Anthony Williams

March 24, 2019

Work

- **University of Manchester**
  Research Associate *November 2018 - Present*
  - I am currently working in the school of MACE investigating quantum numerical algorithms for use in simulating physical systems.
  - The project aims to identify and modify numerical algorithms for use with quantum computing systems with particular regard for the modelling and simulation of fluids.
- **Education and Skills Funding Agency**
  Data Analyst *September 2018 - November 2018*
  - Worked for an executive agency of the Department of Education responsible for funding education and training.
  - Helped develop data models and risk assessment tools for determining funding and financial risk using R and PowerBI.
- **Health and Safety Laboratory**
  Risk Assessment Scientist *April 2015 - September 2015*
  - Worked within the Mathematical Sciences Unit developing risk assessment tools using gas dispersion modelling.
  - Developed a number of coded solutions using Visual Basic and C++ for use in risk assessments.
  - Created mathematical models for weather conditions and water reactive substances and carried out model and code testing.
- **Capita Remediation Services**
  Graduate Settlement Officer *November 2014 - April 2015*
  - Worked within the settlements team supplying remediation services to The Co-operative Bank.
- **John Willmott School**
  PGCE Placement *March - June 2012*
  - Developed communication skills through teaching classes ranging from year 7 to A-Level. This involved interacting with pupils in groups and one to one, participating in parents evenings and communicating with colleagues.
  - Worked as part of a team to deliver a varied mathematics syllabus and contributed to department and year group meetings.
- **Phoenix Collegiate**
  PGCE Placement *October - December 2011*
  - Improved public speaking skills by delivering lessons and participating in OFSTED meetings.
  - Developed a range of educational practices to improve learning outcomes.
- **Town Junior School**
  Junior School Work Experience *September 2011*
  - Worked one to one with underachieving pupils and pupils with special educational needs to improve confidence and core skills.

Education

- **University of Manchester**
  PhD in Applied Mathematics *September 2015 - September 2018*

- Working on a PhD project investigating boundary layers in three-dimensional parabolic flows. The project uses analytic, asymptotic and computational techniques to assess the impact of surface deviations or wall transpiration on boundary layer development.
- Developed a library a code for the numerical solution of equations modelling fluid flow including both large sparse linear systems and eigenvalue problems.
- Hewitt, R.E., Duck, P.W. and Williams, A.J., 2017. Injection into boundary layers: solutions beyond the classical form. Journal of Fluid Mechanics, 822, pp.617-639.
- Williams, A.J. and Hewitt, R.E., 2017. Micro-slot injection into a boundary layer driven by a favourable pressure gradient. Journal of Engineering Mathematics, 107(1), pp.19-35.

- **University of Manchester**
  MSc in Applied Mathematics with Industrial Modelling (Distinction) *September 2013 - September 2014*
  - Completed a dissertation sponsored by BAE Systems on the emergency blowing of submarine ballast tanks using high pressure air.
  - Developed a range of skills for mathematical modelling through modules in Stability Theory, Continuum Mechanics, Mathematical Methods and Non-linear Waves.
  - Established proficiency in computational techniques through a course in Scientific Computing (*C++*) and also through numerous modelling projects which involded the use of *MATLAB*.
  - Gained modelling and communication skills through a number of group projects and presentations.
  - Nominated for postgraduate student of the year within the faculty of Engineering and Physical Sciences.

- **Open University**
  Modules in Pure and Applied Mathematics (180 credits) *September 2011 - June 2013*
  - Learnt a range of mathematical techiniques in both pure and applied mathematics including linear algebra, group theory, analysis and mathematical modelling.
  - Used mathematical software to actively engage with problems, assess methods and present solutions. Gained an appreciation of the power of numerics to understand a problem and develop solutions.

- **University of Birmingham**
  PGCE Mathematics Education *September 2011 - June 2012*
  - Devised a range of teaching methods and implemented a number of behaviour management techniques. This helped me develop my interpersonal and administration skills.
  - Participated in school issues seminars in gender issues, special educational needs, equal opportunities and management of the teaching environment.

- **University of Manchester**
  Bachelor of Engineering (Hons) in Aerospace Engineering *September 2008 - June 2011*
  - Developed engineering skills in mathematics, aerodynamics and modelling and simulation through the modelling of physical systems involving high speed flows and aerospace structures.
  - Completed modules in management and design, enabling me to develop descision making and leadership skills. Worked as part of a team to deliver a project through problem solving and design analysis.
  - Completed a flight test course with Salford University to increase my understanding of flight parameters and flight dynamics.

- **Plantsbrook Secondary School**
  A-Levels and GCSE's *2006 - July 2008*
  - A-Levels: Mathematics(A), Physics(A), History(B) and General Studies(B).
  - GCSEs: 11A*-C including Maths and English.

Additional Skills, Interests and Activities

- **Computing**
  C++, Python, BASH, R, PowerBI, MATLAB/Simulink and MS Office (Excel/VB, Word etc).
  - I have an understanding of *C++* and object-oriented techiniques as I have developed a number of numerical routines for solving various mathematical problems.
  - I have an intermediate understanding of *Python* and *MATLAB* having developed a number of short pieces of code for data processing and graphing.
  - I have some experience with writing *HTML*, *CSS*,*JQuery/Javascript* and *SQL* code after completing on-line courses.
- **Interests and Sports**
  Amateur rocketry, rugby, football, snooker and running.
  - I enjoy participating in sporting activities especially football and rugby.
  - I take great pleasure in running having completed two full and two half marathons.