

# Matthew Plourde

## WORK EXPERIENCE

APRIL 2011 – PRESENT

### Analyst & Software Developer

*Sci-Tek Consultants, Philadelphia Office of Watersheds*

During my time at the Office of Watersheds I've serviced the data management and analysis needs of water resource engineers across several specialized teams. My projects have included

- a web-based quality assurance and analytics platform used by engineers to manage, evaluate, and draw insight from stormwater infrastructure monitors and metrics (R, Shiny Server, PostgreSQL, Amazon Web Services)
- a fully concurrent version control system for hydrodynamic models, which includes tools for generating, comparing, and merging such models through a graphical interface (Python, SQLServer)
- text parsers to validate and summarize complex, semi-structured data
- a statistical calibration application for hydrodynamic models (R)
- signal processing tools for decomposing, analyzing, and extrapolating tidal signals in the Delaware River (Octave)
- a three dimensional dispersion rate estimator for river pollutants (R)
- several report generation tools (R, Sweave, knitr)
- numerous ad-hoc databases, post-processors, and data visualization tools (PostgreSQL, Python, R)

## EDUCATION

- 2006 – 2011 **BS Mathematics**  
*Drexel University, Philadelphia*
- 2004 – 2006 **Linguistics, Philosophy**  
*Temple University, Philadelphia*

## PUBLICATIONS

- 2012 **Geoprocessing Tools for Surface and Basement Flooding Analysis in SWMM**  
*White, Knighton, Martens, Plourde, Rajan; Pragmatic Modeling of Urban Water Systems, Monograph 21*

311 N Randolph Street, Apt 4  
Philadelphia, PA 19106  
(484) 332 0087  
plourde.m@gmail.com

## COURSES AND EXAMS

- 2014 **Machine Learning, Coursera**  
*Neural Nets, SVMs, PCA, K-Means*
- 2011 **Actuary Exam P/1**  
*Applied probability*

## PRIMARY TECHNOLOGIES

- EXPERIENCED R, Python
- EFFECTIVE SQL (SQLServer, PostgreSQL), Regular Expressions, Vim
- COMFORTABLE Ubuntu Server, git,  $\LaTeX$ , Octave
- LEARNING Javascript, HTML5/CSS, Amazon Web Services, Apache Spark

## SOFTWARE LIBRARY EXPERIENCE

- R ggplot2, Shiny, data.table, dplyr, RODBC, testthat, devtools, rgdal, sp, knitr, grid, gridSVG, SparkR, caret
- PYTHON itertools, SQLAlchemy, arcpy, scipy, sqlite3, unittest, psycopg2, wxPython, matplotlib
- OCTAVE signal

## HOBBIES & INTERESTS

- Machine learning, signal processing
- Music theory
- Classical guitar
- Go
- Fly fishing
- Archery
- Providing support for the R language on [stackoverflow.com](http://stackoverflow.com)