

Dr William Sayers

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PROFILE

Senior lecturer at the University of Gloucestershire, developing courses and learning experiences, and undertaking extensive research. Graduated with a first-class degree in Computer Games Development and followed with a Doctorate of Engineering, focusing on machine learning and optimisation algorithms applied to water engineering modelling. Technical experience in programming, machine learning, secure systems, data analysis, decision support and data-warehousing.

SKILLS

Academic Skills	Teaching at undergraduate and postgraduate levels, module & curriculum design, PhD transfer review, research paper review, project supervision, student guidance
Programming/Markup Languages	C#, Python, Cython, C++, C, Powershell, JavaScript, HTML, CSS
Programming Frameworks and Libraries	.NET Framework, .NET Core, ASP.NET, Entity Framework, NancyFX, WebAPI, PyTorch, TensorFlow, FastAI, Scikit-learn, Unity Engine
Data	MS-SQL, LINQ, .NET Stored Procedures, Cloud object storage, NOSQL
High-level Skills	Programming, Artificial Intelligence, Machine Learning, Optimisation Algorithms, Data ETL/Warehousing, Systems Administration
Other Skills	Project Leadership, Network and System Administration

CURRENT ROLES

Senior Lecturer & Researcher

Sept. 2016 – Present

University of Gloucestershire, School of Business and Technology, Creative Computing

Teaching: Teaching on six undergraduate level modules. Covering linear algebra and calculus, C++ games programming, C# games programming, popular games engines, games design and web technologies. Supervisor for group projects, individual research projects, research placement students. PhD supervisor and personal tutor activities.

Research: Conducting research on the application of deep learning technologies as meta-heuristics in multi-objective optimization algorithms for real-world engineering problems. Collaborating on research on the use of random numbers for secure medical device communication. Collaborating on paper authorship with a number of other researchers both internal and external to the University of Gloucestershire. Engaging with the wider research community as editor and reviewer for several journals (most recently, Urban Water Journal and the Journal of Open Research Software). Conducting PhD transfer reviews. Providing technical guidance within the University on blockchain authentication project.

Leadership: Module leader on five undergraduate modules. Supervisorial role with PhD students. Leading the development of an “Applied Artificial Intelligence” BSc. Course, and a “Data Science” degree apprenticeship; potential course leader for the same. Future plan academic lead for Creative Computing subject community.

Associate Editor

Feb 2019 - Present

Journal of Open Research Software (JORS)

Undertaking editorial and review responsibilities as part of engagement with the wider academic community.

Company Director

May 2018 – Present

Datascape Ltd.

Undertaking short term data science and software development consultancy contracts with a range of businesses.

PAST ROLES

Software Engineer

May 2014 – Sept. 2016

University of Oxford, MMM/BRC Group

Responsible for the design, development, administration and implementation of multiple secure data-warehousing solutions. Other responsibilities in this position: Linux & windows system administration; involvement in Apache Cassandra database development; advising on server hardware purchasing; hardware installation and setup within secure server room; and developing a distributed data analysis system in Python.

Jnr. Programmer

Sept. 2013 – May 2014

SCISYS Plc.

Dealing with militarily sensitive data and aiding in the on-premises roll-out of military software systems. As part of this position, attained security check cleared (SC) status with the UK Government.

Research Engineer

Oct. 2009 – Feb. 2013

HR Wallingford Ltd.

Undertook research project and related projects linked with EngD doctorate.

QUALIFICATIONS

Post-graduate Certificate in Academic Practice (Merit)

2016 - 2018

University of Gloucestershire

A post-graduate certificate in academic practice for teaching within higher education.

Doctor of Engineering

2009 - 2013

University of Exeter, College of Engineering, Mathematics and Physical Sciences

Developed an adaptation of an optimisation algorithm to use artificial neural network-based machine-learning meta-models to improve performance of the optimisation algorithm in terms of several different analytics. Analysed rainfall events and developed methodology for selecting a suitable sub-set of rainfall event data to be utilised during the execution of a drainage model for urban flood risk optimisation.

BSc. Hons. Computer Games Development (1st)

2005 - 2009

University of Glamorgan

Undertook various modules with a strong focus on C++ programming, Computer Graphics and mathematics.

PUBLICATIONS & DISTINCTIONS

In press

Sayers, W., Savić, D., Kapelan, Z., 2019. Performance of LEMMO with artificial neural networks for water systems optimisation. *Urban Water Journal*.

Doctoral thesis

Sayers, W., 2015. Artificial Intelligence Techniques for Flood Risk Management in Urban Environments (EngD). University of Exeter, Exeter, UK.

Conference Paper (Published in special issue *procedia engineering*)

Sayers, W., Savić, D., Kapelan, Z., Kellagher, R., 2014. Artificial Intelligence Techniques for Flood Risk Management in Urban Environments, in: *Procedia Engineering*. Presented at the 12th International Conference on Computing and Control for the Water Industry, Perugia, Italy, pp. 1505–1512. <https://doi.org/10.1016/j.proeng.2014.02.165>

Fellow of the Higher Education Academy (2018 – Present)

Won internal funding for “Deep learning meta-models for water systems optimisation” project.