient genomic data including over 700 sequences from 30 studies to calculate the rate of bacterial evolution over millions of years
- Constructed object-oriented agent-based models of complex bacterial interactions and showed parameters necessary to produce coexistence of competing strains
- Optimized model behavior using complex tests and parameter grid searches
- Regularly presented research to broad audiences

2017 Summer

Research Intern

Duke University Marine Laboratory, Beaufort, NC

- Clustered marine bacterial DNA sequences using Shannon entropy differentiate between highly similar yet functionally distinct organisms
- Used dimension reduction techniques and linear regression to determine that distance from the shore and nutrient available were the largest contributors to changes in species composition

2016–2019

Undergraduate Researcher

Hope College, Holland, MI

- Determined the efficacy of the local watershed restoration project and analyzing *E. coli* genomics to find efficient methods to classify potential pathogens and fecal contamination
- Built Python, R and Bash pipelines to parse genomic data and extract genetic features to create signatures differentiating between safe and pathogenic *E. coli* strains with simple markers
- Created R-shiny web application to automate data preprocessing and run linear regressions on complex output for chemical concentrations in water samples to test quality control of water filtering technology

Additional Experiences

2021–Present

EcoLunch Seminar Committee Chair

Indiana University, Bloomington, IN

2019–Present

Associate Instructor: Microbiology Lab

Indiana University, Bloomington, IN

Spring 2019

Teaching Assistant: Microbiology Lab

Hope College, Holland, MI

Fall 2016

Peer Tutor for Biology and Chemistry

Hope College, Holland, MI

