GILLIAN REYNOLDS

Worcestershire, United Kingdom
gillianlfreynolds@gmail.com

PERSONAL NOTES

Formerly known as Gillian Woolard

EDUCATION

Individual Interdisciplinary PhD- Computer Science and Plant Genetics August 2019 - present
Co-Supervisors : Dr. Brendan Mumey, Dr. Jennifer Lachowiec
The Gianforte School of Computing and The Department of Plant Sciences and Plant Pathology
Montana State University, USA

PhD in Plant Genetics - changed programs January 2018 - August 2019
Interim Supervisor : Dr. Tracy Dougher August 2018- August 2019
Former Supervisor : Dr. Hikmet Budak January 2018 - August 2018
Department of Plant Sciences and Plant Pathology
Montana State University, USA

MRes Biology: Bioinformatics and Genomics September 2015 - August 2018
The University of Worcester, UK

Biology Bsc(Hons) September 2011- July 2014
The University of Worcester, UK

SKILLS

Biological

As a result of the varied projects of which I have been a part of I have developed a number of skills in computational biology. These include gene and genome alignments, phylogenetic tree construction, RNA-Seq analysis, GBS data analysis, sequence read mapping, genome assembly, genome annotation, comparative genomics and developing machine learning models for the analysis of short-read sequencing data and biological scientific texts. I also have a sound understanding of a range of biological topics including genomics, genetics and evolutionary biology. I have undertaken a number of self-directed courses in topics including genomic technologies and systems biology.

Computational

I am proficient the python coding language and have extensive experience work on the the linux command line. I am also competent in the R programming language. I have extensive experience with working with high performance computers, including those that use the SLURM workload manager. I am also experienced with working with SciKit learn tools for both supervised and unsupervised machine learning tasks including the analysis of short-read sequencing data and biological natural lanugage processing (BioNLP) tasks. I also have experience in algorithm design and implementation, including CPU parallelization.

Teaching and Supervision

I have enjoyed several undergraduate teaching and supervision opportunities at the University of Worcester. In addition, I have also been involved in the development of educational tools in Bioinformatics for both undergraduates and pre-university students. At Montana State University I have also mentored an undergraduate student on the analysis of large scale RNA-Seq data.

Interdisciplinary

As a PhD student who works across two departments at MSU I have been able to hone my skills in interdisciplinary communication through presentations, seminars, meetings, collaborations and initiating and developing a joint PhD proposal.

Outreach

I have participated in a number of outreach projects to engage students in STEM with audiences from primary schools, high schools and sixth form colleges.

RESEARCH PUBLICATIONS AND CONFERENCE PRESENTATIONS

Reynolds,G., Strnadova-Neeley,V., Lachowiec,J. MinHash k-mer sketching highlights allopolyploid subgenome sequence differentiation. *ISCB-Africa ASBCB (Accepted)* . 2021

Reynolds,G., Lachowiec,J., Strnadova-Neeley,V. Identifying features for subgenomic sequence identification in a De Bruijn Graph (DBG). *Tech talks at the CRA-WP Grad Cohort Workshop for Women Conference*. 2021

Williams,L., **Reynolds, G**., Mumey, B. (2019). RNA Transcript Assembly Using Inexact Flows. *In 2019 IEEE International Conference on Bioinformatics and Biomedicine (BIBM). IEEE, 2019*

Manuweera, B., **Reynolds, G**., Kahanda, I. (2019). Computational Methods for the *Ab initio* Identification of Novel microRNA in Plants: A Systematic Review. *PeerJ Computer Science 5:e233 2019*.

Pourreza Shahri, Morteza, **Gillian Reynolds**, Mandi Marie Roe, and Indika Kahanda. "PPPred: Classifying Protein-phenotype Co-mentions Extracted from Biomedical Literature." In Proceedings of the 10th ACM International Conference on Bioinformatics, Computational Biology and Health Informatics, pp. 414-422. ACM, 2019.

Shahri, Morteza Pourreza, Madhusudan Srinivasan, **Gillian Reynolds**, Diane Bimczok, Indika Kahanda, and Upulee Kanewala."Metamorphic Testing for Quality Assurance of Protein Function Prediction Tools." In 2019 IEEE International Conference On Artificial Intelligence Testing (AITest), pp. 140-148. IEEE, 2019.

Rajasekar, Karthik V., Shuangxi Ji, Rachel J. Coulthard, Jon P. Ride, **Gillian L. Reynolds**, Peter J. Winn, Michael J. Wheeler, Eva I. Hyde, and Lorna J. Smith. "Structure of SPH (self-incompatibility protein homologue) proteins: a widespread family of small, highly stable, secreted proteins." Biochemical Journal 476, no. 5 (2019): 809-826.

Sherrad, G., **Woolard, G**., Wheeler, M. Investigating the function of a small secreted protein family in physcomitrella patens. *MOSS 2016 Conference*. 2nd-5th September 2016, University of Leeds, U.K.

TEACHING & UNDERGRADUATE SUPERVISION

Teaching

Guest Lecturer in Cell Biology- *Introduction to bioinformatics*
First year class, The University of Worcester 2020

Co-module Leader in Bioinformatics and Genomics
Final (third) year class, The University of Worcester 2017-2018

Module Leader in Human Genetics
Second year class, The University of Worcester 2017

Guest Lecturer in Genomics and Bionformatics - *Phylogenetics*
Final (third) year class, The University of Worcester 2014-2016

Guest lecturer in Introduction to Biological Chemistry - *Phylogenetics*
First year class, The University of Worcester 2014-2015

EMPLOYMENT

Graduate Research Assistantship, Montana State University 2018 - present
Associate Lecturer in Biology, University of Worcester 2016 - 2018
Independent Study Co-Supervisor, University of Worcester 2016 - 2017
Data Quality Improvement Officer, National Health Service (NHS) 2015 - 2017
Guest Lecturer in Biology, University of Worcester 2014 - 2016
Research Assistant, University of Worcester 2014 - 2015

PROFESSIONAL MEMBERSHIPS

Royal Society of Biology

REFERENCES

Dr. Jennifer Lachowiec
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jennifer.lachowiec@montana.edu
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Dr. Brendan Mumey
Norm Asbjornson Hall 253B
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(406) 994-7811