Philipp Ross

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Education

Pennsylvania State University, State College, PA USA (Anticipated, 2016)
Graduate Certificate, Applied Bioinformatics
Cumulative GPA to Date: 4.0/4.0

Binghamton University, Binghamton, NY USA (Spring 2013)
Bachelors of Science, Bioengineering
Major GPA: 3.65/4.0 Cumulative GPA: 3.51/4.0

Earl L. Vandermeulen High School, Port Jefferson, NY USA (Spring 2008)
Distinguished Regents Diploma with Honors
Cumulative GPA: 96/100

Research Experience

Computational Biology, Pennsylvania State University (Fall 2013 - Present)
Advisor: Manuel Llinás

Contributed to several publications looking at various aspects of pre and post-transcriptional regulation in the deadliest human infecting species of the parasite that causes malaria, *Plasmodium falciparum*.

Computational Simulation, Binghamton University (Fall 2012 - Spring 2013)
Advisor: Hiroki Sayama

Designed a computational simulation and graphical user interface looking at the socioeconomic consequences of the widespread adoption of 3D printers implemented in Mathematica and Python.

Publications

Eshar S, Altenhofen L, Rabner A, **Ross P**, Fastman Y, Mandel-Gutfreund Y, Karni R, Llinás M, Dzikowski R. (2015) *"PfSR1 controls alternative splicing and steady state RNA levels in Plasmodium falciparum through preferential recognition of specific RNA motifs."* Mol Microbiol. 2015 Mar 25. doi: 10.1111/mmi.13007

Amber Ferger, Wai Fai Lau, **Philipp Ross**, Wyman Zhao, Hiroki Sayama, and Steen Rasmussen, *Impact of personal fabrication technology on social structure and wealth distribution: An agent-based simulation study*, *Advances in Artificial Life: Proceedings of the Twelfth European Conference on the Synthesis and Simulation of Living Systems (ECAL 2013)*, Pietro Liò, Orazio Miglino, Giuseppe Nicosia, Stefano Nolfi and Mario Pavone, eds., MIT Press, pp.521-522.
http://mitpress.mit.edu/sites/default/files/titles/content/ecal13/978-0-262-31709-2-ch075.pdf

Chappell L, **Ross P**, Altenhofen L, Böehme U, Otto T, Rayner J, Newbold C, Matt Berriman, Llinás M *"Redefining the transcriptome of the human malaria parasite Plasmodium falciparum"* **In Preparation**

Santos JM, Campbell T, Joshi P, **Ross P**, Schieler A, Cristea I, Llinás M *"Red blood cell invasion by the malaria parasite is coordinated by an essential transcription factor PfAP2-I"* **In Preparation**

Honors

Graduate, Cum Laude, Binghamton University
Inducted to Tau Beta Pi Engineering Honor Society, Binghamton University
Deans List Recognition, Binghamton University (Fall 2008 - 2011, 2012 & Spring 2009, 2010, 2013)
SMART Grant Recipient, Binghamton University (Fall 2009)
Kathleen Mallory Memorial Scholarship, Earl L. Vandermeulen High School (Summer 2008)
Male Scholar Athlete, Earl L. Vandermeulen High School (Summer 2008)

Skills

Biological Data Analysis

Transcriptomics

Processed and analyzed Illumina generated RNA-seq data. Experience includes read quality control, read mapping using a splice-aware aligner, reference guided transcript assembly, reference guided transcript annotation, gene-level quantification, and differential expression detection.

Protein-DNA Interactions

Processed and analyzed Ilumina generated ChIP-seq and ChIP-exo data. Experience includes read quality control, read mapping, peak calling, and peak annotation.

Regulatory Element Analysis

Experience analyzing DNA and RNA sequence motifs including de novo discovery, search and enrichment analysis, cluster analysis, and transcript co-expression analysis to predict active DNA-binding protein interaction sites and functional roles for transcription factors.

Comparative Sequence Analysis

Experience comparing DNA and protein sequences to identify conservation and comparing whole genome sequencing data to identify single nucleotide polymorphisms.

Bioinformatics Software

General NGS

FastQC, Trimmomatic, deepTools, BWA, Bowtie, Samtools, Bedtools, BLAST+

Transcriptomics

RSeQC, TopHat2, HISAT2, Cufflinks, StringTie, Limma, Kallisto

ChIP-Seq

MACS2, MEME-ChIP

Motif Analysis

MEME Suite, FIRE

Statistical Modeling & Analysis

Experience modeling and analyzing biological data including multiple testing correction, linear regression, principle component analysis, k-means clustering, and non-metric multidimensional scaling using the R programming environment.

Programming

Experience programming in multiple languages and environments suitable for scientific applications with a comfortable understanding of bash, awk, python, and R and basic understanding of perl, java, and mathematica.

Web Development

Experience in utilization of common web development technologies including HTML5, CSS, Javascript, PHP, and SQL-based databases for application development and deployment on AWS.

Involvement

Contributor - The Biostars Handbook, https://leanpub.com/biostarhandbook

Participant - Biotechnology Crash Course, GenSpace - NYC's Community Biolab

Current Member, Center for Malaria Research at Penn State (CMaR)

Current Member, Center for Infectious Disease Dynamics (CIDD)

Past Member, Biomedical Engineering Society

Past Member, Undergraduate Chemical Society

Leadership

President & Founder, Entrepreneurship Club, Binghamton University

President, Binghamton Bioengineering Club, Binghamton University

Advisor, Bioengineering Student Advisory Committee, Binghamton University

Other

Languages

German, Fluent

Spanish, Basic Knowledge

Certifications

Certified Personal Trainer, American Council of Exercise (ACE)

Certified First Aid, CPR, and AED, American Heart Association

Certified Wilderness First Aid, Stonehearth Open Learning Opportunities (SOLO)