

Joseph Webb

Mathematician, Physicist, Programmer

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EDUCATION

University of Oxford , Worcester College	Sep 2024 – Present
Master of Science in Mathematical Modelling and Scientific Computing	
The Masters in Mathematical Sciences Scholar , awarded a scholarship by Worcester College covering tuition fees, and received the MMSC bursary for academic excellence and performance in interview.	
University of Warwick	Sep 2021 – Jun 2024
Bachelor of Science in Mathematics and Physics	First Class Honours ↗
Founder and president of <i>The Poincaré Project</i> which produced a yearly magazine focussed on the intersection of mathematics, physics, and computer science.	





EXPERIENCE

University of Warwick , Department of Physics	May 2023 – Present
URSS Researcher	Coventry, UK
Received funding to carry out a self-directed machine learning research project.	
Self-Employed	Jan 2017 – Aug 2021
Electrical Inspector	London, UK
Contracted electrical inspecting and testing of financial institutions and data centres in Central London.	
UK Government , Department of Digital, Culture, Media & Sport	Jun 2021
Information Technology Support Technician	London, UK
Provided 1st- and 2nd-line support and produced technical documentation.	
The Economist	Feb 2020 – Sep 2020
Information Technology Operations Analyst	London, UK
Created scheduled scripts to automate server tasks, and built software to optimise resolution of issues.	
Selfridges & Co.	Feb 2019 – Oct 2019
Computer Services Analyst	London, UK
Improved our rollout speed by developing a PowerShell GUI application to perform device management.	

PUBLICATIONS, ARTICLES & POSTER SESSIONS

J. J. Webb , R. Beanland, R. A. Römer. 2024 preprint. “Large-Angle Convergent-Beam Electron Diffraction Patterns via Conditional Generative Adversarial Networks”	2024
D. Bayo, B. Çivitcioğlu, J. J. Webb , A. Honecker, R. A. Römer. 2024. “Machine learning of phases and structures for model systems in physics” ↗	2024
Poincaré Magazine , Issue 02: “How to Win Games with Quantum Strategies” ↗	2023
Poincaré Magazine , Issue 01: “A Walk in the Quantum: Reinventing a World-Changing Algorithm” ↗	2022
Institute of Physics : Theory of Condensed Matter. “AI’s Bridge Between Structure and Pattern”	13th June 2024

OPEN-SOURCE PROJECTS

 AI Diffraction : A machine learning approach to electron diffraction, built on NVIDIA’s pix2pixHD.
 Quantum Walk : A simulator for quantum walks on directed graphs to emulate and improve the classical PageRank algorithm, and an implementation on lattices to compare classical and quantum information processing.
 Fractal Explorer : An interactive explorer utilising CUDA processing to investigate any fractal formula.
 Project Euler Solutions : Solving Project Euler problems with extremely efficient and optimised code.

SKILLS

Concepts : Computational Physics, High-Performance Computing, Machine Learning, Numerical Analysis, Numerical Linear Algebra, Optimisation, Data Analytics and Visualisation
Programming : Python, Julia, Bash, Fortran, C, Matlab, PowerShell, SQL
Tools and Technologies : Git, Slurm, MPI, CUDA, PyTorch, TensorFlow, NumPy, Numba, SciPy, Pandas, Matplotlib, LaTeX, Arduino