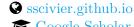
Sam A. Scivier

British & Canadian Citizen

Department of Earth Sciences, University of Oxford South Parks Road, Oxford, OX3 1AN, UK







PROFESSIONAL SUMMARY

I am a PhD student in the Department of Earth Sciences at the University of Oxford, developing probabilistic methods for uncertainty quantification in geophysics. I hold a Master's in Physics from the University of Birmingham and have gained industry experience through internships in quantum computing at D-Wave Systems (Canada) and Riverlane (UK). My research focuses on Gaussian process-based approaches for probabilistic fusion of geospatial datasets, with applications to earthquake ground motion prediction and seismic hazard assessment. I am interested in applying physics-based computational, data science, and machine learning methods to tackle challenges across geoscience, aerospace, sustainability, and emerging technologies, with a particular focus on research opportunities that combine rigorous scientific methodology with practical applications having tangible societal impact.

EDUCATION

Ph.D., Geophysics

10/2022 - Present

University of Oxford, Oxford, UK

Expected 2026

Funding: Oxford-NERC DTP in Environmental Research (Full studentship $\sim £120$ k)

Advisor(s): Paula Koelemeijer, Tarje Nissen-Meyer, Atılım Güneş Baydin

Gaussian processes for the probabilistic fusion of geophysical datasets – with application to seismic hazard assessment.

M.Sci., Physics (First Class Honours)

10/2018 - 07/2022

University of Birmingham, Birmingham, UK

Advisor(s): Alberto Vecchio

Specialized coursework in theoretical and quantum physics, radar and imaging techniques.

Final project: Machine learning algorithms for early identification of massive black hole binary mergers for LISA mission (ESA; launch 2035).

Third year project: Bayesian inference for parameter estimation of binary black hole mergers in LIGO experiment.

High School Diploma, British Columbia

09/2013 - 06/2018

Prince of Wales Secondary School, Vancouver, Canada

Graduated as highest GPA students. Top scholar for Grades 10, 11, and 12.

RESEARCH EXPERIENCE

PhD Researcher

October 2022 – present

Department of Earth Sciences, University of Oxford

Probabilistic methods for uncertainty quantification in physics-based seismic hazard assessment. Gaussian process approaches for geospatial data fusion. Open-source software development.

Quantum Science Intern

June – August 2021

Riverlane, Cambridge, UK

Resource efficiency in quantum computation. Python software development for quantum computers.

Quantum Research Intern

D-Wave Systems Inc., Burnaby, Canada

Theoretical research in quantum technology. MATLAB simulations of nonstoquastic quantum processing. Co-authored Physical Review A paper (2021).

Student Science Mentorship

March – April 2016

DPoint Technologies Inc., Vancouver

Membrane sample preparation and testing for energy recovery applications.

PUBLICATIONS

- 1. **S.A. Scivier**, T. Nissen-Meyer, P. Koelemeijer, and A.G. Baydin, "Gaussian Processes for Probabilistic Estimates of Earthquake Ground Shaking: A 1-D Proof-of-Concept," arXiv:2412.03299 (2024).
- 2. N.S. Blunt, J. Camps, O. Crawford, R. Izsák, S. Leontica, A. Mirani, A.E. Moylett, **S.A. Scivier**, et al., "Perspective on quantum computing for drug discovery," *J. Chem. Theory Comput.* **18**, 7001-7023 (2022).
- 3. E.M. Lykiardopoulou, A. Zucca, **S.A. Scivier**, and M.H. Amin, "Improving nonstoquastic quantum annealing with spin-reversal transformations," *Phys. Rev. A* **104**, 012619 (2021).

TEACHING & OUTREACH

Workshop Leader

November 2024

Oxford Intelligent Earth CDT

Gaussian Processes for Probabilistic Earthquake Ground Motion Prediction. Created open-source materials.

PROFESSIONAL EXPERIENCE

Assistant Programme Coordinator

June – August 2020

Squash British Columbia, Vancouver

COVID-19 pandemic response design. Communications management and virtual event organization.

Assistant Squash Professional

June 2016 – September 2018

Jericho Tennis Club, Vancouver

Junior and adult coaching. Positive sports environment development.

AWARDS & RECOGNITION

IAGA/IASPEI Travel Grant (2025) • British Seismology Best Student Poster (2024) • SWJ Smith Prize - Highest M.Sci. Physics Graduate (2022) • Physics Sports Scholarship (2019-2022) • Governor General's Academic Medal (2018) • BC Academic Achievement Scholarship (2018)

TECHNICAL SKILLS

Programming: Python (7+ years), MATLAB, Bash, HTML

ML & Data Science: TensorFlow, PyTorch, Gaussian Processes, Bayesian inference Geophysics: Finite difference methods, seismic wave propagation, geospatial data

Tools: GitHub/GitLab, LaTeX, VSCode

Methods: Probabilistic methods, numerical methods, open-source development

June – August 2019

SELECTED CONFERENCES & PRESENTATIONS

Invited Talk

November 2024

University of Exeter Gaussian process methods for ground motion prediction

Oral Presentation September 2025

IAGA/IASPEI Assembly, Lisbon Probabilistic fusion of seismic velocity models

Poster December 2024

NeurIPS ML4PS Workshop, Vancouver Gaussian Process workflow for earthquake ground motion

Poster (Best Student Prize) March 2024

British Seismology Meeting, Reading Neural process methods for seismic velocity merging

Workshop March 2023

SPIN ITN, Pitlochry, Scotland Earth imaging and inverse problems in geophysics

LANGUAGES

English (Native) • French (Professional) • Romanian (Basic)

EXTRACURRICULAR ACTIVITIES

Competitive Squash: Silver medal (2019 Canada Winter Games), Gold medal (2022 BUCS Champi-

onships), University of Birmingham President (2019-2020)

Other Interests: Skiing, hiking, cycling, climbing, photography

PROFESSIONAL MEMBERSHIPS

Fellow of the Royal Astronomical Society (2025) • Institute of Physics Member (2018–present)