

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

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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

- Classical guitar
- Providing support for the R language on stackoverflow.com