

# Lorenzo Versini

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I am a DPhil (PhD) student at the **University of Oxford** working on experimental ion trap quantum computing. I also have a strong interest in data science, with focus on its applications in science and everyday life.

## University and Education:

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**DPhil in Atomic and Laser Physics, University of Oxford (UK)** 2022 – 2026

- Working on developing **entanglement** across separate ion traps using **photons** and **cavities**. Supervisors: Dr. Joe Goodwin, Prof. David Lucas. Experience with **Optics** (gaussian optics, locking to a cavity, AOM, EOM), **electronics** (FPGA, microcontrollers), vacuum assembly, CAD design for precision optical assemblies. **Recipient of Quantum Simulation and Computing Hub scholarship**.
- Rower and cox regularly competing at university level, 2023/24 captain of coxes in my college. Singer at the Mansfield College choir. Welfare Officer in the Mansfield College Middle Common Room (MCR).
- Engaged with physics outreach project. Delivered a quantum computing workshop to children from disadvantaged backgrounds and to Marie Curious festival hosted by Warwick University.

**Physics MSci, Imperial College London (UK)** 2018 – 2022

- Graduated with **first-class honours** (79.97%). Awards: **Dean's list** in Year 1, 2 and 4 (top 10% of the class).
- **MSci Thesis:** Applied **Machine Learning** techniques to reconstruct quantum ensembles from simulated measurements (pre-print: arXiv:2305.01465).
- **Modules include:** Quantum Information (85.00%), Information Theory (88.00%), Quantum Field Theory (95.00%).
- **Labs:** (Year 3) built a pulse oximeter with a microprocessor coded in Assembly (91.00%, "Overall an outstanding report"). Used it to investigate my heartbeat during a night of sleep.
- Head of talent development at Imperial College Data Science Society (2021-2022): **delivered lectures and workshops** on Machine Learning. Physics Society Events Officer (2020-2021): awarded "Full Colors" prize by Royal College of Science Union (RCSU) for outstanding volunteering efforts. One of our virtual talks gathered 200+ participants.

## Machine Learning and Data Science:

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**Quantum Computing Hackathon** Summer 2022

- **Led a team of 5 students** into **winning the second prize** at the QC hackathon organised by the National Quantum Computing Center (NQCC) in the UK. Developed a quantum-classical hybrid machine learning algorithm to do predictions on a time-series **dataset provided by Rolls Royce**. Libraries we used: **PyTorch, PennyLane**.

**Bloomberg Analytics & Global Data Launch Programme** Summer 2021

- Participated to **10 days long series of seminars** held by **Bloomberg professionals**. Learned about the roles of Analytics and Global Data Departments and basic finance concepts.

**Coursera, Stanford course on Machine Learning by Andrew Ng** Summer 2020

- **Introduction to Machine Learning** (bias, variance, regularisation) and algorithms including **Neural Networks**.

## Work Experience:

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**UK Dementia Research Institute (Imperial College Hub)** Summer 2021

*Software Developer Summer Intern* *London (UK)*

- 3 months summer internship. **Implemented a Flutter App** to configure and read the Wi-Fi settings of a Raspberry Pi's over Bluetooth. Gained experience with **Docker, Visual Studio Code, Flutter and Dart, Git**.

**Imperial College London** Summer 2020

*Research Summer Intern* *London (UK)*

- 3 months research experience in the Bioengineering Department of Optical Imaging (supervisor Dr Christopher Rowlands). Worked on algorithms such as image stack de-shearing, **coded a Fresnel optics simulation tool**, and **investigated the Point Spread Function** across the field of view of an Oblique Plane Microscope (OPM).

## Skills:

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- **Computer Languages and Developer Tools:** experienced **Python** user. Microsoft Office and git. Dart language and Flutter for **App development**. Basics of C++ and Java. **Languages:** Italian (native), English (fluent), German (A2).