Dr Neil Swainston

BSc (Hons) MSc PhD MRSB MRSC

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Summary

- Scientific software engineering and data science in academic and commercial environments.
- Proficient in full-stack software development in Python, Java, Javascript and related technologies.
- Highly experienced in working in interdisciplinary teams.
- BSc Chemistry with Industrial Experience (first); MSc Computing Science; PhD Computer Science.
- Team Leading and Project Management in industry.
- International work experience in Germany and France.
- Conference organising experience.
- Multiple successful grant applications (>£1.9M funding).

Computational and software development skills

- Languages: Python, Java, Matlab, C/C++.
- Web and API development: Javascript, AngularJS, Bootstrap, Flask, ajax, JQuery.
- Data science: numpy, scipy, pandas, scikit-learn, keras.
- Cloud computing: Google Compute Engine.
- Data management: XML, JSON, relational, XML and graph (neo4j) databases.
- Software engineering: source code control (svn, git), build and deployment scripts (ant, Maven, Docker), software design with UML.
- Operating systems: OS X, Windows, Linux.

Employment

06/17-   **GeneGenie Bioinformatics Limited** Freelance Software Developer

- *Eigen Ltd., Leatherhead, UK*. Development of a Neo4j graph database solution to support oil rig project management systems. Involved working with the client and a distributed team of developers to port an existing relational database to an expanded Neo4j-based solution. Technologies used: Neo4j, Cypher, SQL, Python, Java.
- *YouSeq Ltd., Southampton, UK.* Development of a web-based system for DNA design and DNA sequencing data analysis. Involved frequent meetings with the client, which as a start-up had dynamic requirements. Technologies used: Python, Flask, AngularJS, Bootstrap.
- *Augmented Insights, Inc. Greenwich CT, USA*. Development of a proof-of-principle graph database to integrate nutritional data from a range of sources. Technologies used: Neo4j, Cypher, Python.
- *Upwork*. Numerous short-term contacts with on-line contract agency. Currently Top-Rated developer with 100% Job Success score and consistently positive feedback (see https://www.upwork.com/fl/neilswainston).

07/19 -   **University of Liverpool** Senior Research Associate
                 Institute for Integrative Biology

- Development of an integrated, cloud-based web-application to support DNA design and automated assembly, integrating with lab-based robotic systems. Involves full-stack development, with backend in Python, web-service development in Flask, UI development with AngularJS and Bootstrap, and cloud deployment with Docker on Google Compute Engine.

04/06 – 06/19   **Manchester Institute of Biotechnology** Senior Experimental Officer
                 Centre for Synthetic Biology of Fine and Specialty Chemicals (SYNBIOCHEM)

- Development of web-based software and scripts to support synthetic biology and industrial biotechnology research. Involved working with a team of interdisciplinary researchers to produce software support for the development of cell factories for chemical production.
- Mathematical modelling of biological systems. Involved development of linear and ODE models to simulate metabolism in human, yeast and bacterial cells. My role involved co-leading an

international team of scientists to produce "the Google Map of human metabolism" (see https://www.wired.co.uk/article/map-of-human-metabolism).

- Raised ~£1.9 million in funding across a range of projects.

- Publicly available source code available at https://github.com/neilswainston.

04/99 – 04/06   **Waters Corporation** Bioinformatics Team Manager

- Commercial software development, as applied to scientific software development for a leading multi-national laboratory equipment company.

- Involved development of desktop and web-based applications for analytical chemistry data analysis. Technologies used: Java, Javascript, Visual C++.

- My role progressed from software engineer, through to a team leader and ultimately a project manager, directly managing a group of five people and being responsible for a software release involving the work of nine developers.

- This role was interdisciplinary, covering all facets of the software development life cycle, from requirements gathering, software design, development and documentation, though to testing and support. Due to the focus on requirements gathering from users, and providing software support, I was frequently involved in customer site visits, user training, and conference speaking; tasks which greatly developed my skills of collaborating across scientific disciplines.

10/98 - 04/99   **AstraZeneca** Graduate Trainee

- Graduate Trainee in IT problem management and data analysis.

09/94 - 08/95   **Dow Chemical Company, Stade, Germany** Student Placement

- Year-long placement in a varied role involving analytical chemistry. Duties involved lab research, plant visits, provision of analytical chemistry support, and development of a searchable database resource of spectra of chemical standards, presentation giving in both English and German.

Education

03/12	**PhD** "Systems biology informatics for the development and utility of genome-scale metabolic models". *University of Manchester*
09/97 – 10/98	**MSc Computing Science** *University of Newcastle-upon-Tyne; IRISA, Rennes, France.* Year-long conversion course including MSc project in bioinformatics, undertaken in Rennes, France.
09/92 – 06/96	**BSc (Hons) Chemistry with Industrial Experience** *University of Manchester* First class honours; industrial experience in analytical chemistry with Dow Deutschland Inc., Stade, Germany.

Courses and training

- **University of Manchester**: Practical project management; Collaboration: the hidden research skill; Communicating with your teams; Getting the best out of yourself and others; Coaching and mentoring skills; Practical application of supervision skills.
- **Coursera**: Introduction to Genetics and Evolution; Calculus One; Astrobiology and the Search for Extraterrestrial Life; Machine Learning.
- **Peter Kenyon**: The Front-Line Manager.
- **Pentland Training**: Project Management Fundamentals.