Daniel James Mills

About:

I am a first year PhD student researching verification of quantum computations. With extensive experience in mathematics, physics and computer science, I am eager to conduct research leading to the wide spread utilisation of quantum computers and am driven to learn the tools necessary to do so.

Highlights:

- Master of Science by research (Distinction).
  - Quantum computing focus.
  - Top of class.
- Master of Mathematics (1st class).
  - Covered Mathematics, Physics, Computing.
- Extensive research engagement prior to PhD.
- Practical experience in technology industry.
- Skilled programmer and writer.
- Well practised radio show host and science communicator.

Education:

The University of Edinburgh **Doctorate** **2016-2019**

- Supervised by Professor Elham Kashefi.
- Research focusing on the verification of delegated quantum computations.
- Other interests include comparing different models of quantum computing, their experimental implementation, foundations of quantum mechanics and simulations of quantum computations.
- To be completed as part of the centre for doctoral training (CDT) in pervasive parallelism

The University of Edinburgh **Master of science by research: Distinction (top of class award)** **2015-2016**

- Supervised by Professor Elham Kashefi.
- Dissertation, titled 'Information Theoretically Secure Hypothesis Test for Temporally Unstructured Quantum Computing', received grade of 90%.
- Courses on machine learning broadened my background in probability theory.
- Included several courses on conducting effective research which improved my time management and academic writing as well as presentation, planning and reflection skills.

The University of Warwick **Master of mathematics: 1st (Hons)** **2011-2015**

- Broad studies with a focus on Analysis; particularly information theory and dynamical systems.
- Also included extensive coverage of algebra, number theory, probability theory, geometry, fluid dynamics, computational mathematics, numerical analysis and scientific programming.
- Fourth year project, 'Communication Over Binary Symmetric Channel With Random Failure Rate', supervised by Professor Oleg Zaboronski.
- Studied a number of modules from physics including many on quantum mechanics and cosmology.

Saffron Walden County High School **2004-2011**

- A-Level: Mathematics (A*), Further Mathematics (A*), Physics (A*), Computing (A*), Chemistry (A).
- GCSE: Mathematics (A*), Physics (A*), Chemistry (A*), Biology (A*), History (A*), German (C), Electronics (A), Geography (A), English language (A), English literature (A), Life skills IT (A), Life skills Citizenship (A*).

Other Skills:

- Trained to use the programming languages Java, MATLAB, Python and C.
- Experienced user of Linux and Windows operation systems, Microsoft office and LaTex.

- Skilled writer and speaker due to, among other things, experience as radio presenter.

Work Experience:

Title: **Research Engineer Placement Student**

Dates: **Summer 2014 (8 weeks)** **Employer:** **Siglead Europe**

- Designed, understood and modelled error correction codes used in solid state memory.
- Investigated, experimentally, the behaviour of individual cells within memory.
- Gained further experience in using C and MATLAB Programming languages.
- Learned to conduct research with distant collaborators (Japan).
- Working with a young startup company taught me the tools used in research and running a business.

Title: **Undergraduate Research Support Scheme intern**

Dates: **Summer 2013 (8 weeks)** **Employer:** **University of Warwick**

- Project, 'The Evolution of Eigenvalues in Random Matrices', supervised by Dr Roger Tribe.
- Improved a wide range of skills including quick thinking as we discussed ideas as a team.
- Developed programming skills as MATLAB was used to simulate random matrices.
- Project was part of a wider program providing courses which improved research, writing and presentation skills.

Title: **Assistant Librarian**

Dates: **2008-2011** **Employer:** **Saffron Walden County High School**

- A voluntary post allowing me to interact with users of the library.
- Tasked with a complete reorganisation of a section of the library which involved devising a numbering system for the books as well as relabelling and reorganising them.
- Developed organisation and managerial skills.

Title: **Mathematics and Physics Mentor**

Dates: **2009-2011** **Employer:** **Saffron Walden County High School**

- A voluntary scheme pairing me with year 11 students with whom I would discuss topics related to the mathematics and physics GCSEs for which they were studying.
- Improved my ability to explain new ideas and adapt an explanation quickly to fit the audience.

Other interests and achievements:

While obtaining a gold Duke of Edinburgh award I become accustomed to being relied on and relying on others.

Last academic year I was the science correspondent for the news team at the Edinburgh student radio station and also hosted my own science news show. I am currently the elected head of the news team and am part of the team producing the Edinburgh informatics Compucast pod-cast.

Some of my other interests include ice skating, playing ice hockey, swing dancing and ten pin bowling. It was for the tenpin bowling club at the University of Warwick that I managed an internal league and I was also treasurer for the postgraduate society at the University of Edinburgh. I like to travel and am an avid photographer. I combined this interest with my love of cycling as I cycled unaccompanied between various cities in Holland and Belgium; capturing the scenery as I did.

References: Details available upon request.

Personal Information and Contact Details: Address: 39/2 Coates Gardens, Edinburgh, EH12 5LF, Email: daniel.mills@ed.ac.uk, Mobile: 07443497392, DoB: 28/03/1993.