Dr Adam R. **Symington**

07460367765 | symmy586@gmail.com | symmy596 | adam-symington

Developing an international research and leadership profile in data science through fundamental research and collaborations. Interested in developing sophisticated analytical techniques and improving the understanding of the world using data-driven methods. Driven by a collaborative approach to research. Experienced scientist and developer of open source software, passionate about engaging others in scientific research and practice.

Career Summary

Data Scientist

Bristol, UK

Geollect

October 2020 - ONGOING

- I build and maintain the backend software of our vessel tracking system, Geonius. This involoves using AIS data to detect the suspicious activity of vessels e.g. close proximity of two ships.
- Since starting I have built a database of all 'suspicious' events in the global fleet of registered vessels. To do this I developed a system that takes all of the AIS data that is recorded each day and analyses is to find suspicous events. While there are a number of business use cases for this data, I have applied machine learning this dataset of past events in order to predict the occurance of future events.
- I conduct data led intelligence investigations in conjunction with the geospatial intelligence team. These include searching for vessels in close proximity to illegal activities or assesing the flow of cargo into and out of ports.

Postdoctoral Reasearch Associate

Bath, UK

Universtiy of Bath

January 2020 - October 2020

- Developing computational simulation and analysis techniques to aid in the prediction and discovery of new Li-ion battery cathode materials.
- Utilised machine learning models to predict the properties of cathode materials.
- Secured funding to hire a junior research associate to assist me with my research.

Postgraduate Teaching Assistant

Bath, UK

University of Bath

October 2016 - January 2020

- Throughout the duration of my PhD I have taught undergraduate chemists how to program, specifically focusing on high level programming in **Python** and low level programming in **fortran**.
- I developed a new masters level course focusing on using **Python** programming to better understand and make predictions about the behaviour of materials.
- Part of an ongoing project to develop a new masters course focusing on teaching students how to use **Python** in data analysis.

Maths for Chemists Lecturer

Bath, UK

University of Bath

October 2016 - January 2020

- Delivery of workshops in fundamental mathematical concepts for chemists, ensuring that all chemistry first year students had a consistent mathematical background.

Research Associate

Bath, UK

University of Bath

June 2015 - October 2015

- During the summer of 2015 I worked undertook a computational research project funded by the CCP5 organisation where I used simulations to predict the effects of heavy metal pollutants on the environment.

Computational Skills

Programming fluency & Software familiarity

Languages Python (Sklearn, Numpy, Scipy, Pandas, Geopandas, Matplotlib), SQL, FORTRAN90, HTML/CSS, Julia, Shell

Software AWS, Docker, Git, Jupyter-Framework, Continuos Integration (Jenkins, Travis)

Skills Unix, Bash scripting and basic system administration

Software development

surfinpy surfinpy is an open-source Python library to facilitate the analysis and visualisation of large scale simulation data. surfinpy has been published in the Journal of Open Source Software (Symington et al., J. Open. Source Soft. 4, 1210, 2019).

polypy polypy is an open-source Python library designed to analyse molecular dynamics simulation data. polypy is built to read large datasets associated with molecular dynamics trajectories and from these produce insightful statistical information. polypy has been used in five pieces of peer reviewed research to date and is being peer reviewed by the journal of open source software.

Education

PhD - Computationa Chemistry / Physics

Bath, UK

University of Bath & Atomic Weapons Establishment

October. 2016 - January 2020

- Undertook a PhD supervised by Prof. Steve Parker on computational studies of interfaces in materials.
- Developed computational methodologies to predict the properties of nuclear materials.
- Implemented high-performance optimisation & sampling algorithms to rationalise simulation data.
- Developed new open source analysis software, which I used to discover trends in large datasets.
- Highly succesful project which produced 16 published research papers, 6 awards and presentations in the UK, Europe and the USA.

MChem - Chemistry with Drug Discovery

Bath, UK

University of Bath

October 2012 - June 2016

- Degree Classification: **II:I**

Interests

- I run a twitter page called PythonMaps where I share interesting maps that I have generated from open source geospatial data.
- I have played cricket as a member of several clubs since the age of 8. I was the captain of my local club and a coach for the junior divisions.
- I am a keen cyclist in my spare time and in 2018 I participated in a charity cycle between Lands end and Bristol, raising £4000 for the MS society.
- I play golf and worked as a senior golf caddy throughout secondary school and university.