

Rhiannon Cameron

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BACHELOR OF SCIENCE MICROBIOLOGY

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EDUCATION

- 2021-PRESENT M.Sc. Faculty of Health Sciences // SIMON FRASER UNIVERSITY, B.C.
GPA: 4.00/4.33 (A)
- 2020-2021* M.Sc. Bioinformatics // UNIVERSITY OF BRITISH COLUMBIA, B.C. // **Transferred*
GPA: 4.33/4.33 (A+)
- 2019 B.Sc. Microbiology // UNIVERSITY OF VICTORIA, B.C.
GGPA: 4.00/4.33 (A)

AWARDS

NSERC-CREATE Bioinformatics Scholarship Awardee (\$24,300)

JUN 2020 | NSERC CREATE Bioinformatics Graduate Training Program Grant (2020-2021)

- Summer 2021 Internship with Dr. Athanasios Zovoilis at the Southern Alberta Genome Sciences Centre RNA Genomics Laboratory.

SKILLS & EXPERTISE

Research Interests // Ontologies, Bioinformatics, Genomics, Metabolomics, Infectious diseases, Public Health, Human microbiome, Microbial ecology, Signal transduction pathways, Metabolism, UX design.

Computation // Python (Proficient), R (Proficient), C++ (Basics), Linux/Windows/MacOS Command line/Terminal, Version control (GitHub), BASH (RegX), Bioinformatics: Protégé, BLAST, MSA, Genome Databases/Organizers, Phylogenetics, Nextflow, Conda.

Math/Statistics // Calculus, Linear Algebra, Statistics (e.g., Binomial, Poisson, and Normal distribution; ANOVA; Regression and Correlation).

Laboratory // Fundamental biochemical, microbiological, and molecular biological laboratory techniques including but not limited to: SDS-PAGE, Protein Purification, ELISA, Culturing Hybridomas, Gel Electrophoresis, Molecular Cloning, Transposon Mutagenesis, and PCR.

Other // Markdown, LaTeX, Academic Writing, Grant Writing, Graphic Design, TESL, French (Conversational).

RESEARCH EXPERIENCE

CENTRE FOR INFECTIOUS DISEASE GENOMICS AND ONE HEALTH (CIDGOH) // GRADUATE STUDENT RESEARCHER

SEP 2020 – PRESENT | DR. WILLIAM HSIAO | SIMON FRASER UNIVERSITY, B.C.

Thesis work involves ontology curation and development for outbreak investigation and surveillance of SARS-CoV-2 for the Canadian COVID-19 Genomics Network ([CanCOGeN](#)). Transitioning to a **PhD** that focuses on specification development and ontology modeling of risk assessment in food borne pathogen surveillance for the Canadian Genomics Research and Development Initiative ([GRDI](#)).

- Ontology modeling of application schemas and risk assessment queries.
- Assist in COVID-19 DataHarmonizer tool development, quality control, user testing, as well as the development and maintenance of associated standard operating procedures.
- Collaborate with the National Microbiology Laboratory (NML) on CanCOGeN metadata initiatives.
- Contribute to, demo, and present at CanCOGeN provincial workshops/training sessions.
- Write public health reports (e.g. "CanCOGeN VirusSeq – Comparison and Analysis of Canadian Public Health SARS-CoV-2 Case Report Forms").
- Continuation of work pertaining to previous roles (see "Research Assistant / Database Curator") working on GenEpiO, FoodOn, and the Joint Food Ontology (JTO).

SOUTHERN ALBERTA GENOME SCIENCES CENTRE (SAGSC) // NSERC-CREATE INTERN

MAY 2021 – PRESENT* | DR. ATHANASIOS ZOVOILIS | UNIVERSITY OF LETHBRIDGE, A.B.

- Updating and utilizing Liam Mitchell's A-to-I editing nextflow pipeline on nanopore human brain tissue RNA sequence data, focusing on the identification of novel RNAs with a special interest in repetitive RNAs, ncRNAs, and SINE RNAs.
- Working remotely on high-memory high-performance CPU and GPU nodes.
- Using R to apply statistical analyses to the pipeline output.

** Full-time internship ended the end of August 2021, continuing work on project part-time.*

HSIAO PUBLIC HEALTH BIOINFORMATICS LABORATORY // RESEARCH ASSISTANT/CURATOR

FEB 2020 – SEP 2020 | DR. WILLIAM HSIAO | CENTER FOR DISEASE CONTROL, B.C.

- Collect and curate SARS-CoV-2 and COVID-19 related metadata for the Canadian COVID Genomics Network (CanCOGeN) initiative.
- Beta tester for the CanCOGeN covid19ValidationGrid; test guidelines and functions, meticulously explore possible usage scenarios, and provide ideas for improvement.
- Produce sample data and quality control information for validating CanCOGeN tools.
- Content creator for the CanCOGeN metadata wiki.
- Manual curation and term edits for the FoodOn and GenEpiO ontology databases using Protégé and GitHub.
- Generate curator training materials and perform curator demo webinars.
- Systematic literature review on the accessibility of public health genomics.

RESEARCH EXPERIENCE (*continued...*)

VIRAL BIOINFORMATICS RESEARCH CENTRE // DIRECTED STUDIES STUDENT

SEP 2017 – APR 2018 | DR. CHRIS UPTON | UNIVERSITY OF VICTORIA, B.C.

- Produced specifications for, and managed implementation of, bioinformatics tools and interfaces developed at Dr. Chris Upton's Viral Bioinformatics Research Centre (VBRC), while performing analyses of laboratory generated data and unprocessed published data (obtained from PubMed).
- Conducted a literature review and bioinformatic analysis of the novel influenza A virus gene NEG8.
- Developed a theoretical phylogenetic Tree GUI for virus selection in Viral Orthologous Clusters (VOCs) database, and proposed solutions for tools that visualized data in a manner inaccessible to colour blind individuals.
- Studied and reviewed bioinformatics tools for the analysis of virus genomes.
- Coached VBRC programmers on the functions of the bioinformatics tools from the perspective of a researcher and regularly made optimization recommendations.
- Presented detailed reports on progress and results, as well as updated VBRC online guides and documentation.

UNIVERSITY OF REGINA // RESEARCH ASSISTANT

MAY 2014 – AUG 2014 | DR. ANDREW CAMERON | REGINA, S.K.

- Generated significant and well-controlled scientific research results on Sxy toxicity in *Salmonella enterica typhimurium* in a level 2 bio-safety laboratory supervised by Dr. Andrew Cameron and Dr. Ebtihal Al-shabib. Research results added to a manuscript being prepared for [peer-reviewed publication](#).
- Performed laboratory tasks including but not limited to: aseptic pipette technique, PCR amplification and plasmid modification, cell separation, preparation of LB growth media, poured plates, inoculation of agar plates and broths, growth on selective media, colony isolation, serial dilution, plate counts, identification and characterizing of colonies, and gel electrophoresis preparation and application.
- Investigated and identified a source of contamination in the laboratory by testing all available laboratory equipment, surfaces, and media, while keeping thorough documentation of the process.
- Took accurate and comprehensive laboratory notes, now used as a positive example for future members of the laboratory, as well as provided regular slideshow presentations on progress and results.

OTHER EXPERIENCE

VANCOUVER BIOINFORMATICS USER GROUP // COMMUNICATIONS VOLUNTEER

JAN 2020 – PRESENT | VANCOUVER, B.C.

- Live webinar setup, moderating, and acting as facilitator/MC.
- Assist with general event coordination activities and data management regarding regular webinars and special events.
- Coordinator and host of the 2021 Three Minute Lightning Talks competition and the 2022 Career Panel.
- Outreach, social media, webinar data management/video editing, and assisting in coordinating speaker's activities.

NEIL SQUIRE SOCIETY // COMPUTER COMFORT VOLUNTEER

JUL 2019 – MAR 2020, MAY 2021 – PRESENT | BURNABY, B.C.

- Help adults with disabilities develop basic computer skills in weekly sessions.
- Recommend and develop resources for client to study and reference based on their unique needs and interests.

BIG RESEARCH DAY 2022 // ORGANIZING COMMITTEE - PROMOTIONS COLEAD

NOV 2021 – APR 2022 | VANCOUVER, B.C.

- Helping prepare for and execute the 2022 BIG Research Day, an annual event that explores the research areas of Bioinformatics Interdisciplinary Oncology Genome Science + Technology. www.bigresearchday.com
- Managed and created promotional material graphics (online and print), ordering materials, website, auxiliary website/virtual experience, and email correspondence.

COMMUNITY ENGAGEMENT ADVISORY NETWORK (CEAN) // PATIENT PARTNER

NOV 2021 – PRESENT | VANCOUVER, B.C.

- Volunteer to partner with health care research and/or projects that aim to improve health care services, providing my perspective and experiences within the health care system in question.

INTERNATIONAL FAIR CONVERGENCE SYMPOSIUM // WORKSHOP PRESENTER

DEC 2020 | VANCOUVER, B.C.

- DataHarmonizer tool explanation and demonstration.

BIOCHEMISTRY AND MICROBIOLOGY STUDENT SOCIETY // CO-PRESIDENT (Elected Position)

APR 2015 – DEC 2015 | UNIVERSITY OF VICTORIA, B.C.

- Directed and delegated to a group of my peers, developed and operated within budgets, managerial accounting, demonstrated communication and dispute resolution skills, and

organized and managed BMSS events on and off campus and conducted team building and training activities.

RELEVANT TRAINING & CERTIFICATIONS

- 2022 **NHGRI //** Mini Hackathon: COVID-19 Ontology Harmonization <[Hackathon](#)>
OBI // How to represent specific elements in scientific investigations in the Ontology for Biomedical Investigations (OBI) <[Workshop](#)>
- 2021 **CIHR IRSC //** Core Competency Module for Sex and Gender in Biomedical Research <[Credential Upon Request](#)>
CIHR IRSC // Core Competency Module for Sex and Gender in Primary Data Collection with Human Participants <[Credential Upon Request](#)>
CIHR IRSC // Core Competency Module for Sex and Gender in the Analysis of Secondary Data from Human Participants <[Credential Upon Request](#)>
SAGSC & BioNet Alberta // Introduction to Bioinformatics
SFU Safety Training // WHMIS 2015 v2 <[Credential](#) - Expires 2024-09>
ISCB Student Council Symposium // Attendee <[Credential Upon Request](#)>
Student Biotechnology Network // Industry Ready Workshop Series: Effective Communications
- 2020 **EPI-interactive //** R Shiny Masterclass Series <[Credential Upon Request](#)>
TCPS 2: CORE // Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans Course on Research Ethics <[Credential Upon Request](#)>
FSCI 2020 Course // Advancing FAIR Data Stewardship: Fostering Institutional Planning and Service Development <[Details](#)>
FSCI 2020 Course // Looking Beyond the Journal Article: A Guide to Building Your Biomedical Research Toolkit <[Details](#)>
Ladies Learning Code // Using Data to Solve Problems: An Introduction to Artificial Intelligence and Machine Learning for Beginners <[Workshop](#)>
- 2019 **MITx (edX) 6.00.1x //** Introduction to Computer Science and Programming Using Python <[Credential](#)>
MITx (edX) 6.00.2x // Introduction to Computational Thinking and Data Science <[Credential](#)>
Ladies Learning Code // JavaScript for Beginners: An Introduction to the Fundamentals of Web Programming <[Workshop](#)>

PUBLICATIONS

- **Cameron, R.**, Savić Kallesøe, S., Griffiths, E.J., Dooley, D., Sridhar, A., Sehar, A., Tindale, L.C., Hsiao, W. (*Date TBD*). Evaluating COVID-19 Case Report Forms to Inform SARS-CoV-2 Genomic Contextual Data Harmonization. <Manuscript submitted for publication, 2021>
- Gill, I.S., Griffiths, E.J., Dooley, D., **Cameron, R.**, Savić Kallesøe, S., Gosal, G., et al. (*Date TBD*). The DataHarmonizer: a secure spreadsheet application for faster data harmonization, validation, aggregation and analysis of SARS-CoV-2 contextual information. <Manuscript submitted for publication, 2021>
- Griffiths, E. J., Timme, R. E., Mendes, C. I., Page, A. J., Alikhan, N. F., Fornika, D., Maguire, F., Campos, J., Park, D., Olawoye, I.B., Anderson, D., Christoffels, A., Goncalves da Silva, A., **Cameron, R.**, et al. (2022). Future-proofing and maximizing the utility of metadata: The PHA4GE SARS-CoV-2 contextual data specification package. *GigaScience* 11, giac003. Available from: <https://doi.org/10.1093/gigascience/giac003>

PREPRINTS

- Alshabib, E.Y., Fitzgerald, S.F., Chao, T.C., **Cameron, R.**, Redfield, R.J., Sinha, S., Cameron, A.D.S. (2018). Finding reliable phenotypes and detecting artefacts among in vivo and in vitro assays to characterize the refractory transcriptional activator Sxy (TfoX) in *Escherichia coli*. *bioRxiv*. Available from: <https://www.biorxiv.org/content/10.1101/284836v1>

PUBLISHED REPORTS

- **Cameron, R.**, Savić Kallesøe, S., Griffiths, E., Hsiao, W. CanCOGeN VirusSeq Comparison and analysis of Canadian public health SARS-CoV-2 case report forms. CanCOGeN VirusSeq, 2020. Available from: https://virusseq.ca/wp-content/uploads/2021/04/2020-12-10_CRF-Report-.pdf

POSTERS, PRESENTATIONS, AND ABSTRACTS

- **Cameron, R.**, Dooley, D., Griffiths, E., S., Hsiao, W. Knowing your values - modeling fields and picklists for the PHA4GE SARS-CoV-2 data specification. **Poster** presented at: The B.I.G. Research Day Conference; Mar 23, 2022. Virtual. <Available Upon Request>
- **Cameron, R.**, Dooley, D., Griffiths, E., Savić Kallesøe, S., Hsiao, W. Putting standards into practice – ontologizing the Canadian COVID genomics network specification. **Poster** presented at: The Bioinformatics Open Source Conference (BOSC); Jul 27-29, 2021. Virtual. <Available Upon Request>
- **Cameron, R.**, Dooley, D. DataHarmonizer: a template-driven spreadsheet application utilizing ontologies to implement the Canadian COVID Genomics Network (CanCOGeN)

specification. **Talk** presented at: The Canadian Research Software Conference (CRSC); Jul 7, 2021. Virtual. Available from: https://www.youtube.com/watch?v=rdN2_Vhwb8E

- Dooley, D., Griffiths, E., **Cameron, R.**, Gosal, G., Naravane, T., Walls, R.L., Buttigieg, P., Hsiao, W. FoodOn evolution in the food ontology ecosystem. **Abstract** for: The Integrated Food Ontology Workshop (IFOW); Sep-Oct, 2020. Virtual. Available from: https://github.com/FoodOntology/joint-food-ontology-wg/blob/master/presentation/IFOW_2020_sept_16_in_the_field/IFOW_2020_17_FoodOn_Evolution_in_the_Food_Ontology_Ecosystem.pdf

REFERENCES

Dr. William Hsiao | Principal Investigator & SFU Associate Professor
The Centre for Infectious Disease Genomics and One Health
Simon Fraser University
Burnaby, B.C.
[Contact Information: Omitted]

Dr. Damion Dooley | Scientific Programmer
The Centre for Infectious Disease Genomics and One Health
Simon Fraser University
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Dr. Emma Griffiths | GenEpiO Project Coordinator, Curator and Research Associate
The Centre for Infectious Disease Genomics and One Health
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Dr. Athanasios Zovoilis | Professor & VBRC Principal Investigator
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& RNA Genomics Lab at the Southern Alberta Genome Science Centre
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Dr. Perry Howard | Professor and Department Chair
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