Stasiu Wolanski

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Curriculum Vitae

Professional history:

Currently working as a **quantum scientist** at **Riverlane**. My role is to research and **develop the mathematical theory of high-accuracy and high-efficiency decoders** for quantum error correction (QEC) codes. This sometimes requires **high-performance programming** in to test ideas and theories. I work in a tight-knit team and am required to communicate with researchers and engineers both within the organization more widely, and externally.

Worked with the **Cambridge Hitachi Laboratory** and the **Cambridge University Physics Department Quantum Information Group** completing a master's project looking into the feasibility of applying a continuous error correction scheme to **silicon quantum computers**. The project involves the **theoretical design and analysis** of such systems, and computationally intensive Hamiltonian simulations (**written in Python, C, and CUDA C++**) to verify them.

Summer 2022: Completed a experimental summer research project at the University of Cambridge Department of Mathematics in soft matter physics. Developed a variety of practical skills, and developed **high performance C++ code** to interface with a top-spec high speed camera. Please contact Dr Adrien Lefauve at lefauve@damtp.cam.ac.uk for a reference.

Summer 2022: Contracted by the University of Cambridge Physics Department to develop a software package for interfacing with electronics equipment to be used by students in an assessed experimental physics practical. This was the result of my creating a fledgling version of the software when I completed the practical. It is now on the Python package index and used by students.

Summer 2021: I completed a two-month internship at Beit Inc, a **quantum computing research firm** based in Krakow in Poland. There I completed a substantial software project on my own that involved heavy use of Qiskit, the IBM quantum computer access and quantum computer simulation API (although I am subject to obligations of confidentiality as to nature of the project). I worked with the Beit team on current Quantum Computing algorithmic research problems. The CEO Paulina Mazurek would be happy to provide a reference. Please contact them at office@beit.tech.

Qualifications and Academics:

- **First-Class Masters' Degree (MSci) in Physics from Jesus College at the University of Cambridge.**
- **Awarded the Duncan Mackie Prize for best performance at the College in part III (master's).**
- **Double First-Class Undergraduate Degree (BA Hons) in Physics from Jesus College at the University of Cambridge**. First year officially ungraded due to COVID: exam was nonetheless marked as a high first. Achieved official first-class results in second year and third year. Both sets of exams were in-person and closed book. I was thus awarded College scholarships all four years of my studies.
- **A-Level and Pre-U: 4 A* or equivalent (2019, before COVID).** A-Level Chemistry: A*, A-Level Physics: A*, Pre-U Maths and Pre-U Further Maths: both D1 (Highest grade, considered better than A*).
- **GCSEs/IGCSEs: 14 Subjects at A* or equivalent** (2016-2017): Chemistry, Physics, Biology, Maths, Computer Science (self-taught), Russian, French, Ancient Greek, Latin, Music, History, English Literature, English Language. OCR Additional Maths qualification: A (highest grade available).
- Other Academic Awards: Achieved **'Gold Top 100' in British Physics Olympiad** (among top 100 entrants); Gold Award in Cambridge Chemistry challenge; Have on many occasions achieved gold award in various UKMT Maths challenges; A commendation for BPHO experimental project.

Coding skills

See my GitHub for a selection of my projects: https://github.com/Stasiu51

- **Fluent in Python**. Have used it to develop a large complex project using OOP structures and leveraging numpy and pre-compilation to write high performance scientific computational routines. Code was regularly reviewed and adopted into the company repo; as a result have good command of the capabilities and idioms of the language. Have developed many personal projects over many years, as well as several for my degree.
- **Strong skills in C++, C, some CUDA** for scientific computation.
- **A grasp of important algorithms** in sorting, graph processing and path finding as well as an understanding of basic and some advanced data structures.
- Various proficiency in (most experienced to least) C#, Mathematica, Java, Javascript, MATLAB, Ocaml. Quick to learn new technologies.

Other skills and abilities

- Electronics and general technical skills: programming microcontrollers, some hobby experience with RF and IR transmitters, motors and I/O, lasers etc. Have built web servers, transmitters and recievers, sport analysis accelerometers. 3D printing, general project design and problem-solving. Ask me for examples!
- Intermediate skills with Autodesk Fusion 360 (3D CAD software), Blender (3d Modelling), etc.
- Tutoring/teaching experience: volunteered for the educational charity IntoUniversity tutoring young people in all subjects. I have also been an academic mentor for a younger boy at school. I recently helped conduct mock interviews for Cambridge applicants from state school backgrounds.
- I am a very keen rower, recently stroking my 1st college men's VIII to victory in several big races.
- I am also a long time cyclist: I rode from Paris to Venice in summer 2017. Our blog: paristovenice2017.wordpress.com
- Decent jazz (and variety of other styles) keyboardist – have performed with bands at Jazz Cafe, Roundhouse, festivals and other venues.
- Skilled with audio technology, musical production software and sound synthesis.