Matias Barandiaran

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Profile

A highly motivated second-year Computer Science student at Lancaster University, with a keen interest in quantum software, machine learning, and formal verification. Demonstrated practical experience in these areas through a research sector placement and remote certifications. Enthusiastic to further leverage this experience by pursuing research assistant roles to actively contribute to these innovative domains.

Education

Lancaster University Leipzig　　　　　　　　　　　　　　　　　　　　Expected May 2025
Bachelor of Science in Computer Science (88.7% $\approx$ GPA: 4.00 / 4.00)　　　　*Leipzig, Germany*
- First Class Honours.
- First year's highest average grade.
- Founder of LU Leipzig's Robotics Club
- Head of student international relationships

International Baccalaureate　　　　　　　　　　　　　　　　March 2019 - December 2021
International Bilingual Diploma (GPA: 3.90 / 4.00)
- Mathematical Analysis and Approaches band 7
- Physics band 7
- Model United Nations Debate Club

Experience

Lancaster University Leipzig　　　　　　　　　　　　　　　　　October 2023 – Present
Teaching Assistant　　　　　　　　　　　　　　　　　　　　　　　*Leipzig, Germany*
- Laboratory assistant and demonstrator for the Digital Systems 1st year module.
- Delivering engaging and informative instructional sessions to facilitate student understanding.

Charles University　　　　　　　　　　　　　　　　　　　　　August 2023 – July 2023
Research Intern　　　　　　　　　　　　　　　　　　　　　　　　*Prague, Czechia*
- Hosted by the Faculty of Mathematics and Physics.
- Achieved successful production of Alethe verifiable proof for the Golem CHC solver.

IB Diploma　　　　　　　　　　　　　　　　　　　　　August 2019 – September 2023
Math tutor
- Student advisor and tutor for Mathematics: Analysis and Approaches SL and HL.
- Through personalized one-on-one sessions, guided senior high school IB Diploma students to achieve outstanding exam performance and substantial growth in their mathematical abilities.

Certifications

Delft University of Technology
The Hardware of a Quantum Computer — Ket Notation, Qubit Manipulation
- Explored how all the building blocks of a quantum computer work, and deeper information on the qubits which lie at the heart of a quantum computer and internet.
- Learnt the workings of the four most promising types of solid-state qubits: Silicon Spin Qubit, Diamond NV Center Qubit, Superconducting Transmon Qubit and Topological Qubit.

University of Oxford
Advanced Applications of Neural Networks and Deep Learning — Generative Modelling, Reinforcement Learning
- Worked with Generative Adversarial Networks, Variational Autoencoders, PPO Clip, and Graph Neural Networks.
- Overall grade: A+.

University of Oxford

Artificial Intelligence and Machine Learning: Theory and Practice — Supervised Learning, Pytorch, Tensor Flow

- Worked with Deep Neural Networks and Convolutional Neural Networks.
- Explored the mathematics and theory behind simple linear models.
- Overall grade: A+.

Volunteering

Global Advancement Fund 2024

Organizer

- Initiated and championed the approval process for the Global Advancement Fund to facilitate international collaboration between Lancaster's Leipzig campus and the main campus in the UK.
- Facilitated communication and coordination between stakeholders.
- Demonstrated strong organizational and leadership skills in navigating bureaucratic processes and garnering support for the initiative.

Qiskit Fall Fest 2023

Lead Organizer

- Organized and ran an event with the aim of giving students a holistic and multi-faceted view of the exciting field of quantum computing.
- Assembled a series of seminars that combined academic depth and real-world practical insights (Special guests: Enrique Solano - Kipu Quantum.)
- Gave an introductory talk on quantum computing and held workshops with Qiskit material.

Robotics Club

Founder

- Dedicated to fostering a culture of innovation and problem-solving within my institution.
- Club serves as a dynamic platform for students to explore the fascinating world of robotics, igniting their passion for technology and hands-on learning.
- Club fund gathering evidenced my organization and leadership skills.

Technical Skills

Languages: Spanish (native), English (bilingual proficiency), German (A1)
Technologies: Python, Java, TensorFlow, PyTorch, Qiskit, Git, Libgdx, C, C++, SQL, Linux
Concepts: Ket Notation, Generative Modelling, Supervised Learning, Reinforcement Learning, Neural Networks, Databases, Qubit Manipulation

References available upon request.