

## **Fisseha Berhane, PhD**

Data Scientist at [Aurotech](#)

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Regular writer for [DataScience+](#) and [R-bloggers](#)

### **Current Employment**

Data Scientist at [Aurotech](#)

Sep 2015-

Developing Analytic and machine learning dashboards with R, SparkR, R-Shiny and Tableau

Some prototypes I developed:

- Predicting drug recall potential using various machine learning techniques and various data sources  
Architecture diagram available [here](#)
- Interactive drug adverse event knowledge discovery with R and Shiny using unsupervised machine learning techniques  
Cleaned and merged lots of adverse event datasets and stored them in a database.  
Developed an R-shiny application that clusters (using optics and hierarchical clustering) drug adverse events to discover new insights interactively.  
Architecture diagram available [here](#)
- Real-time tracking of disease outbreaks using social media with R and Tableau  
Created a complete pipeline that automates social media data collection, cleaning and processing, sentiment analysis, trend analysis and creates a Tableau dashboard  
Architecture diagram available [here](#)
- R-Shiny dashboard API that helps to download the FDA adverse events data  
Created an API that helps users to download data based on search query from the FDA adverse events database
- Social media mining to track natural hazards at real-time  
Created a Tableau dashboard that helps to track flooding
- Google Trends Analytics with R-Shiny  
Created an R shiny application that closely listens to google search trends and identifies anomalies in disease related google searches.

### **Education**

<i>Johns Hopkins University</i> , Baltimore, MD --- Ph.D. in Atmospheric Physics	2016
<i>Johns Hopkins University</i> , Baltimore, MD ----M.A. in Atmospheric Physics	May 2013
<i>University of Connecticut</i> , Storrs, CT -----M.S. in Hydro-climatology	May 2011
<i>Mekelle University</i> , Ethiopia -----B.Sc. in Civil Engineering	June 2006

### **Research Positions**

*Graduate Research Assistant*, Department of Earth and Planetary Science, Johns Hopkins University, Baltimore, Maryland. August 2011 – 2015

- Built semi-automated rainfall prediction models for the globe, with various machine learning techniques such as Tree-based ensemble models (**Bagging**, **Random Forest** and **Boosting**), **Support vector Machines** and **Artificial Neural Network**, with **R (Shiny)**, HTML, JavaScript, and CSS.
- Employed various Machine Learning techniques, statistical analysis and data mining methods using **Python** and **R** to understand interactions of atmospheric waves and their impacts on rainfall using large volume climate data.
- Analyzed large volume climate data, using **Python** and **R**, to investigate future climate conditions
- Completed many side-projects on big data using **Spark** (e.g., movie recommendation, web server log analysis, text mining and entity resolution and click-through prediction; available on my [website](#))
- Worked on many other side-projects using **R** (available on my [website](#))
- In addition to the data science courses I have done in grad school, I have taken more than 20 edx, coursera and Udacity data science courses (including data science specialization from Johns Hopkins University and big data XSeries from Berkeley) with **R**, **Spark**, **Python**, **Matlab**, and **Hadoop and MapReduce** (certificates on my [website](#))

*Graduate Research Assistant*, Department of Natural Resources and the Environment, University of Connecticut, Storrs, CT 2009 – May 2011

- Built and evaluated a model that predicts Nile River flow. Further, examined possible impacts of climate change on river flow using different climate scenarios.
- The main tools I used in this study: **R**, **Python** and GIS.

### **Publications and Presentations**

Three peer-reviewed publications in the Journal of Climate (JCL), which is among the most prestigious Journals in Atmospheric Science, one in preparation and a master's thesis. More than 12 presentations, including in prestigious international conferences such as the American Geophysical Union (AGU) and the American Meteorological Society (AMS).

### **Teaching Experience**

*Teaching assistant (TA)*, Department of Earth and Planetary Science, The Johns Hopkins University, Baltimore, Maryland. Spring 2013  
*Assistant Lecturer*, Department of Civil Engineering, Mekelle University, Ethiopia 2006-2009

### **Skills**

Python, R, Matlab, Spark, MySQL, T-SQL, Teradata, Tableau, Ferret, NCL, HTML, CSS, JavaScript, Hadoop (familiar), MapReduce (familiar).