

Teal Hobson-Lowther

Education

2014–2015 **M.S. Electrical Engineering**, *Colorado School of Mines*, Golden, Colorado, 3.919.

Major: Information and Systems Sciences **Minor:** Statistics

2009–2013 **B.S. Physics**, *The Evergreen State College*, Olympia, Washington.

Immersive education focusing on quantum/modern physics and mathematics

Experience

2016–Current **Data Scientist / Full Stack Engineer**, *Ecosify, LLC*, Denver, Colorado.

- ▲ Lead developer for the Social Media Community Analysis prototype (smca.ecosify.com)
- ▲ Node.js (Express) server designed, developed, and currently maintained on AWS EC2
- ▲ Maintain multi-node Cassandra cluster for medium-large sets (~100GB) of scraped Twitter data
- ▲ Mobile-first, responsive front end written in Angular, D3, and DC
- ▲ Twitter API streaming / processing scripts coded in Python

2014–2016 **Full Stack Developer**, *Coordinate Solutions*, St. Augustine, Florida.

- ▲ Collaborated with an international team to provide web solutions catered toward oil and gas regulatory / environmental conservation agencies ([Coordinate Solutions](http://CoordinateSolutions.com))
- ▲ ASP.NET MVC framework, with HTML / CSS / JavaScript (Angular, jQuery, D3) frontend and MySQL backend
- ▲ Performed the UI rehaul of the Utah Department of Natural Resources Oil, Gas and Mining ([UTDM UI](http://UTDMUI.com)) and OCC Well and Seismic Monitoring ([OWSM](http://OWSM.com)) dashboards
- ▲ Visualized the growth of St. Augustine, Florida by mapping the annual land parcel sales over time ([site](#) ▽ [src](#))

Technical Skills

Machine Learning	Naive-Bayes Classifier, Support Vector Machines (soft/hard margin), Logistic Regression, Neural Networks (classification, time-series prediction), Clustering (K-Means)
Statistical Computing	Random variable simulation, Estimation, Monte Carlo, Importance Sampling, EM algorithm, Bayesian Methods, MCMC
Signal Processing	Matrix decompositions (PCA, SVD, Cholesky, QR, etc.), Fourier analysis, Wavelets, Adaptive Filtering
Image Processing	Transformations (Spatial/Intensity, 2D/3D), Morphological Processing, Filtering (Spatial/Frequency Domain), Edge Detection, Restoration, Pose Estimation, Pattern/Object Recognition

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Relevant Projects

- Machine Learning**
- ▲ Neural Networks and Naive-Bayes Classifiers for Human Activity Recognition from 3-Axis Accelerometer Data. [pdf](#) ▽ [src](#)
 - ▲ Neural Networks for Wind-Speed Prediction. [pdf](#) ▽ [src](#)
 - ▲ Naive-Bayes Classifier for Bag-of-Words Text Document Classification. [pdf](#) ▽ [src](#)
 - ▲ Predictive Modeling in the Economic Sphere. [pdf](#) ▽ [src](#)

Languages

- Machine Learning** MATLAB (Image Processing, Statistics/Machine Learning, and Neural Networks Toolboxes), R, Python, C++ (OpenCV)
- Front End** JavaScript (Angular, D3, DC, Knockout, Handlebars, jQuery, Leaflet, Three), HTML, CSS (Bootstrap)
- Back End** Python, MySQL, Cassandra, Amazon AWS, MongoDB, Node.js (Express, Passport), ASP.NET MVC
- Mathematics** Linear Algebra, $\text{Calc}_{\text{bland}}$ (I,II,III), $\text{Calc}_{\text{tangy}}$ ($\vec{x} \in \mathbb{R}^n$, Optimization), (Non-)Linear Differential Equations, Bayesian/Frequentist Statistics, Probability Theory
- IDE/Misc** Git, Bash, Cmd, VisualStudio, Qt, Arduino, Processing, Final Cut, Photoshop, Ableton Live, Max/MSP

Interests

- Music** Multi-instrumentalist (keys, drums, guitar, bass, a spot of trumpet) and home-studio level jazz/electronic producer.
- Obscure Science** Skeptical collector of eccentric/subdued/controversial scientific philosophy and self-proclaimed Pythagorean.
- Inventing** Frequent developer of novel methods to solve problems. While a few managed to make it from my head into objective reality (3-D Audio Panner, Arduino Theramini), others never quite seemed to make it (Living Light, Magnetic Induction Hourglass). This is fine with me, the inventing is often the most fun part!

References

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