thom**lake**

machinelearning **algorithms** statistics

con**tact**

thom.l.lake@gmail.com
2301 Ohlen Rd, Apt 209
Austin, TX 78757
269.779.1495

on**line**

github.com/thomlake
stackexchange: @alto
thomlake.github.io

pro**gramming**

Python
Julia
LaTeX
C
Java
Javascript

mac**hine learning**

Structed Input / Output
Natural Language Processing
Deep Learning
Bayesian Methods
Graphical Models

vis**ualization**

Matplotlib
D3

edu**cation**

2012 - 2015 Masters of Computer Science — Western Michigan University
Thesis: Analyzing Repetitive Sequences with Structured Dynamic Bayesian Networks
GPA: 4.0

2009 - 2012 Bachelors of Science — Western Michigan University
Major: Computer Science **Minor:** Mathematics
Senior Project: Semi-supervised sentiment analysis with noisy labels.
GPA: 3.94, Summa Cum Laude

exp**erience**

2014 - current Atlas Wearables — Austin, TX
Lead Data Scientist
– Design Machine Learning algorithms for exercise classification, clustering, repetition counting, and form analysis
– Implement optimized inference and learning algorithms to run in resource constrained embedded environments

2013 - 2014 Zoetis — Kalamazoo, MI
Consultant, Genetics R&D
– Designed and implemented large scale genotype search algorithms by exploiting metric upper/lower bounds to non-metric similarity functions
– Designed algorithms for probabilistic inference of parent genotypes given known offspring genotypes
– Implemented pipelines for standardizing a variety of semi-structured external data sources by utilizing a combination of statistical natural language processing techniques, heuristics, and limited user input

2013 - 2014 Western Michigan University — Kalamazoo, MI
Research Assistant
– Designed and developed languages, parsers, and implementations of various access control policies (RBAC, MLS, DTE)

2010 - 2013 WMU Risk Avoidance and Mitigation Department — Kalamazoo, MI
Research Assistant
– Developed Machine Learning Algorithms for agricultural disease risk prediction
– Improved recall (true positive rate) through the use of appropriate loss functions and regularization
– Designed cross-validation procedures for spatiotemporal data

2010 Missouri University of Science and Technology Rolla, MO
NSF Undergraduate Research
– Wireless Sensor Network development and simulation
– Unsupervised Outlier detection in limited resource distributed computing environments
– Developed a novel dynamic tree based routing scheme

tea**ching**

Summer 2013 CS 5950 **Machine Learning** Western Michigan University
First offering. Developed course materials, assignments, and lectured. Course was based on Murphy's *Machine Learning a Probabilistic Perspective*.

Fall 2012 CS 2100 **Python** Western Michigan University
Revamped course. Utilized online materials and focused on real world applications.

hon**ors & awards**

2013 Graduate Teaching Excellence Award Computer Science
2011 Presidential Scholar Computer Science
2011 Dean's Outstanding Student Award Computer Science

res**earch**

Baker, K., Lake T., Benston, S., Trenary, R., Wharton, P., Duynslager, L., and Kirk, W. Improved weather-based late blight risk management: comparing models with a ten year forecast archive. *The Journal of Agricultural Science*, 2014.

Baker, K., Williams, J, Lake, T., and Kirk, W. The role of climate normals in crop specific weather forecasts. *Papers presented at the 8th European Federation for Information Technology in Agriculture*, 2011

Lake, T. and Birmingham, R. Collaborative Tree Based Outlier Detection in Wireless Sensor Networks. *Unpublished paper presented at Argonne National Laboratory Undergraduate Symposium*, 2010.