

## EDUCATION

### UNIVERSITY COLLEGE LONDON

#### PHD IN BIOINFORMATICS

Dec 2015 | London, England

Thesis: A multi-omic analysis of the photosynthetic endosymbioses of *Paramecium bursaria*

Defended: March 2016

### OXFORD UNIVERSITY

#### MA (HONS) IN NATURAL SCIENCE (BIOLOGICAL SCIENCES)

May 2011 | Oxford, England

Dissertation: Evolution of the eukaryotic folate biosynthesis pathway

## COURSES

### TAUGHT

Data Management

Bioinformatics Algorithms

Python and Advanced Python

Machine Learning for Life Sciences

Genomics and Transcriptomics

Unix and Perl

Image Processing with Python

Software Carpentry Bootcamp

Supervision of Masters and

Undergraduate Researchers

### ATTENDED

International Course on Antibiotic Resistance 2017

Gaussian Processes for Global Optimisation 2015

Gaussian Process Summer School 2015

EMBO YIP PhD Course 2013

Woods Hole Molecular Evolution Workshop 2012

MOOCs in Machine Learning, Linear Algebra,

Logic, Statistics, Data Analysis, Automata

## SKILLS

### PROGRAMMING

Expert:

Python • Bash •  $\text{\LaTeX}$  • Unix

Intermediate:

C++ • R • perl • SQL • HPC

Familiarity:

Octave/Matlab • JS (inc. D3.js) • Go

### MOLECULAR BIOLOGY

{transcript,gen,metabol}-omics •

phylogenetics • microscopy •

standard microbiology lab techniques

## EXPERIENCE

### DALHOUSIE UNIVERSITY | POSTDOCTORAL FELLOW

February 2017 - Present | Halifax, Nova Scotia

- Prediction of Antimicrobial Resistance in clinical metagenomes using deep recurrent neural networks
- Automation of *de novo* assembly hyperparameter selection via Bayesian optimisation
- Evaluation of heuristically accelerated homology search error profiles

### NEUROGLYCERIN | TECHNICAL CO-FOUNDER

Aug 2014 - Present | Edinburgh, Scotland

- Competitive Machine Learning Team.
- Top 5% finishes in two major international competitions.
- Solutions coding collaboratively using standard software development methods (VCS, TDD).
- Submissions include deep convolutional neural networks, model combining strategies, classical methods, computer vision, feature engineering approaches all used extensively in various competitions.

### NASA | PLANETARY BIOLOGY FELLOW

July 2013 - Aug 2013 | Kennedy Space Center, Florida

- NASA representative and scientific adviser to BBC "Cloud Lab" Documentary.
- Researched bacterial adaptations to extreme near-space conditions.
- Designed and implemented trials for a stratospheric balloon flight.
- Work resulted in a publication and journal front cover image.

### BIOMAP EGYPT | RESEARCH ASSISTANT

July 2008 - Aug 2013 | Sinai, Egypt

- GIS project monitoring biodiversity in the Sinai Desert.
- Involved in sampling, collection and preliminary data analysis in isolated and challenging conditions.

## CONFERENCES

### INVITED TALKS

International Course on Antibiotic Resistance 2017 • Canadian Institute for Advanced Research IMB Meeting 2016 • Introduction to Machine Learning for Life Sciences Workshop 2015 • EMBO YIP Meeting 2013

### POSTERS

School of Informatics Jamboree 2015 • EMBO: Comparative Genomics of Eukaryotic Microorganisms 2011 & 2013 • National Association for Research in Science Teaching 2012 • Young Systematists Forum 2011 • SGM Summer Conference 2011

## AWARDS

2017	University	Department Conference Prize
2015	University	Informatics Jamboree Prize
2015	57 <sup>th</sup> /1049	National Data Science Bowl
2014	16 <sup>th</sup> /527	American Epilepsy Society Seizure Prediction Challenge
2013	Global	NASA Planetary Biology Fellowship
2013	Global	Earth and Space Foundation Exploration Award
2010	National	SGM Harry Smith Vacation Studentship
2009	University	Dukinfield Exhibition in Biological Sciences

## PUBLICATIONS

8 publications including Proceedings of the National Academy of Sciences, Royal Society B, and Current Biology. See [goo.gl/04fiwt](https://doi.org/10.1093/bioinformatics/btt001) for full citation list.