

James Mathews

Curriculum Vitae

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Academia

- July 2016– **Research Associate in the Department of Engineering, University of Cambridge, Cambridge.**
- Based jointly between the University of Cambridge and the University of Southampton.
 - Actively working with project partners from academia and industry such as Rolls-Royce and DLR.
 - Working on applying some of the aeroacoustic methods from my Ph.D to the Europe-wide ENOVAL project.
 - Commercialised MATLAB program written during the course of my Ph.D to allow its use on the project by all partners.
- Sept 2012– **Ph.D in Aeroacoustics (Applied Mathematics) at the Cambridge Centre of Analysis,**
Aug 2016 *University of Cambridge, Cambridge.*
Supervisor: Professor Nigel Peake.
- Researched noise generation by aeroengines and aerofoils.
 - Submitted thesis in July 2016 and passed viva in August 2016.
 - Used simplified mathematical models of aeroengines, aerofoils and the air to calculate novel asymptotic solutions of the Euler equations by using Green's functions.
 - Invited to collaborate with industry on the ENOVAL project in 2015.
 - Published and presented research at two major international conferences (AIAA/CEAS Aeroacoustics Conferences in Dallas and Lyon) and presented research at five conferences in the UK.
 - Invited to give seminar about research at the University of Southampton.
 - Attended two European study groups with industry and a graduate modelling camp.
 - Worked on diverse industrial mathematics problems such as emotion recognition, flight boarding strategies and flight efficiency in aerospace.
- Sept 2008– **Masters of Mathematics, University of Warwick, Coventry.**
June 2012 First Class Honours.

Awards

- Nov 2015 TakeAIM runner up.
Competition run by the Smith Institute enabling young researchers to express for a general audience the potential future impact of their research.
- July 2015 Osborne Reynolds Day finalist.
One of only seven mathematicians and engineers to present research.
- Mar 2015 SET for BRITAIN finalist.
One of only 30 research mathematicians to present a poster at the House of Commons.
- Apr 2014 Group prize for best presentation at 6th OCCAM Graduate Modelling Camp.
- Mar 2014 Smith-Knight and Rayleigh-Knight Prize.
Received award from University of Cambridge for my second year Ph.D report.
- Feb 2011 IBM Student Recognition Award.
One of only two mathematicians to receive an award for academic excellence.
- July 2010 Outstanding Academic Achievement Award.
One of only two mathematicians to receive an award from Warwick Mathematics Institute.

Skills

- Mathematics** Green's functions, asymptotics, Fourier transforms, ordinary differential equations, partial differential equations, complex analysis, Euler equations, fluid dynamics and numerical methods.
- Programming** MATLAB, Python, Fortran (basic), C++ (basic), R (basic).
- Software** L^AT_EX, Microsoft Office (Word, Excel, PowerPoint), Microsoft Windows, Linux OS.

Other experiences

- July 2011– **Volunteer mathematics teacher**, *Warwick in Africa*, South Africa, Tanzania and Ghana.
- Aug 2015 I have been repeatedly selected for a voluntary programme called Warwick in Africa which sends students and teachers to work in African schools for four to six weeks. I have taught mathematics in secondary schools in Johannesburg (2011 & 2013), Morogoro (2012), Accra and Agona Swedru (2014) and Vuwani (2015). Some of my accomplishments as part of the programme include:
- Teaching classes of up to 70 children for ten lessons a day, five days a week.
 - Running a mathematics competition to inspire high achieving students.
 - Helping to keep a school in Morogoro open during a National Census by devising a new timetable.
 - Setting up an after school maths club to support exam preparation in Johannesburg.
 - Designing content for summer schools to boost mathematical achievement and encourage extra curricular activities in Ghana.
 - Delivering this content across two schools and seeing some students double their attainment over just two weeks.
 - Devising a new timetable in a school in Vuwani and briefing the entire school as to how it would work. The timetable was created so that children could move classrooms for the first time.
- Sept 2013– **Mathematics supervisor**, *University of Cambridge*, Cambridge.
- June 2015
- Supervised four different courses to three different year groups, teaching two students at a time.
 - Evaluated students' work, gave feedback and explained key concepts.
- Apr 2010– **Treasurer**, *University of Warwick Sailing Club*, Coventry.
- Apr 2012
- Administered the club's bank accounts of around £30k, managing income and expenditure.
 - Compiled budgets for subsequent years and negotiated with the SU to secure an increase in funding.
 - Worked within a team to run the club and organise two successful sailing events, making a profit of £7k.
- Nov 2007– **Sailing instructor**, *Weir Wood Sailing Club*, Forest Row.
- Aug 2010
- Taught people of a wide range of ages and abilities to sail on Royal Yachting Association courses.
 - Jointly led a team of instructors during children's sailing camps in 2009 and 2010.

Interests

- Hockey** I am a member of Cambridge South Hockey Club, playing for the 3rd team (2014–2016) and 5th team (2013–2014). Voted 5th team player of the season in 2014.
- Sailing** I competed for the University of Cambridge at Course Croisière EDHEC (Brest, France) in April 2013. I also competed at the university yachting championships (Portsmouth) in April 2012 and university team racing finals (Southampton) in April 2011 for the University of Warwick.
- Fundraising** To fundraise for Warwick in Africa I completed the Three Peaks challenge in 2011 and a Coast to Coast cycle in 2012.
- Driving** I have held a full UK driving licence since April 2008.

References

Professor Nigel Peake

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