Jason M. Knight

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Education

Ph.D. Electrical Engineering, Texas A&M, *Expected:* May 2015. GPA 3.941

B.S. Biomedical Engineering, *Summa Cum Laude*, Texas A&M University, 2009. GPA 3.932

Experience

2009 – 2015 Genomic Signal Processing research under Dr. Edward Dougherty.

Envisioned, implemented, and applied statistical and dynamical models for the modeling and inference of gene regulatory networks. These techniques leveraged hierarchical Bayesian statistical models with advanced Markov Chain Monte Carlo techniques using distributed systems for computation.

2011 – 2015 Next generation sequencing data analysis.

Researched, implemented, and maintained an RNA-Seq data analysis pipeline. This involved the analysis of metatranscriptomic, single-cell, and "typical" RNA-Seq datasets. Additional tools developed include Bayesian pattern detection, barcode Levenshtein distance analysis, and model-based gene quantization.

Select Publications

Jason Knight, Ivan Ivanov, and Edward Dougherty. The Effectiveness of Prior Distributions with Network Models in Systems Biology. *Under preparation*, 2014.

Jason Knight, Ivan Ivanov, Karen Triff, Robert Chapkin, and Edward Dougherty. Detecting Multivariate Gene Interactions in RNA-Seq Data Using Optimal Bayesian Classification. *Under review*, 2014.

Jason Knight, Ivan Ivanov, and Edward Dougherty. MCMC Implementation of the Optimal Bayesian Classifier for Non-Gaussian Models: Model-based RNA-Seq Classification. *Under review*, 2014.

Jason Knight, Laurie Davidson, Damir Herman, Camilia Martin, Jennifer Goldsby, Ivan Ivanov, Sharon Donovan, and Robert Chapkin. Non-invasive analysis of intestinal development in preterm and term infants using RNA-Sequencing. *Scientific reports*, 4, 2014.

Jason Knight, Aniruddha Datta, and Edward Dougherty. Generating stochastic gene regulatory networks consistent with pathway information and steady-state behavior. *Biomedical Engineering, IEEE Transactions on*, 59(6):1701–1710, 2012.

Select Awards and Honors

2010 Innovative Signal Analysis Fellowship

2010 National Science Foundation Graduate Fellowship–Two Time Honorable Mention

2009 Texas A&M Electrical and Computer Engineering Departmental Scholarship

2008 Barry M. Goldwater Scholar – Two Time Honorable Mention

2008 1st place – Mays Business School Consulting Competition

Technical Skills

In approximate descending order of proficiency: Julia, Python, Haskell, Javascript, Linux system administration, C, bash, R, C++, Web design, Scalable Database Design, SQL

Last updated: November 7, 2014