Melyssa Minto

PhD Candidate in Computational Biology and Bioinformatics

Personal Info

E-mail
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Soft Skills

- Leadership
- Communication
- Logistical
- Creativity
- Mentorship
- Project Management

Hard Skills

- R
- Python
- Bash/Shell
- MATLAB
- HTML
- CSS
- Java
- Markdown
- Git
- SLURM
- HTML Scrubbing
- Data Cleaning
- Bayesian Stats
- Grant Writing

Language

- Spanish

Education and Certificates

Current	**Ph.D. in Computational Biology and Bioinformatics** | Duke University
July 2018	**Cert in Integrative Genomics** | Summer Institute for Statistical Genetics
July 2018	**Cert in MCMC for Statistical Genetics** | Summer Institute for Statistical Genetics
May 2017	**B.S. in Mathematics and B.S. in Biology,** Meredith College, Raleigh, NC

Leadership and Involvement

2020 – Current	**Seminar/Workshop Committee** | The Black Women in Comp Bio Network
2020	**Project Manager** | Duke Data+ *Environmental Public Health Tracking*
2019 – 2020	**Mentor** | Durham Public School Women in Math Program
2019 – Current	**President** | Triangle Science Share
2019	**Graduate Student Q&A YouTube Live** | Duke Graduate School
2019 – 2020	**Seminar Planning Committee** | Computational Biology & Bioinformatics
2019	**Alumni Networking Panel & Reception Committee** | Bouchet Society
2018 – Current	**Few-Glasson Alumni Society Selection Committee** | Duke Graduate School
2018 – Current	**Faculty Mentor Award Selection Committee** | Duke Graduate School
2018 – Current	**Dean's Awards Selection Committee** | Duke Graduate School
2018	**Gordon G. Hammes Teaching Selection Committee** | Duke Graduate School
2018	**Retreat Planning Committee** | Computational Biology & Bioinformatics
2018	**Graduate Student Welcome Panel** | Duke Graduate School

Honors and Awards

2017 – Current	**Duke BioCoRE Scholar**
2017	**Deborah K. Smith Award for Achievement in Biology** | Meredith College
2017	**Ford Foundation Fellowship Honorable Mention**
2016	**Who's Who Among Students in American Universities and Colleges**
2016	**Beta Beta Beta** | National Biological Honor Society
2016	**Pi Mu Epsilon** | National Mathematics Honor Society
2016	**Outstanding Student Researcher of the Year** | NC Central University

Teaching Experience

August 2018/ August 2019 — **Data Carpentries Teacher's Assistant**
Assisted during a Bootcamp for a University program for genomics and genetics at Duke University. This Bootcamp included curriculum that covered Unix command line, programming in python using jupyter, data and project organization, and version control with Git.

2017 – Current — ***Tech Assistant/Instructor, Black Girls Code***
Volunteer to help organize, set up, and teach girls ages 7-17 about the basic principles behind coding, computer science, and engineering. Serve as a role model for girls by sharing my expertise and relevant experience.

Seminar/Conference Presentations

Sep 2020	**Zic regulates cerebellar granule neuron maturation in late developmental stages through noncanonical binding** | Cold Spring Harbor Labs – Epigenetics and Chromatin
Sep 2019	**Computational methods to model the dynamic binding of the Zic Transcription Factor in Postnatal Development of the Cerebellum** | Duke Neurobiology Retreat and Duke Computational Biology and Bioinformatics Retreat
April 2019	**Bioinformatic analysis of H3K27me3 and H3K27ac dynamics of postnatal development of cerebellum** | IRTG Dissecting and Reengineering the Regulatory Genome
February 2017	**Cray Cray Morphometrics: Advancing Morphometric Delimitation of Species of Crayfish** | Shaw University Research Symposium
November 2016	**Cleaning Electronic Medical Records Using Novel R Package MonoInc** | Annual Biomedical Research Conference for Minority Students
May 2016	**MonoInc: An R Package** | North Carolina Central University
May 2016	**A Study of the Risks of Teenage Pregnancy in the U.S.** | Meredith College Celebrating Student Achievement Day (CSA Day)

Research Experience

DISSERTATION RESEARCH

My current research involves an integrative approach to determine regulators or psychostimulant induced genomic changes in Parvalbumin (PV) Interneurons as well as transcriptional regulators of maturation in Cerebellar Granule Neurons in Dr. Anne West's Lab.

ROTATION RESEARCH

Rotation 1 | **Dr. Dave MacAlpine |** Efficiently balanced multiple projects from within and outside of the computational toxicology team manner to meet each quarterly deadline. Projects included curating chemical-assay plate data, performing gene expression/enrichment analysis, creating a pipeline to perform a systematic literature search with the goal of curating publicly available data on a compound's bioactivity. Each project was clearly documented, and version controlled
Rotation 2 | **Dr. Anne West |** Efficiently balanced multiple projects from within and outside of the computational toxicology team manner to meet each quarterly deadline. Projects included curating chemical-assay plate data, performing gene expression/enrichment analysis, creating a pipeline to perform a systematic literature search with the goal of curating publicly available data on a compound's bioactivity. Each project was clearly documented, and version controlled
Rotation 3 | **Dr. Sayan Mukherjee |** Efficiently balanced multiple projects from within and outside of the computational toxicology team manner to meet each quarterly deadline. Projects included curating chemical-assay plate data, performing gene expression/enrichment analysis, creating a pipeline to perform a systematic literature search with the goal of curating publicly available data on a compound's bioactivity. Each project was clearly documented, and version controlled

INDUSTRY EXPERIENCE

JANUARY 2017 – August 2017 | **ScitoVation |** Efficiently balanced multiple projects from within and outside of the computational toxicology team manner to meet each quarterly deadline. Projects included curating chemical-assay plate data, performing gene expression/enrichment analysis, creating a pipeline to perform a systematic literature search with the goal of curating publicly available data on a compound's bioactivity. Each project was clearly documented, and version controlled

UNDERGRADUATTE RESEARCH

June 2016 – 2016 | **Prairie Ridge Ecostation, North Carolina Museum of Natural Sciences |** Collected data from both the NC Museum of Natural Sciences and the Smithsonian, used morphometric and genotype data to delimit crayfish species**.** Incorporated machine learning algorithms to automate morphometric analysis and aid in identification of characteristics that can be used to distinguish crayfishes.
June 2016 – August 2016 | **ENBISYS Lab, North Carolina State University |** Wrote a program in R that evaluated the log fold change and false discovery rate of to determine untargeted differentially expressed genes for the lignin biosynthesis RNAseq data.
June 2015 – Dec 2016 **| Biomedical/Biotechnology Research Institute, North Carolina Central University |** Served as a lead statistician on a dynamic team for a research project analyzing growth data, epigenetic data, and genetic data. Created R package, MonoInc, to clean longitudinal data. It flags data that is either outside of a range or non-monotonic and performs a single or weighted imputation. Helped to develop the study design and statistical methodology for a behavioral zebrafish study that modeled fetal alcohol syndrome.
May 2015 – May 2016 **| Meredith College |** *The Implications Associated with the Perceptions of Farmwork and Agriculture* Distributed a survey and used R to analyze the awareness of farmworkers among Meredith College community. Determined the steps to increase awareness the unfair conditions of farmworkers. *A Study of the Risks of Teenage Pregnancy in the U.S.* Conducted statistical analyses to identify risk factors for teenage pregnancy using data provided by the National Survey for Family Growth.
May 2014 – August 2014 **| DREAM STEM, North Carolina Central University |** Under the tutelage of Dr. Goalin – Milledge Analyzed the genetic risk for type-2 diabetes using various statistical tests conducted in R.

Publications

PUBLISHED

Chantel I Nicolas, Kevin Bronson, Salil N Pendse, Alina Efremenko, Jeremy M Fitzpatrick, **Melyssa S Minto**, Kamel Mansouri, Miyoung Yoon, Martin B Phillips, Rebecca A Clewell, Melvin E Andersen, Harvey J Clewell III, Patrick D McMullen. The TTC Data Mart: an interactive browser for Threshold of Toxicological Concern calculations. Computational Toxicology(#). 2020

Patrick D. McMullen, Melvin E. Andersen, Brian Cholewa, Harvey J. Clewell, Katherine M. Dunnick, Jessica K. Hartman, Kamel Mansouri, **Melyssa S. Minto**, Chantel I. Nicolas, Martin B. Phillips, Scott Slattery, Miyoung Yoon, Rebecca A. Clewell, Evaluating opportunities for advancing the use of alternative methods in risk assessment through the development of fit-for-purpose in vitro assays. Toxicology in Vitro (48).2018

Melyssa Minto, Michele Josey, Clarlynda Williams-DeVane. *MonoInc: Monotonic Increasing*. (2016). R package version 1.1. https://CRAN.R-project.org/package=MonoInc

IN PREPARATION

David Gallegos, **Melyssa Minto**, Fang Liu, Aryanna Yousefzedeh, Mariah Hazlett, Greg Crawford, Anne E West. Psychostimulant-regulated transcriptional plasticity in Nucleus Accumbens fast-spiking interneurons. *In Preparation*