

Finlay Maguire | Curriculum Vitae

Halifax, Nova Scotia

✉ finlaymaguire@gmail.com • 🌐 finlaymagui.re

Education

Doctor of Philosophy

Bioinformatics

University College London

October 2011–July 2016

Title: A Multi-omic Analysis of the Photosynthetic Endosymbioses of *Paramecium bursaria*

Supervisor: Thomas A. Richards

A reconstruction of cellular interactions in a nascent endosymbiotic system using machine learning and computational methods to analyse 'single' cell metagenomic, metabolomic, and metatranscriptomic datasets. It involved the first use of these datasets in the study of non-model multi-eukaryote systems.

Master of Arts

Natural Sciences - Biological Sciences, Honours

University of Oxford

October 2008–June 2011

Title: The Evolution of the Folate Biosynthesis Gene Fusions in the Eukaryotes.

Supervisor: Thomas A. Richards

Conducted an independent bioinformatics undergraduate honours research project to polarise deep-branching relationships within the evolutionary tree of life.

Research Grants

Awarded

NSERC: Emerging Infectious Diseases Modelling Initiative

PI (\$120,000)

Dalhousie/Sunnybrook Research Institute

September 2021

"Comparing inter-provincial viral dynamics within vulnerable populations"

Genome Canada SARS-CoV-2 Data Portals Grant

User (\$753,800)

Dalhousie University

March 2021

"CanCOGeN VirusSeq SARS-CoV-2 Genomic Data Portal"

CIHR: Project Grant

Co-Applicant (\$600,000)

Dalhousie University

March 2021

"SARS-CoV-2 Genotype-Dependent Pathogenesis and Transmission"

MicroResearch Nova Scotia Project Grant

Co-PI (Provisional: \$3,000)

Dalhousie University

January 2020

"Are We Helping the Helpers? A Review of Mental Health Programs, Processes and Supports Currently in Place for Halifax Regional Municipality First Responders"

NVIDIA Accelerated Data Science GPU Grant

Co-PI (equivalent: \$4,000)

Dalhousie University

September 2019

"Large-Scale Identification and Analysis of Promoter Sequences in 43,105 Bacterial Genomes"

SSHRC: Explore Grant

Co-PI (\$4,950)

Dalhousie University

June 2019–May 2020

"NEETs, Incels, and Wizards: The Experiences of Socially Isolated Men"

Donald Hill Family Fellowship in Computer Science

3-Year Independent Research Fellowship (\$165,000)

Dalhousie University

April 2019–Present

NASA Planetary Biology Program

10-Week Research Fellowship (£3,500)

John F. Kennedy Space Center

July–October 2013

UCL-NHM Joint-Institution PhD Studentship

4-Year PhD Studentship (£70,000)

University College London

October 2011–December 2016

Society for General Microbiology Harry Smith Studentship

8-Week Research Scholarship (£1,890)

University of Exeter

June–August 2010

Under-Review.....

NSERC: Discovery Grant

PI (\$390,250)

“Advancing understanding of the evolution of key bacterial and fungal genes in microbial communities through metagenomic assembly optimisation and context-aware graph algorithms”

Dalhousie University

November 2021

Honours and Awards

Canadian Institutes of Health Research

Hacking AMR 2019 Award (\$3000)

Stockholm, Sweden

November 2019

American Society of Microbiology

Travel Award (\$600)

Washington, DC

September 2018

Canadian Society of Microbiology

Travel Award (\$500)

University of Manitoba

June 2018

Dalhousie Computer Science In-House Conference

Best Presentation (\$50)

Dalhousie University

January 2018

School of Informatics Jamboree

Poster Prize (£50)

University of Edinburgh

March 2015

National Data Science Bowl

Top ~5% (57/1049)

Neuroglycerin

December 2014–March 2015

American Epilepsy Society Seizure Prediction Challenge

Top 5% (16/527)

Neuroglycerin

August–October 2014

Federation of European Microbiological Societies Young Scientist Grant

Meeting Scholarship (£350)

Sant Feliu du Guixols, Spain

October 2013

Earth and Space Foundation

Research Scholarship (£300)

John F. Kennedy Space Center

July–October 2013

Federation of European Microbiological Societies Young Scientist Grant

Meeting Scholarship (£350)

Sant Feliu du Guixols, Spain

October 2011

Society for General Microbiology Undergraduate Grant

Travel Award (£170)

University of York

September 2011

Dukinfield Exhibition in Biological Sciences

Scholarship for Academic Excellence (£300)

University of Oxford

October 2009–July 2011

Work History

Assistant Professor (Health Data Science)

Computer Science and Community Health & Epidemiology

Tenure-Track Assistant Professor in Health Data Science cross-appointed between the Faculty of Computer Science and the Faculty of Medicine (Department of Community Health & Epidemiology).

Dalhousie University

January 2022–Present

Pathogenomics Bioinformatics Lead

Shared Hospital Laboratory

Responsible for overseeing and building pathogenomics analysis capacity for Sunnybrook Health Sciences Centre, North York General Hospital, The Scarborough Hospital and Michael Garron Hospital. This work includes supervision of junior bioinformaticians, an active role in provincial SARS-CoV-2 surveillance, as well as infectious disease research and diagnostics.

Sunnybrook/North York, Toronto

January 2021–Present

Donald Hill Family Fellow

Faculty of Computer Science

Independent research fellowship developing interdisciplinary data-driven methods to address public health crises, including:

- Improving antimicrobial resistance diagnostics/surveillance (including international capacity building)
- SARS-CoV-2 genomic epidemiology within national and international initiatives
- Working with local non-profits and across disciplines to collaboratively use informatics-approaches to try to address problems related to local social/health issues (e.g., refugee health, homelessness, and substance-use disorders).

Dalhousie University

April 2019–December 2021

Postdoctoral Fellow

Faculty of Computer Science

Dalhousie University

February 2017–March 2019

Supervisor: Robert G. Beiko

Lead the development of the AMRtime project: a machine-learning based antimicrobial resistance prediction tool for metagenomic datasets. This work was part of the Public Health Agency of Canada's (PHAC) Integrated Rapid Infectious Disease Analysis Project. Responsibilities included co-ordination of industry consultations and several infectious disease genomic epidemiology projects involving 3 universities, PHAC, the Canadian Food Inspection Agency, and Agriculture and Agri-Food Canada.

Associate Research Fellow

Living Systems Institute

Supervisor: Thomas A. Richards

Short-term fellowship to consolidate doctoral research. Work involved the *in silico* simulation and experimental induction of RNAi in *P. bursaria*, and modelling of protein transmembrane domain evolution using deep recurrent neural networks.

Competitive Machine Learning Team

Neuroglycerin

- National Data Science Bowl II: estimation of cardiac ventricular volume from MRI videos with deep recurrent neural networks.
- National Data Science Bowl: image classification of plankton using a combined deep convolutional, computer vision augmentation, and hierarchical labelling approach.
- American Epilepsy Society Seizure Prediction Challenge: classification of pre-seizure iEEGs from normal brain activity utilising signal analysis features and an ensemble of classical models.

NASA Researcher

Exposing Microbes in the Stratosphere Project

Supervisor: David J. Smith

Performed ground-based trials for project determining the transcriptomic response of *Bacillus* to stratospheric and extraterrestrial conditions. Assisted with the design and construction of an atmospheric microbial exposure and sampling module for use with high-altitude weather balloons.

Undergraduate Researcher

SGM Harry Smith Studentship

Funded summer honours research project (8 weeks) on the evolution of folate biosynthesis gene fusions within the eukaryotes using both molecular biology techniques and bioinformatics methods.

Teaching Experience

JPI-AMR/PHA4GE/CLIMB-BIG-DATA AMR Genomics Training Workshop

Organising Chair

Virtual

15th October 2021

Canadian Bioinformatics Workshop on Infectious Disease Genomic Epidemiology

Instructor (17%)

Virtual

4–6th October 2021

Lead instruction on the analysis of antimicrobial resistance genes. This module included a practical exercise and comprised 1/6th of the workshop. Participants included individuals from industry, government, and academia.

MicroResearch

Instructor

Virtual

13–24th September 2021

Taught quantitative methods, sampling, and statistics sessions for this 2-week workshop designed to build research capacity and generation of a health-related pilot project. I also mentored a research team including development of a research proposal. Participants are intended to be individuals traditionally under-represented in research.

Bioinformatics Algorithms (CSCI6802)

Lecturer (12.5%)

Dalhousie University

January–April 2021

Graduate Directed Study: Microbial Feature Encoding

Seminar Facilitator

Dalhousie University

May–August 2020

Bioinformatics Algorithms (CSCI6802)

Lecturer (12.5%)

Dalhousie University

January–April 2020

Graduate Directed Study: Machine-Learning Phenotype Prediction

Seminar Facilitator

Dalhousie University

September–December 2019

MicroResearch

Assistant Instructor

Dartmouth General Hospital

September 2019

Introduction to Computational Biology (CSCI4180/6801)

Lecturer (20%)

Dalhousie University

March 2019

Bioinformatics Algorithms (CSCI6802)

Guest Lecturer on Phylogenetic Statistics

Dalhousie University

March 2018

Data Management (INFO6540)

Guest Lecturer on Statistical Data Formats

Dalhousie University

February 2018

Adult Literacy Network*GED Tutor***International Course on Antibiotics and Resistance***Assistant Bioinformatics Tutor***Graduate Directed Study: Bioinformatics for Metagenomics***Seminar Facilitator***Introduction to Python and Advanced Python***Assistant Instructor***Machine Learning for the Life Sciences***Lecturer (25%)***Bioinformatics for Genomics***Assistant Instructor***Unix and Perl***Assistant Instructor***Image Processing with Python***Assistant Instructor***Software Carpentry Bootcamp***Teaching Assistant***North Memorial Library***January 2018–Present***Annecy, France***November 2017***Dalhousie University***September–December 2017***University of Exeter***January–March 2016***University of Exeter***June 2016***University of Exeter***February 2015***University of Exeter***October 2014***University of Exeter***September 2014***University of Exeter***November 2013*

Supervision Experience

Postdoctoral Fellows

Postdoctoral Fellow*Faculty of Computer Science*

Co-supervision of a postdoctoral research project applying graph-based methods to improve surveillance of mobile antimicrobial resistance genes using metagenomic data. (Somayeh Kafaie)

Dalhousie University*May 2020–Present*

Graduate Students

Antimicrobial Resistance Hackathon*Team Leader*

Led a team of 5 graduate students developing a tool to facilitate automated epidemiological contextualisation of antimicrobial resistance detection.

Stockholm, Sweden*December 2019***Master's Student***Department of Sociology and Social Anthropology*

Co-supervised a SSHRC-funded Sociology Master's student investigating the experiences of socially isolated men in the 'incel' community through a combination of interviews, qualitative analyses, and natural language processing (Kayla Preston).

Dalhousie University*June 2019–June 2020***PhD Student***Department of Molecular Biology and Biochemistry*

Supervised a PhD student on a project investigating the limits of metagenome-assembled genome methods in public health monitoring of critical mobile genetic elements (Baofeng Jia).

Simon Fraser University*April 2019–October 2020***PhD Student***Department of Biochemistry & Biomedical Sciences*

Mentorship of a PhD student on a project using machine-learning and experimental validation to identify previously uncharacterised activities of known antimicrobial resistance genes (Kara Tsang).

McMaster University*June 2018–Present***Industrial Research Assistance Program Consultancy***Team Coordinator*

Co-supervised a pair of PhD students on a NRC-IRAP funded consultancy project scoping possible predictive use-cases for time-sheet data (Miriã Rafante and Chaoyue Liu).

Dalhousie University*June–September 2018***Master's Student***Faculty of Computer Science*

Co-supervision of a Master's student on a project looking at the evolution and spread of World Health Organisation priority antimicrobial resistance gene families (Jackie Purdue).

Dalhousie University*March 2018–Present***Bioinformatics Consultancy***Team Coordinator*

Co-supervised 2 PhD students performing microbial genomic analyses for a clinical microbiome company (Miriã Rafante and Chaoyue Liu).

Dalhousie University*July–November 2017*

Undergraduate Students

Undergraduate Research Project

School of Linguistics and Language Studies

Co-supervised an honours student characterising the use of "NetSpeak" by self-identified autistic redditors. (Emma Bornheimer)

Carleton University

October 2019–July 2020

Undergraduate Research Project

Department of Biochemistry & Biomedical Sciences

Co-supervised a student using machine-learning to model the impacts of different environmental toxins on *Zebrafish* (Corie Niu).

McMaster University

May 2019–September 2019

Undergraduate Research Project

Faculty of Computer Science

Co-supervised a summer student performing evolutionary analyses of putative resistance genes (Jocelyn McDonald).

Dalhousie University

May–August 2019

Undergraduate Honours Thesis

Department of Biology

Supervised a student analysing patterns of antimicrobial resistance in a recently released set of 8,000 diverse metagenome assembled genomes (Dayna Mikkelsen).

Dalhousie University

October 2018–April 2019

Undergraduate Research Project

Faculty of Computer Science

Supervised an NSERC-funded research assistant developing machine-learning approaches to detect rRNA gene fragments in metagenomes (Zhou Zhilei).

Dalhousie University

July–August 2018

High School Researcher

Department of Biosciences

Co-supervised a Nuffield Foundation-funded high school student from a deprived area performing research on the evolution of endosymbiotic algae (Katie Jones).

University of Exeter

January–March 2016

Undergraduate Honours Thesis

Department of Biosciences

Supervised an honours project using phylogenetic analyses to understand the evolution of the RNAi system of *Paramecium* (Chloe Ormrod).

University of Exeter

November–December 2014

Undergraduate Honours Thesis

Microbiology

Supervised a visiting research student registered at the University of Oxford for a project identifying horizontal gene transfers of arsenate resistance (Harry Spencer).

Natural History Museum

June–October 2013

Professional Service

External

PHA4GE-CLIMB-JPIAMR

AMR Hackathon and Workshop

Steering Group Member for an international 3-day hackathon involving rapid development of bioinformatic tool for AMR genomics. Primary organiser of the training workshop which featured a global audience (58 countries) of 700 registrants across industry, government, and academia.

International

11–13th October 2021

Canadian COVID Genomics Network (CanCOGeN)

Workflow Development and Quality Control

Member and lead developer of the SIGNAL assembly workflow (used by the Public Health Agency of Canada and McMaster University/Sunnybrook). Performing phylogenomic analyses for this group and the Nova Scotia Health Authority. Maintaining open nextstrain evolutionary analyses for Canada and Ontario.

National

April 2020–Present

Conference Peer Review

Workshop Reviewer

Performed reviews of submissions for RECOMB-Seq 2020

Conference

January 2020–Present

New Frontiers in Research Fund Explore

External Grant Reviewer

Acted as an external grant reviewer for the 2019 Explore competition stream for high-risk, high-reward, interdisciplinary research.

Canadian Tri-agency Secretariat

December 2019–Present

Public Health Alliance for Genomic Epidemiology (PHA4GE)

Data Structure Working Group

Member of technical working group one (Data Structures). Project lead for work improving interoperability of antimicrobial resistance gene detection tools in public health lab within the Pan American Health Organisation.

International

November 2019–Present

Canadian Association of Postdoctoral Societies Annual Conference

Organiser

Hosted and coordinated the annual general CAPS meeting. Included talks on postdoctoral fellow welfare, equity diversity and inclusion initiatives, and analyses of national survey results.

Dalhousie University

3 November 2019

Integrated Rapid Infectious Disease Analysis (IRIDA) Initiative

Tool Development Team

Member and project lead for a tool designed to improve public health infectious disease surveillance and diagnostics using metagenomic data.

Publication Peer Review

Journal Reviewer

Reviewed articles for: Journal of Open Source Software, Microbiome, Current Biology, BMC Genomics, PLoS Computational Biology, Nature Microbiology, GigaScience, Communications Biology, ASM MSysystems, and Bioinformatics

Internal

National

February 2017–Present

Journals

February 2014–Present

Publications

Published.....

1083 Total Citations as of 2021/12

1. Preston K, Halpin M, **Maguire F** *The Black Pill: New Technology and the Male Supremacy of Involuntarily Celibate Men* Men and Masculinities, 1097184X211017954
2. Jenkins BH, **Maguire F**, Leonard G, Eaton JD, West S, Housden BE, Milner DS, Richards TA *Emergent RNA-RNA interactions can promote stability in a nascent facultative phototrophic endosymbiosis*, Proceedings of the National Academy of Sciences, 2021
3. Stairs J, **Maguire F**, Lehmann C, Cox A *Cannabinoid Therapy in Female Pelvic Medicine and Reconstructive Surgery: Current Evidence and Future Directions* Current Bladder Dysfunction Reports, 2021
4. Jenkins BH*, **Maguire F***, Leonard G, Eaton JD, West S, Housden BE, Milner DS*, Richards TA. *Characterization of the RNA-interference Pathway as a Tool for Reverse Genetic Analysis in the Nascent Phototrophic Endosymbiosis, Paramecium bursaria* Royal Society Open Science, 2021
5. Tsang KK, **Maguire F**, Zubyka HL, Chou S, Edalatmand A, Wright GD, Beiko RG, McArthur AG, *Identifying novel β -lactamase substrate activity through in silico prediction of antimicrobial resistance* Microbial Genomics 2021
6. **Maguire F***, Baofeng J*, Gray K, Lau V, Beiko RG, Brinkman FSL. *Metagenome-assembled genome binning methods disproportionately fail for plasmids and genomic islands* Microbial Genomics 2020, 6(10)
7. Nasir J, Kozak R, Aftanas P, Raphenya AR, Smith K, **Maguire F**, Maan H, Alruwaili M, Banerjee A, Mbareche H, Alcock B, Knox N, Mossman K, Wang B, Hiscox J, McArthur A, Mubareka S *A comparison of whole genome sequencing of SARS-CoV-2 using amplicon-based sequencing, random hexamers, and bait capture* Viruses 2020, 12(8), 895
8. Peabody M, Lau WYV, **Maguire F**, Beiko RG, Brinkman FSL, Hoad G. *PSORTm: predicting bacterial and archaeal protein subcellular localization prediction tool from metagenomic data* Bioinformatics 2020, 36 (10), 3043-3048
9. Stairs JA, Bergey B, **Maguire F**, Scott S *Motivation to access laparoscopic skills training: results of a national survey of obstetrics and gynaecology residents* PLOS ONE 2020, 15 (4), e0230931
10. Alcock B, Raphenya A, Lau T, Tsang K, Bouchard M, Edalatmand A, Huynh W, Nguyen A, Cheng A, Liu S, Min S, Miroshnichenko A, Tran H, El Werfalli R, Nasir J, Oloni M, Speicher D, Florescu A, Singh B, Faltyn M, Hernández-Koutoucheva A, Sharma A, Bordeleau E, Pawlowski A, Zubyk H, Dooley D, Griffiths E, **Maguire F**, Winsor G, Beiko RG, Brinkman FSL, Hsiao W, Van Domselaar G, McArthur AG *CARD 2020: Antibiotic resistance surveillance with the Comprehensive Antibiotic Resistance Database* Nucleic Acids Research, 2020 Jan 8;48(D1):D517-25.
11. Wideman JG, Monier A, Rodríguez-Martínez R, Leonard G, Cook E, Poirier C, **Maguire F**, Milner DS, Irwin NA, Moore K, Santoro AE. *Unexpected mitochondrial genome diversity revealed by targeted single-cell genomics of heterotrophic flagellated protists* Nature Microbiology, 2020 Jan;5(1):154-65.
12. Chambouvet A, Monier A, **Maguire F**, Itöiz S, del Campo J, Elies P, Edvardsen B, Eikreim W, Richards TA. *Intracellular infection of diverse diatoms by an evolutionary distinct relative of the fungi* Current Biology, 2019 Dec 2;29(23):4093-101.
13. **Maguire F**, Rehman MA, Carrillo C, Diarra MS, Beiko RG. *Identification of primary antimicrobial resistance drivers in agricultural nontyphoidal Salmonella enterica serovars using machine learning* MSysystems, 2019 Aug 27;4(4):e00211-19.
14. Milner DS, Attah V, Cook E, **Maguire F**, Savory FR, Morrison M, Müller CA, Foster PG, Talbot NJ, Leonard G, Richards TA. *Environment-dependent fitness gains can be driven by horizontal gene transfer of transporter-encoding genes* Proceedings of the National Academy of Sciences, 2019 Mar 19;116(12):5613-22.
15. Stairs J, Bal N, **Maguire F**, Scott H. *A resident-led clinic that promotes the health of refugee women through advocacy and partnership* Canadian Medical Education Journal, 2019 Nov;10(4):e102.
16. Leonard G, Labarre A, Milner DS, Monier A, Soanes D, Wideman JG, **Maguire F**, Stevens S, Sain D, Grau-Bové X, Sebé-Pedrós A. *Comparative genomic analysis of the 'pseudofungus' Hyphochytrium catenoides* Open biology, 2018 Jan 10;8(1):170184.
17. Richards TA, Leonard G, Mahé F, del Campo J, Romac S, Jones MD, **Maguire F**, Dunthorn M, De Vargas C, Massana R, Chambouvet A. *Molecular diversity and distribution of marine fungi across 130 European environmental samples*

- Proceedings of the Royal Society B: Biological Sciences, 2015 Nov 22;282(1819):20152243.
18. Chambouvet A, Gower DJ, Jirků M, Yabsley MJ, Davis AK, Leonard G, **Maguire F**, Doherty-Bone TM, Bittencourt-Silva GB, Wilkinson M, Richards TA. *Cryptic infection of a broad taxonomic and geographic diversity of tadpoles by Perkinsella protists* Proceedings of the National Academy of Sciences, 2015 Aug 25;112(34):E4743-51.
 19. Smith DJ, Thakrar PJ, Bharrat AE, Dokos AG, Kinney TL, James LM, Lane MA, Khodadad CL, **Maguire F**, Maloney PR, Dawkins NL. *A balloon-based payload for Exposing Microorganisms in the Stratosphere (E-MIST)* Gravitational and Space Research, 2014 Dec 31;2(2).
 20. **Maguire F**, Henriquez FL, Leonard G, Dacks JB, Brown MW, Richards TA. *Complex patterns of gene fission in the eukaryotic folate biosynthesis pathway* Genome Biology and Evolution, 2014 Oct 1;6(10):2709-20.
 21. **Maguire F**, Richards TA. *Organelle Evolution: A Mosaic of 'Mitochondrial' Functions* Current Biology, 2014 Jun 2;24(11):R518-20.
 22. Chambouvet A, Berney C, Romac S, Audic S, **Maguire F**, De Vargas C, Richards TA. *Diverse molecular signatures for ribosomally 'active' Perkinsella in marine sediments* BMC Microbiology, 2014 Dec;14(1):110.

Pre-prints

1. Matthews T, Bristow F, Griffiths E, Petkau A, Adam J, Dooley D, Kruczkiewicz P, Curatcha J, Cabral J, Fornika D, Winsor G, Courtot M, Bertelli C, Roudgar A, Fejaio P, Mabon P, Enns E, Thiessen J, Keddy AWS, Isaac-Renton J, Gardy J, Tang P, **The IRIDA consortium**, Carriço J, Chindelevitch L, Chauve C, Graham M, McArthur AG, Taboada E, Beiko RG, Brinkman FSL, Hsiao WWL, Van Domselaar G *The Integrated Rapid Infectious Disease Analysis (IRIDA) Platform* bioRxiv, 2018 10.1101/381830

Under review

1. Stairs J, **Maguire F**, Clancy A *Gender differences in industry payments to obstetrician gynecologists in the United States*
2. Kim JI, **Maguire F**, Tsang K, Gouliouris T, Peacock S, McAllister T, McArthur A, Beiko RG *Machine learning for antimicrobial resistance prediction: Current practice, limitations, and clinical perspective*
3. Griffiths EJ, Timme RE, Page AJ, Alikhan N-F, Fornika D, **Maguire F**, Mendes CI, Tausch SH, Black A, Connor TR, Tyson GH, Aanensen DM, Alcock B, Campos J, Christoffels A, da Silva AD, Hodcroft E, Hsiao WWL, Katz LS, Nicholls SM, Oluniyi PE, Olawoye ID, Raphenya AR, Vasconcelos ATR, Witney AA, MacCannell DR. *The PHA4GE SARS-CoV-2 contextual data specification for open genomic epidemiology* preprints.org 2020 10.20944/preprints202008.0220.v1
4. Lee BD, Titus AJ, Yu K, Chevrette MG, Stewart PA, Cofer EM, Raschka S, **Maguire F**, Lengerich BJ, Kalinin AA, Gitter A, Greene CS, Boca SM, Triche TJ. *Ten quick tips for deep learning in biology* arXiv, 2021, arxiv.org/abs/2105.14372
5. Bornheimer E, **Maguire F**, Filliter J, Smith IM, Sorenson-Duncan T *Socializing online: An exploratory study of autistic individuals' use of netspeak on Reddit*
6. **Maguire F**, Graven MA, MacDonald NE, *Data ordinality: the missing link in medical and research errors*

Presentations

Invited Talks

JPI-AMR Seq4AMR Meeting 2021 <i>International Conference</i> 3 Ways to Skin a Metagenome: Strengths and Weaknesses of AMR Metagenomic Methods	Erasmus MC University Medical Center 7–8 December 2021
Community Health & Epidemiology <i>Teaching Seminar</i> Using Genomes in Epidemiology Exemplified by SARS-CoV-2	Dalhousie University 4 March 2021
Community Health & Epidemiology/Computer Science <i>Departmental Seminar</i> The Right Tool for the Job: Collaborative Data Science Responses to Health Crises	Dalhousie University 4 March 2021
Biochemistry and Biomedical Sciences Seminar <i>Departmental Seminar</i> Around the Resistome in 80 Ways: an Empirical Evaluation of Antimicrobial Resistance Gene Detection Methods	McMaster University 3 December 2019
MicroResearch <i>Workshop</i> Review of Mental Health Programs, Processes and Services for First Responders in the Halifax Regional Municipality	Dartmouth General Hospital, Halifax, NS 16–27 September 2019
Faculty of Medicine Research Day <i>Faculty Conference</i> Machine-Learning Based Identification of Novel Resistance Gene Activity	Dalhousie University 13–14 May 2019

Faculty of Medicine Research Day <i>Faculty Conference</i> A Collaborative Examination of the Online Communities of Autistic Individuals	Dalhousie University 13–14 May 2019
Research Group Seminar <i>Brinkman Lab</i> Socially Focused Research With Bioinformatics Tools	Simon Fraser University 26 March 2019
Joint Departmental Seminar <i>Remote presentation</i> AMRtime: Rapid Accurate Identification of Antimicrobial Resistance Determinants from Metagenomic Data	Universities of Auckland and Waterloo 19 October 2018
Conference Oral Presentations	
International FAIR Convergence Symposium <i>Workshop</i> Overcoming Challenges of SARS-CoV-2 Genomics Data Sharing for Public Health Surveillance, Outbreak Investigations and Research using the PHA4GE SARS-CoV-2 Contextual Data Specification	Virtual 1–3 December 2020
Canadian Society of Microbiology <i>Annual Conference</i> Precise Identification of Antimicrobial Resistance Determinants Using Metagenomic Data	Sherbrooke, QC 10–13 June 2019
American Society of Microbiology <i>Rapid Applied Microbial NGS and Bioinformatic Pipelines Conference</i> AMRtime: Rapid Accurate Identification of Antimicrobial Resistance Determinants from Metagenomic Data	Washington, DC 23–26 September 2018
Integrated Rapid Infectious Disease Analysis <i>Annual General Meeting</i> Using Machine Learning Methods to Accurately Classify AMR in Metagenomic Data	National Microbiology Labs, Winnipeg 22 June 2018
Dalhousie Computer Science In-House Conference <i>Departmental Conference</i> BayeHem: Bayesian Optimisation of Genome Assembly	Dalhousie University 24–26 January 2018
Canadian Institute For Advanced Research <i>Integrated Microbiology Meeting</i> An Analysis of RNAi Pathway Components and Function in <i>Paramecium</i>	Toronto, ON 1–5 June 2016
Machine Learning for Life Sciences <i>Workshop</i> Casting a Deep Net: Classifying Plankton from Shadowgraph Images	University of Exeter 2nd June 2015
Machine Learning for Life Sciences <i>Workshop</i> Stumbling Over the Decision Boundary	University of Exeter 1st June 2015
European Molecular Biology Organisation <i>Young Investigators Program</i> Endosymbiont Proteins Implicated in the Maintenance of the Photosynthetic Endosymbiosis between <i>Paramecium bursaria</i> and <i>Chlorella</i>	EMBO Heidelberg 2–7 December 2013
Conference Poster Presentations	
Canadian Society of Microbiology <i>Annual Conference</i> Integrated Rapid Infectious Disease Analysis: A Comprehensive Platform for Public Health Bioinformatics and Antimicrobial Resistance Surveillance Using Genomic Data	Sherbrooke, QC 10–13 June 2019
Canadian Society of Microbiology <i>Annual Conference</i> The Cost of Speed: Evaluating Systematic Failures in Metagenomic Antimicrobial Resistance Profiling	University of Manitoba 18–21 June 2018
European Molecular Biology Organisation <i>Young Investigators Program</i> Key Principles in Molecular Phylogenetics	EMBO Heidelberg 2–7th December 2013
European Molecular Biology Organisation <i>Comparative Genomics of Eukaryotic Microorganisms Conference</i> Endosymbiont Proteins Implicated in the Maintenance of the Photosynthetic Endosymbiosis between <i>Paramecium bursaria</i> and <i>Chlorella</i>	Sant Feliu de Guixols, Spain 19–24th October 2013
Systematics Association <i>Young Systematists Forum</i> Folate Biosynthesis Gene Fusion Evolution in the Eukaryotes	Natural History Museum, London 1st December 2011

Society for General Microbiology <i>Annual Conference</i> Evolution of Folate Biosynthesis Gene Fusion in the Eukaryotes	University of York 5–7th September 2011
European Molecular Biology Organisation <i>Comparative Genomics of Eukaryotic Microorganisms Conference</i> Evolution of Folate Biosynthesis Gene Fusions in the Eukaryotes	Sant Feliu de Guixols, Spain 15–20th October 2011

Co-Authored Presentations

American Association for Applied Linguistics <i>Talk</i> “TL;DR: An Exploratory Corpus Analysis of Netspeak and Autism” (<i>Emma Bornheimer</i>)	Virtual 20–23 March 2021
American Society of Microbiology: Next Generation Sequencing <i>Talk</i> hAMRronization: Improving the Utility of Antimicrobial Resistance Gene Prediction Tools Using the PHA4GE AMR Gene Detection Specification (<i>Catarina Inês Mendes</i>)	Virtual 7–11 December 2020
EASST/4S (Society for Social Studies of Science) <i>Talk</i> “It’s Over”: Involuntarily Celibate Men’s Perception of Women, Social Media, and the Masculine Order (<i>Kayla Preston</i>)	Virtual 18–21 August 2020
International Society for Evolutionary Protistology <i>Talk</i> Emergent RNA-RNA Interactions Can Promote Stability in a Nascent Endosymbiosis (<i>Ben Jenkins</i>)	Virtual 10–14 August 2020
Choanoflagellates and Friends <i>Talk</i> Emergent RNA-RNA Interactions Can Promote Stability in a Nascent Endosymbiosis (<i>Ben Jenkins</i>)	Virtual 26–27 May 2020
ASM Microbe <i>Poster</i> Metagenomic Analysis and the Resistance Gene Identifier (RGI) - Sensitivity & Accuracy, Sequence Variation Allele Networks, and Pathogen Prediction (<i>Amogelang Raphenya</i>)	Cancelled 19–21 June 2020
ASM Microbe <i>Poster</i> Evolving Threat Detector (ETD) - Automated Epidemiological Contextualization and Analysis of Antibiotic Resistome Predictions (<i>Amogelang Raphenya</i>)	Cancelled 19–21 June 2020
Emerging Statistical Challenges: Analysis of Human Microbiome Data <i>Talk</i> Has anyone seen my plasmid? Probing the dark corners of metagenome-assembled genomes (<i>Robert Beiko</i>)	Banff, BC 15–20 September 2019
Society of Environmental Toxicology and Chemistry <i>Talk</i> Challenges and Opportunities for Microbiome Analysis in Toxicology (<i>Fiona Brinkman</i>)	Toronto, ON 3–7 November 2019
Intelligent Systems for Molecular Biology/ECCB <i>Poster</i> Combining Multiple Features and Algorithms to Learn Antimicrobial Resistance Genotype-Phenotype Relationships (<i>Kara Tsang</i>)	Basel, Switzerland 21–25 July 2019
ASM Microbe <i>Talk</i> Prediction of Antimicrobial Resistance Genes and Mutations for Genomic and Metagenomic Sequencing Data (<i>Amogelang Raphenya</i>)	San Francisco, CA 20–24 June 2019
ASM Microbe <i>Poster</i> Resistome and Variant Prediction for Improved Antimicrobial Surveillance with the Comprehensive Antibiotic Resistance Database (<i>Brian Alcock</i>)	San Francisco, CA 20–24 June 2019
Applied Bioinformatics and Public Health Microbiology <i>Poster</i> PSORTm and AMRtime: Adapting Predictive Genome-Scale Bioinformatic Approaches to the Challenges of Metagenomic Data (<i>Venus Lau</i>)	EBI, UK 5–7 June 2019
Applied Bioinformatics and Public Health Microbiology <i>Poster</i> Integrated Rapid Infectious Disease Analysis (IRIDA): A Comprehensive and Distributed Platform for Public Health Genomic Epidemiology (<i>Will Hsiao</i>)	EBI, UK 5–7 June 2019

Canadian Conference on Medical Education

Talk

Motivation to Access Laparoscopic Skills Training by Obstetrics and Gynaecology Residents: A Novel Tool to Characterize Motivation (*Jocelyn Stairs*)

Niagra, ON

11–16 April 2019

CUGH: Translation and Implementation for Impact in Global Health Conference

Poster

Halifax Newcomer Well Woman Clinic: Promoting the Health of Refugee Women Through Advocacy and Partnership (*Jocelyn Stairs*)

Chicago, IL

8–10 March 2019

School of Informatics Jamboree

Poster

Classifying Plankton Species with Deep Learning and Computer Vision (*Gavin Gray*)

University of Edinburgh

26 March 2015

National Association for Research in Science Teaching

Poster

Working on the Public's Perception and Understand of Science and Scientists through a Popular, Open-Access 'AskScience' Website (*Leigh Ariño de la Rubia*)

Indianapolis, IN

25–28th March 2012

Tennessee Maths and Science Education Research Conference

Poster

Online Conversations as a Way of Understanding the Public's Views of the Natural of Science: Research on Reddit's 'AskScience' (*Leigh Ariño de la Rubia*)

Murfreesboro, TN

2–3rd February 2012

Media

Globe and Mail

National newspaper

Ivan Semeniuk authored an article 'In genetic arms race with COVID-19 variants, Canada's labs fight for better ways to share findings with each other and the world' featuring my work and data from work on SARS-CoV-2 genomics within Canada.

Canada

25 November 2021

National Post

National news

Mike Halpin authored an article in 'The Conversation' that was published in this national newspaper about our Incel related work (published as Preston *et. al.* in Men and Masculinity. Work was also mentioned in the Sun Newspaper and the Signal Halifax.

Canada

8 July 2021

Science

Leading Academic Journal

Interviewed for a news article by Meredith Wadman on issues with SARS-CoV-2 genome data access via GISAID.

Online and Print

10 March 2021

National and Local News

TV, Radio, and Newspaper

Interviewed by CBC's 'National', CBC News, CTV News (Toronto and Atlantic), CBC Radio News, Globe and Mail, Chronicle Herald, News 95.7 for a range of background and on-record interviews in relation to my work using SARS-CoV-2 genomic data to track variants in response to the pandemic.

Broadcast and Print

December 2020–March 2021

MicroBinfie Podcast

Podcast

Invited to participate in discussions of teaching microbial bioinformatics and national Canadian SARS-CoV-2 genomic epidemiology efforts.

Online

October 2020–March 2021

BBC Scientific Consultant

Cloud Lab Documentary

Acted as NASA representative and scientific advisor (uncredited) for a British Broadcasting Company documentary on atmospheric sciences. Developed experimental protocols, prepared materials, and briefed the cast and producers on relevant microbiological background information.

John F. Kennedy Space Center

October 2013

References

- **Robert G. Beiko**, Professor in Bioinformatics, Associate Dean Research, Faculty of Computer Science, Dalhousie University (Postdoctoral supervisor), E-mail: beiko@cs.dal.ca
- **Andrew G. McArthur**, Associate Professor in Bioinformatics, Department of Biochemistry and Biomedical Sciences, McMaster University (Collaborator), E-mail: mcarthua@mcmaster.ca
- **Thomas A. Richards**, Chair of Evolutionary Genomics, Department of Zoology, University of Oxford (PhD supervisor), E-mail: thomas.richards@zoo.ox.ac.uk