

Emlyn Graham

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WORK EXPERIENCE

INRIA PARIS / ÉCOLE NORMALE SUPÉRIEURE PARIS

Paris, France

Research and Development Software Engineer

Oct 2025 – Present

- Maintains and develops Graphix, an open-source Python package for measurement-based quantum computation.
- Designs robust features for Graphix based on careful translation of current quantum information research.
- Supports other computing activities by researchers in the Quantum computing Architectures, Algorithms, Applications and their Theory (QAT) team, including peer coding and PR review.
- Engages with the open-source community, including through initiatives managed by the Unitary Foundation.

DEPARTMENT OF FOREIGN AFFAIRS AND TRADE

Canberra, Australia

Assistant Director, Australian Safeguards and Non-Proliferation Office

Jan 2024 – Sep 2025

- Led on Safeguards-by-Design for new nuclear facilities, including policy advice and training for designers and operators.
- Led on implementation of North American bilateral nuclear safeguards and associated policy advice.
- Collaborated with IT specialists to maintain and improve bilateral accountancy features in ASNO's nuclear database.
- Contributed to Treaty and sub-Treaty-level document negotiation.
- Led briefing for executives and externals, including background papers, talking points and statements.
- Led International Atomic Energy Agency (IAEA) and domestic nuclear inspections as a designated nuclear inspector, ensuring compliance with treaties and regulatory requirements under the *Nuclear Non-Proliferation (Safeguards) Act 1987*.
- Supervised junior staff, building their effectiveness in their current role and supporting their professional goals.
- Assisted in managing budgets and budgeted activities.

Safeguards Officer, Australian Safeguards and Non-Proliferation Office

Jan 2022 – Jan 2024

- Started ASNO's formal domestic outreach program, leading to expanded awareness of ASNO's role and hiring of new staff.
- Represented ASNO in the Secretary's-Award-winning Australian delegation to the 2022 NPT Review Conference.
- Delivered critical analysis of nuclear fuel cycle data to meet legislative requirements.
- Coordinated briefing, media and other logistics for Ministerial and Director General conferences and visits.
- Presented at conferences in Australia and internationally on ASNO's role in nuclear non-proliferation.

DEPARTMENT OF INDUSTRY, SCIENCE, ENERGY AND RESOURCES

Canberra, Australia

Policy Officer, Science Policy

Feb 2021 – Jan 2022

- Supported policy and governance work related to the Australian Nuclear Science and Technology Organisation (ANSTO).
- Led a cross-agency data collection and analysis project on radiopharmaceuticals to inform future policy development.
- Contributed to multiple Budget processes, including briefing for senior executive and Ministers.

Graduate Policy Officer

Feb 2020 – Feb 2021

- Supported policy and governance work related to ANSTO, and remediation of Maralinga.
- Completed procurement and led contract management for significant capital works projects worth over \$100,000.
- Co-led an interdepartmental project to evaluate maturity of data use across the Australian Public Service.
- Led a cross-departmental team that produced the Australian Space Agency's plan to 'inspire' the future space workforce.

AUSTRALIAN NATIONAL UNIVERSITY

Canberra, Australia

Casual/Sessional Academic, Mathematical Sciences Institute

Feb 2019 – Nov 2019

- Demonstrated undergraduate courses *Mathematics and Applications 1*, and *Mathematics and Applications 2*.

WIDGET BRAIN

Canberra, Australia

Technical Consultant

Jun 2018 – Jan 2019

- Led and delivered data investigation exercises for retail and maritime transport clients.
- Applied cloud-based machine learning models – primarily from scikit-learn, and including automated hyperparameter tuning, training and testing – to predict demand for retail clients.
- Built and tested applications of mixed-integer optimisation algorithms for workforce planning clients.

EDUCATION

AUSTRALIAN NATIONAL UNIVERSITY

Master of Science (Advanced) in Theoretical Physics

GPA: 7.0/7.0; Awarded with Commendation

Thesis: *Topological phase transitions in photonic hybrid metasurfaces*

Canberra, Australia

Jul 2021 – Jun 2023

Bachelor of Science (Honours) & Bachelor of Mathematical Sciences

Honours in Physics; Majors in Theoretical Physics and Mathematics, Minor in Philosophy and Science

GPA: 6.34/7.0; First Class Honours (H1)

Thesis: *Time dependent coupled channels approaches to nuclear collisions*

Feb 2014 – Dec 2019

RESEARCH

COMPUTE MARKETS UNDER IMPERFECT MONITORING

AI Safety Camp

Co-lead overseeing monitoring regimes, audit error models and strategies used by bad actors.

Remote

Jan 2026 – Apr 2026

TOPOLOGICAL PHASE TRANSITIONS IN PHOTONIC HYBRID METASURFACES

Australian National University

Researched an approach to creating topological photonic insulators with hybrid metasurfaces.

Ran numerical simulations in Matlab.

Canberra, Australia

Jul 2022 – Jun 2023

TIME DEPENDENT COUPLED CHANNELS APPROACHES TO NUCLEAR COLLISIONS

Australian National University

Developed a novel approach to simulate quantum tunnelling in heavy ion reactions, and implemented it as a package in C++.

Completed other computational research including exploration of data and optimisation of parameters in simulations of tokamak fusion reactors and entangled quantum state preparation.

Canberra, Australia

Jan 2019 – Dec 2019

ADDITIONAL

Languages: English (Native), French (A2)

Technical Skills: Highest proficiency in Python and LaTeX; Lesser proficiency in C++, R, Mathematica, MATLAB and SQL

AI Certifications & Training: Future of AI (BlueDot Impact), AGI Strategy (BlueDot Impact)

Nuclear Certifications & Training: General Radiation Safety Officer (ANSTO), International Training Course on State Systems of Accounting for and Control of Nuclear Material (JAEA/IAEA), Fundamentals of Non-Destructive Assay (Los Alamos National Laboratory), Masterclass on Advanced Safeguards (ASNO/IAEA)

Other Certifications & Training: PRINCE2 Foundation (project management), Diplomatic Tradecraft (DFAT), Associate Fellow of the Higher Education Academy (AFHEA, Advance HE)