Sam Spedding – Curriculum Vitae

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PERSONAL PROFILE

WIP

EDUCATION

Mathematics (MSci, Integrated Masters), University of Bristol   **2017 – 2021**
First-Class Honours: Years 1 - 3 average: 86%,   Year 4 Average: 89%

- Focussed on applied topics such as fluid dynamics, differential equations and general relativity
- Fourth-year research project: Hydrodynamics of Swimming Bacteria, Supervisor: Prof. Tanniemola B. Liverpool
    - Used numerical, asymptotic and exact methods for solving Stokes' fluid flow around a cylindrical bacterium, and adapted hydrodynamics of liquid crystals to model a bacterial colony
- Third-year research project: Simulating Crowd Dynamics.
    - Used Python to numerically analyse data from a crowd simulation made in C++
- Open unit in Bioinformatics and Genomics, analysing DNA sequences in MATLAB. Discovered the killer whale is in fact a dolphin.

Hereford Sixth Form College   **2015 – 2017**

- A Levels: A* A* A* A* in Maths, Further Maths, Physics and Spanish
- Distinction in British Mathematical Olympiad 2017 (top 250 participants nationwide)

Wigmore High School   **2010 – 2015**

- GCSEs: 6 A*s (including Maths and English Language); A** (in Further Maths); 3 A's

WORK EXPERIENCE

C++ Software Engineer   **March 2022 – Present**
Datamine Software Ltd., Bristol

- Develop cutting edge software used for geological modelling in the mining industry using C++.
- Conceptualize and develop back-end algorithms for processing field data to create accurate geological models. Created a unique tool to model geological faults and visualise them in 3D.
- Work with product owners to design and implement interactive, attractive UI.
- Personally responsible for key architecture and design decisions of a brand new desktop product.
- UI developed within the MFC framework for Windows desktop applications, utilizing the BCG library for a modern MS Office-like look-and-feel.

Graduate Software Engineer   **August 2021 − March 2022**
Micro Focus − IDOL Connectors Team, Cambridge

- Develop tools in C++ that connect to a wide variety of online data repositories and extract both structured and unstructured data.

- Self-taught C++ and modern, industry-standard coding techniques on the job and am acquiring new skills from fellow team members and online resources on a daily basis.

- Have gained confidence with working with large amounts of unfamiliar code. Acquired experience in both fixing existing code and developing new features, such as the Zoom Connector.

Online A-Level Maths and Further Maths Tutor   **2018 − 2021**
mytutor.co.uk/tutors/92167/

- Built friendly but professional relationships with tutees and their parents, schedule and plan lessons, and tailor my teaching and communication styles to suit the needs of the pupil and build confidence.

- 5-star average rating from over 100 reviews from tutees, having completed over 400 lessons.

APDE Maths Café Leader   **2019 − 2021**
School of Mathematics, University of Bristol

- Ran the drop-in session for Year 2 module 'Applied Partial Differential Equations', and provided hints, tips and solutions to homework problems, as well as peer-to-peer support for students seeking advice.

Group Research Studentship   **Summer 2020**
School of Mathematics, University of Bristol

A Phase Space Analysis of 2 Degree-of-Freedom Hamiltonian Systems in Chemical Reaction Dynamics.
Supervisors: Dr. Shibabrat Naik, Prof. Stephen Wiggins
Github repository: https://github.com/samspedding/hamiltonian-systems

- Used Numpy and Scipy Python libraries to conduct a numerical analysis of a variety of Hamiltonian systems with applications in isomerisation dynamics, computing statistical-mechanical quantities to compare with theory.

- Used MatPlotLib library to display high-dimensional data in new and insightful ways, including phase-space colour maps and animations of trajectories.

- Presented findings in a fifteen minute group presentation. Learnt a lot about communicating mathematical concepts to relative non-specialists and organising a talk as a group.

ADDITIONAL SKILLS

Software: Fluent in C++14. Considerable experience using the MFC UI framework for Windows desktop applications. Also confident using Python for various scripting, scientific computing and data visualisation purposes. Basic experience with Javascript, C, C# and Java. Proficient in LaTeX and MS Office.
Languages: Intermediate level Spanish (A level).

INTERESTS

- Extremely eclectic music taste spanning multiple genres and decades. Blues and jazz pianist and have recently got into playing classical.

- Fascinated by philosophy, history and politics, especially that which focusses on global power structures and separation from our origins as animals. Nature enthusiast and lover of trees and animals.