

Marie T. Rivers, PE

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SUMMARY OF QUALIFICATIONS

- Data science skills with Python, R, and SQL plus strong environmental domain knowledge
- 10 years of engineering consultant experience focused on hydraulic modeling and water resources
- Master's degrees in both data science and engineering
- Strong experience analyzing, modeling, visualizing, and communicating environmental and spatial data

EDUCATION

Master of Environmental Data Science (June 2022)

Bren School of Environmental Science & Management – University of California, Santa Barbara (UCSB)

Highlighted Coursework: Scientific Programming, Remote Sensing, Statistics, Spatial Analysis, Machine Learning, Data Visualization, Environmental Policy Evaluation, Modeling Environmental Systems, Text and Sentiment Analysis, Ethics and Bias in Environmental Data Science

Master of Science in Environmental Engineering (May 2011)

Department of Civil and Environmental Engineering – University of Massachusetts, Amherst

Thesis: Annual, Monthly, and Storm Scale Analysis of Chloride Fluxes from Highway Deicing Agents to the Cambridge Reservoir

Bachelor of Environmental Engineering (May 2009)

Department of Civil and Environmental Engineering – University of Delaware, Newark

Concentration: Water Resources and Water Quality

Minors: Civil Engineering and Geology

DATA ANALYSIS EXPERIENCE

Masters Capstone: Improving Usability of Remotely Sensed Snow Data Through Web Based Visualizations and Tutorials (1/22–6/22)

Role: Data Manager | Client: UCSB Earth Research Institute

- Developed an interactive web application to visualize snow cover and albedo data
- Wrote technical documentation and reproducible tutorials to aide water managers, researchers, and outdoor enthusiast access data of spatial and temporal interest
- Analyzed historic snow cover statistics from remote sensing data (HDF5 format) to calculate anomalies and inform present day trends
- Presented data products to client and stakeholders to incorporate feedback into final deliverables

EXPERIENCE

Water Resources Engineering Professional Associate – Jacobs Engineering, Boston, MA (1/20–7/21)

- Managed a combine sewer overflow program by reviewing regulatory requirements, writing compliance reports and advising the city on measures to reduce flow in combined sewers
- Modeled proposed scenarios using WaterGEMS software to evaluate infrastructure upgrades, operational changes and pipe configurations to improve water quality and resiliency for a municipal water utility
- Presented the hydraulic effects of water storage changes using model outputs, graphs and maps to inform decision makers within a municipal water utility
- Completed a spatial analysis using ArcGIS and stakeholder input to identify new water infrastructure sites
- Authored a training manual for a Certified Professional in Water Pollution Control program focused on methods used to monitor, model, control and remove pollutants from surface water and pollution sources

EXPERIENCE (Continued)

Principal Engineer – Hazen and Sawyer, Boston, MA (11/17–1/20)

- Prepared technical memoranda, design plans, technical specifications, health and safety plans and inspection reports for water infrastructure design and rehabilitation projects
- Coordinated project status, budget and schedule with project team, client contact, and contractor
- Created Geographic Information System (GIS) maps and summary tables using ArcGIS and Excel for reports and client presentations
- Cowrote responses to Request for Proposals to secure project work with existing and new clients

Project Engineer – Tata & Howard, Marlborough, MA (6/11–11/17)

- Built, calibrated and verified over 10 hydraulic models in WaterGEMS and InfoWater software using historic records, GIS data and hydrant flow tests to allow clients to evaluate existing and future conditions
- Modeled 20+ water distribution systems to provide water utilities with solutions to hydraulic deficiencies
- Wrote water distribution system reports to communicate existing and future conditions, critical components, prioritized infrastructure replacement recommendations, and multi-decade budget estimates
- Designed over 40,000 feet of new and rehabilitated water main projects to improve reliability of community drinking water distribution systems

ADDITIONAL EXPERIENCE

Research Assistant – UMass Environmental Engineering Department, Amherst, MA (6/09–5/11)

- Modeled transport of road salt in stormwater runoff from highways to water supply reservoirs using continuously logged water quality data and Microsoft Excel Visual Basic to quantify pollutant loading

Engineering Intern – Geosyntec Consultants, Acton, MA (6/08–8/08)

- Quantified infiltration rates for porous pavement, bioretention cells, and raingarden systems to monitor Low Impact Development system performance

Water Resource Intern – Delaware Water Resource Center, Newark, DE (9/07–5/08)

- Analyzed groundwater field data and modeled groundwater flow in an unconfined aquifer

Engineering Aide – Massachusetts Dept of Environmental Protection, Worcester, MA (6/06–8/06, 6/07–8/07)

- Assisted in writing Water Quality Assessment Reports and prepared GIS figures for selected watersheds to document environmental conditions

LICENSES AND CERTIFICATIONS

Professional Civil Engineer, Water Resources – MA License # 51946

OSHA 10 Hour

CONFERENCE PROCEEDINGS

Rivers, Marie and Marc Morin. (2019), "An Alternate Approach to Painting and Structural Improvements to the Bellevue 2 Steel Water Tank" New England Water Works Association 138th Annual Conference, September 22-25, Rockport, Maine. (conference proceeding)

PUBLICATIONS

Rivers, M.T. 2011 (Masters Thesis). Annual, Monthly, and Storm Scale Analysis of Chloride Fluxes from Highway Deicing Agents to the Cambridge Reservoir. University of Massachusetts, Amherst.

TECHNICAL AND PROJECT MANAGEMENT SKILLS

Programming, Coding & Data Analysis: R, Python, SQL, Git (GitHub), PostgreSQL, ArcGIS, Google Earth Engine, Tableau, data visualization, machine learning, remote sensing, markdown, hydraulic modeling

Project Management & Computing: Microsoft Office Suite (Word, Excel, PowerPoint), Zotero, Slack, ZenHub