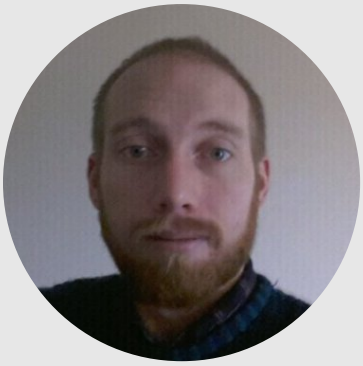

Andy

Research Engineer

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Bio

Andrew Upton is a final year STREAM research engineer from Cranfield University working within Scottish Water to improve the performance of water treatment assets. Before starting his doctorate Andy was working as a laboratory scientist in water companies whilst studying part-time for his MSc in Water and Environmental Management. A data science and water innovation enthusiast, he enjoys discovering and communicating insights gained from data and advocating for improvements based on evidence. Andrew is due to graduate in September 2017 and is interested in hearing about opportunities to work with data in the water sector.

Memberships

American Water Works Association, Member(student)
Institute of Water, Member(student)

Registrations

National Water Hygiene Card
Distribution Operations Maintenance Strategy

Interests

Travel, Sea Kayaking, Hill Walking

education

since 2013 — STREAM EngD candidate in Water Engineering — Cranfield University
Designing water treatment process robustness tools

2010-2013 — M.Sc. part-time — University of Hertfordshire
Water and Environmental Management

2003-2006 — B.Sc. — Southampton University
Environmental Science

experience

since 2013 — STREAM Research Engineer — Cranfield University and Scottish Water

I have been working in the innovation department at Scottish Water to develop methods to reduce the turbidity of filtered water from rapid gravity filters at water treatment works. This has involved working with operators, process scientists and asset planners to identify performance improvements to water treatment works. As well as reporting internally within Scottish Water, I have presented at two international conferences. The key areas of investigation are:

- Developing novel methods for the performance assessment and operational diagnostics of rapid gravity filters using on-line data
- Improving to the understanding of filter performance through examining relationships between turbidity particle counts and cells under challenging operational conditions
- Development of tools for monitoring floc properties on-line including
- Development of methods to use new on-line measurements of floc properties for optimising particle aggregation and separation processes

Delivering the project has allowed me to develop additional technical skills including:

- programmatic and reproducible data analysis and machine learning using the R statistical programming environment including the development of interactive data products and automated reports using shiny and markdown
- handling large datasets with SQL
- scientific computing and control automation using Python
- git version control

2011 - 2013 — Scientist and Sampler — Scottish Water (Scientific Services)

Initially I was employed through an temping agency for preparation of samples for routine metals analysis where I removed a time consuming manual task by integrating the laboratory database with the instrument software via an excel macro. I picked up additional hours within the project sampling team collecting from Scottish Water sites. Later I was employed directly by Scottish Water within the organics department preparing and analysing samples by gas chromatography mass spectrometry.

2009 - 2011 — Assistant Scientist — Wessex Water

This role primarily involved preparation and analysis of water and waste water samples using physical inspection methods, wet chemistry and inductively coupled plasma mass spectrometry. In addition to routine analysis I developed new systems and processes for handling deviating samples to implement the evolving requirements of the quality system accrediting body.

2006 - 2009 — Various temporary and casual positions — UK and New Zealand

During this time I took a range of temporary jobs between periods of travel. Positions included: shift chemist at a gold mine, quality assurance scientist at pharmaceutical and cosmetics factories, safari park warden, farm worker and shop assistant. Working in a diverse range of teams and organisations has developed my ability to work flexibly and adapt quickly to deliver excellent customer service.