William Michael Landau

About

I am a data scientist, the kind who is a formal a statistician with more computing experience than most of his peers. I like the practical scientific epistemology of Statistics, and I like building tools.

I am also a sailor (wind-powered, not military), a climber, a CrossFitter, and a martial artist.

Contact

- will.landau@gmail.com
- github.com/wlandau
- will-landau.com
- linkedin.com/in/wlandau

Skills

Data Science

Hierarchical models, Bayesian methods, Markov chain Monte Carlo, statistical computing, high-dimensional data analysis, genomics data analysis, exploratory analysis, visualization, linear and nonlinear models, data mining, machine learning, predictive modeling, multivariate analysis.

Education

- PhD Statistics, Iowa State U 2016
- MS Statistics, Iowa State U 2013
- BS Math, U of Chicago 2011

Computing and markup

R, R package development, Rcpp, C/C++, CUDA C/C++, shell scripting, Python, JavaScript, SAS, SQL, AWK, Haskell, Fortran Markdown, LaTeX, knitr, ioslides, HTML, CSS.

Publications

Niemi, J., Mittman, E., **Landau, W.**, and Nettleton, D. (2015), "Empirical Bayes Analysis of RNA-seq Data for Detection of Gene Expression Heterosis," *Journal of Agricultural, Biological, and Environmental Statistics*, 20, 1-15. Available at link.springer.com.

Landau, W. and Liu, P. (2013), "Dispersion Estimation and Its Effect on Test Performance in RNA-seq Data Analysis: A Simulation-Based Comparison of Methods," *PLOS One*, 8. Available at journals.plos.org.

Ratliff, B., Womack. C., Tang, X., **Landau, W.**, Butler, L., and Szpunar, D. (2010), "Modeling the Rovibrationally Excited C2H4OH Radicals from the Photodissociation of 2-Bromoethanol at 193 nm," *Journal of Physical Chemistry*, 114, 4934-4945. Available at ncbi.nlm.nih.gov.

Awards

Student Paper Award: Jan 2016

- American Statistical Association Section on Statistical Computing.
- Awarded for a paper called "A fully Bayesian strategy for high-dimensional hierarchical modeling using massively parallel computing", joint work with Dr. Jarad Niemi.

Iowa State University Department of Statistics

- Vince Sposito Statistical Computing Award, Aug 2013.
- GlaxoSmithKline Industrial Scholarship, Sep 2011.
- Alumni Scholarship, Aug 2011.

Employment: Department of Statistics, Iowa State University

Research Assistant

RNA-sequencing Working Group: Jun 2013 - Aug 2016

- Funded by NIH grant R01GM109458 with Drs. Dan Nettleton and Jarad Niemi.
- Developed a new fully Bayesian analysis method for high-dimensional genomic datasets using hierarchical models.
- Implemented massively parallelized Markov chain Monte Carlo.
- Created the fbseq R package to distribute the analysis method.
- Implemented and distributed parallel computing backends for CUDA GPUs (fbseqCUDA) and OpenMP (fbseqOpenMP).
- Created the workflowHelper package for deploying parallelized reproducible studies with minimal code and minimal redundant computation.

GPU Computing Seminar Series: Aug - Dec, 2012 and 2013

- Educated faculty and graduate students on massively parallel computing with graphics processing units.
- Constructed and distributed slides, video, example code, etc. at will-landau.com/gpu and on YouTube.

Teaching Assistant

Course Instructor: Jan - May, 2012 and 2013

- STAT 305: Engineering Statistics.
- Materials available at will-landau.com/stat305.

Grader: Aug 2011 - Dec 2011

- STAT 231: Engineering Probability.
- STAT 105: Introduction to Engineering Statistics.

Leadership: Iowa State University

- Founder and leader, Cloud Computing Working Group, Sep 2015 - Dec 2015.
- Member, Computation Advisory Committee, Sep 2015 - May 2016.
- Volunteer instructor, Office of Precollegiate Programs for Talented and Gifted (OPPTAG), Mar 13, 2014.
- Fellow, Preparing Future Faculty, Aug 2013 - Jun 2014.
- Assistant Coach, Boxing Club, Aug 2013 - Dec 2013.

References

- Jarad Niemi, PhD advisor and major professor, niemi@iastate.edu.
- Dan Nettleton, lead principal investigator of the RNA-sequencing Working Group (Iowa State Department of Statistics), dnett@iastate.edu.
- Peng Liu, MS advisor and major professor, pliu@iastate.edu.
- Additional references available on request.