Henry Pickersgill

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Personal Profile

A confident, highly motivated and hard-working individual with software and technical experience in a market-leading Quantum Technology company. First class Master of Physics and Bachelor of Science from the University of Leeds with the Whiddington Prize for highest grade overall. Looking for work in the field of Quantum Physics, where I can continue my exploration of Quantum systems.

Technical Experience

Toshiba Europe Ltd – Development Engineer **Dec 2021 – present**

- Designed and created automation software to speed up as well as automate the testing and optimisation of Quantum Key Distribution (QKD) systems. - Automation software conceived of by myself after seeing potential for most of the previously manual work to be done with Python instead.
- **This software is currently the main method of testing and has enabled a broader understanding of the operation of the QKD systems, even by colleagues without technical degrees.**
- Leading the team in maintenance of control and testing software (Python, C++, Bash), experimentation on the systems themselves, including electronic tests and optimising performance, and developing new ideas for automating tests and experiments.
- Supervised other members of the team; over time I became a highly valued member due to my knowledge of the systems as well as the majority of the codebase.
- Part of a very high-level team from a wide range of backgrounds, involved in cutting edge quantum research as well as production of QKD transmitters/receivers for implementation in current infrastructure (e.g. BT, Deutsche Telekom).
- Highly rewarding work, especially with regards to gaining essential skills for the science, technology and software sectors.

Education and Qualifications

University of Leeds **Sep 2017 – Jul 2021**

Final year – 1st (84%), highest classification average at graduation ("Whiddington Prize" winner)
Third year – 1st (85%), 99% in Advanced Quantum Mechanics etc
Second year – 1st (87%), highest achieving student in the Physics cohort
First year – 1st (88%), highest grade ("Best First Year Student" winner)

Parrs Wood Sixth Form, Manchester **Sep 2014 – Jul 2016**

A levels: Physics (A*), Mathematics (A*), Chemistry (A*), Psychology AS (A)

Parrs Wood High School, Manchester **Sep 2009 – Jul 2014**

13 GCSEs (8 A* | 5 A)

Private piano and guitar lessons **2004 – 2014**

Grade 8 in piano (spring 2013), Grade 7 in guitar (summer 2012)

Projects (https://github.com/Henryp1997)

2D game development

- Experimenting with the logic and graphics of 2D games using Python. Developed a full 2D game with multiple features from scratch (not using online resources, aside from how to use the graphics-drawing features).
- Also used the same framework to create a version of Conway's Game of Life in Python.
- Interested in creating mathematical simulations and a simple 2D physics engine.
- Interested in trying 3D game development, likely with tools such as the Unity or Godot engines.

Web development

- Began my own website which will eventually act as a repository for my projects for anyone to see. This includes programming projects as well as others such as piano playing and photography.
- Using Python's plotly dash module (as was used in my experience at Toshiba) to write the HTML, learning CSS and JS to control styling and behaviour.

Other programming projects

- Python scripting for automation, including interfacing with retro game emulators, utilising speech recognition to record sports scores and attempting to create a scientific calculator.

Electronics projects

- In the process of planning a retro handheld game console using a Raspberry Pi as the computer. Will combine

knowledge of electronics, 3D modelling and software to create.
- Exploring Arduino microcontrollers to create new devices. Beginning with a device to interface with proprietary laptop keyboards.

Skills, Hobbies and Interests

Python 3.x (and programming in general)
- Utilised Python on a daily basis during work on QKD systems at Toshiba Europe Ltd. Primary uses include interfacing with Linux-based servers, data storage and analysis, internal testing infrastructure (including Plotly Dash for front-end web development) and interfacing with in-house modules/daemons.
- Also utilised Python as a computational tool during a large portion of my Physics degree.
- Well-versed in NumPy, Matplotlib, SciPy etc as well as mathematical methods such as numerical integration, curve fitting, data processing and more.
- Interested in learning new programming languages. Continued experimentation with Python, and recent exploration of C++.

Computer technology/software and hardware
- Good understanding of software from operating systems (especially Android, Windows and Linux) to applications/programs. Frequently tinker with computers, from building to repairing.

Bash and Unix terminal
- Occasionally program in Bash for software ran directly on Linux environments, or to forego unnecessary clutter by using Python.
- Familiar with the unix terminal; navigating, creating and modifying directories, monitoring system performance, interfacing with other servers over ssh (e.g. rsync, scp) and much more.

Mathematical/analytical
- Exceptional problem solver. Dedicated to finding solutions to a range of mathematical and situational problems, highly interested in optimisation of methods.
- Enjoy recreational mathematics and problem solving.

Scientific writing
- Excelled in all written tasks, e.g., 10,000-word research project report, general lab reports, essays concerning novel topics, justification of answers in exams/courseworks/in person.
- Regular reader of scientific content, including discoveries, mathematical proofs and interesting articles.

Background knowledge/recreational research
- Built up a considerable amount of knowledge from individual research in a range of areas (not just limited to STEM, e.g., music theory).
- Utilised knowledge in all stages of education to improve understanding of examined topics.

Music
- I have performed piano and guitar at a range of venues; able to learn a new piece from sheet music quickly.
- Amateur understanding of music theory, application of said understanding to improvised piano playing/composition.
- Self-taught in piano beyond grade 8 (completed 2014), frequent player and listener.

Sport
- Football player for club and school for 14 years. Captain of football club for four years – consistent team-leading abilities, even before I was made captain.
- Tennis lessons for 7 years. Above average player, one or two sessions a week.
- Above average squash player, one session a week.
- Running - ran 100s of kilometers since starting in April 2022, frequently engage in high effort as well as long distance aerobic-fitness-building runs.
- Cycling - cycled 100s of kilometers since starting in March 2023. Long distance rides every week, interested in maintenance of bikes too.

Electronics
- Amateur electronics repairing, e.g., power circuits, phones, computers. Creating circuits, e.g., power banks, USB adapters etc.
- Interested in DIY electronics projects, such as those utilising Raspberry Pi systems.