JONATHAN W. LAVINGTON

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EDUCATION

University of British Columbia, Vancouver - PhD in Computer Science *September 2018 - Present*
University of Colorado, Boulder - MS in Applied Mathematics *August 2017 - May 2018*
Master's Thesis: "A Probabilistic Modeling Approach to CRISPR-Cas9"
University of Colorado, Boulder - BS in Applied Mathematics *August 2013 - May 2017*
Select Courses: Machine/Statistical Learning, Convex Optimization, Network Analysis, MCMC, Mathematical/Bayesian/Spatial Statistics, Numerical Analysis, Linear Algebra, Probabilistic Programming.

TECHNICAL STRENGTHS

Programming Languages	Python 3/2, Clojure, MATLAB, R/R-Shiny, C++/C
Software & Tools	LaTeX, Tableau, Mathematica, Db Visualizer, Alteryx, KNIME
Database Systems	Hadoop, Oracle, Hive SQL, Oracle SQL

EXPERIENCE

Research Assistant September 2018 - Present
Co-Advised by Mark Schmidt and Frank Wood *University of British Columbia, Vancouver*
· Research focuses on finding more efficient optimization tools for inference based reinforcement learning.

Research Assistant February 2016 - May 2018
Professor Manuel Lladser's Research Group *University of Colorado, Boulder*
· Use machine learning and Monte-Carlo simulation in conjunction with intuitive physical models to create accurate prediction and interpretable heuristics within biological systems. (Matlab, R, Python)

Teaching Assistant September 2017 - May 2018
Applied Mathematics Department *University of Colorado, Boulder*
· One hour of lecturing 1-2 times per week, where I review the course material and then work one on one with students. (Pre-calculus, Calculus 3)

Data Science Intern (Summer) May 2017 - August 2017
Seagate Technologies *Longmont, CO*
· Produced GUI in R-shiny that creates statistical visualizations of driver data for engineering divisions.
· My program queried N-way join data from Hadoop clusters, pushed it to an Oracle server, then dynamically generated and pushed SQL queries built from user picks. Using dynamically queried data, I generated interpretable statistical metrics and visualizations within the GUI for the user. (R, R-shiny, Apache Hive, Oracle SQL)

Data Science Intern (Spring) February 2017 - May 2017
Seagate Technologies *Longmont, CO*
· Performed a software evaluation report that reviewed current citizen data science platforms, as well as statistical visualization and GUI tool boxes. (Alteryx, KNIME, Tableau, R-shiny, SAS)

Marketing Analyst Intern May 2016 - August 2016
Analytic Partners *Broomfield, CO*
· Created and then presented marketing model to maximize ROI via time-series analysis. Work included: data mining, data cleansing, model creation, model validation, and then model presentation. (VBA, R, Excel)

GRANTS/CONFERENCES

UROP Grant: `https://www.colorado.edu/suep/urop/student-grants` (2015)
EXTREEMS-QED Grant: `https://www.nsf.gov/awardsearch/showAward?AWD_ID=1331010` (2016, 2017)
SIAM Conference: Society for Industrial and Applied Mathematics (2016, 2017)

PUBLICATIONS

"A Zipper Model for R-loop Formation in CRISPR-dCas9" (to be submitted) *December 2018*

Investigation and modeling of targeting efficiency within CRISPR-dCas binding systems with respect to changes in the target RNA sequence composition via Markov chains.