Daniel James Mills

About:

I am a 2nd year PhD student researching quantum computation. 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 and computing
- Extensive research engagement before 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-present**

- Supervised by Professor Elham Kashefi.
- Research focusing on the verification of early stage quantum computers.
- 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 **MSc(by research): Distinction (top of class)** **2015-2016**

- Supervised by Professor Elham Kashefi.
- Received grade of 90% for dissertation titled 'Information Theoretically Secure Hypothesis Test for Temporally Unstructured Quantum Computing'.
- 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 **MMath: 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 many modules from physics including those on quantum mechanics and cosmology.

Work Experience:

Title: Research and Development Intern
Employer: Atos / Bull SAS **Dates: 09/2017 - 02/2018 (6 months)**

- Implementing a classical simulator of my own developed my understanding of; C, C++, python and openMP; software development tools such as Git and Jenkins; and how to integrate my work in a large team project.
- Utilised classical simulation and HPC as a tool to provide new insight into quantum computing and, in particular, the impact of noise.
- Extensively researched methods for classical simulation of quantum computation and communicated these complex ideas to the rest of the team through code annotation and presentations.

Title: Research Engineer Placement Student
Employer: Siglead Europe **Dates: Summer 2014 (2 months)**

- Designed, understood and modelled error correction codes used in solid state memory.
- Tested my model by investigating, experimentally, the behaviour of individual cells within memory.
- Gained further experience in using C and MATLAB Programming languages.
- Successfully conducted research with distant collaborators (Japan).
- Working with a start-up company taught me the tools used in research and running a business.

Title: Undergraduate Research Support Scheme intern
Employer: The University of Warwick **Dates: Summer 2013 (2 months)**

- 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 a MATLAB program to simulate random matrices.
- Project was part of a wider program providing courses which improved research, writing and presentation skills.

Title: Mathematics and Physics Mentor
Employer: Saffron Walden County High School **Dates: 2009-2011**

- A voluntary scheme pairing me with year 11 students to whom I would explain 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.

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

- A voluntary post allowing me to interact with users of the library.
- Reorganised 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.

Other Skills:

- Trained to use the programming languages Java, MATLAB, Python, C++ 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.

Other interests and achievements:

Obtaining a gold Duke of Edinburgh award made me accustomed to being relied on and relying on others.

I have been the science correspondent for the news team at the Edinburgh student radio station and also hosted my own science news show. I was also the elected head of the news team, with responsibilities such as organising the script and team for the weekly show and coordinating the student union election debates, and part of the team producing the Edinburgh informatics pod-cast.

Some of my other interests include ice skating, playing ice hockey and tenpin 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.

Personal Information and Contact Details:

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Reference:

Details available upon request.