# Jeremy Minton

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## EDUCATION AND QUALIFICATIONS

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| 2013 – 2017 (submitted) | University of Cambridge (UK), **PhD Candidate** in Applied Mathematics; **Rutherford Foundation PhD Scholarship** (full scholarship) awarded in 2011. |
| 2008 – 2011 | University of Auckland (NZ), **B.Eng(Hons)** with **First Class Honours**; Specialising in Engineering Science; GPA 8.6 (max 9.0); **The University of Auckland Scholarship** (full scholarship) awarded in 2008; **Deans Honours List** and **Senior Prize** in Engineering Science Year 2 and 3. |
| 2006 – 2008 | Rangitoto College (NZ), **NCEA Level 1, 2 & 3** all levels endorsed with excellence; **NZQA Scholarships** in Calculus, Physics, Chemistry and Geography; **Rangitoto College Dux** with awards in Calculus, Physics, Geography and Graphics. |

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## SKILLS PROFILE

**Problem Solving:**

- Applied consistent creativity and problem solving over six research projects. Half of these projects led to peer-reviewed publication with a total of four journal papers published.

- Annually participated in the European Study Groups with Industry, week-long collaborations between mathematicians to develop solutions to industrial problems. These require mathematical modelling and prototyping skills to successfully find solutions within the time-frame.

- Utilised unfamiliar technologies for novel solutions. For example, implemented innovative new AV systems for same day DVD production of presentations at the University of Auckland's Champions Trophy.

- Analysed business and applied technology challenges through management consulting competitions and commercialisation projects, such as I-teams. Synthesised solution recommendations to problems ranging from brand protection to technological research strategies.

**Communication Skills:**

- Undertook multiple academic and sports teaching roles, including undergraduate teaching since 2010 and coaching children and adults in martial arts and trampolining with one student competing at a national level.

- Participated in intensive team training sessions in preparation for management consulting competitions that focused on modifying personal behaviour to improve the team performance, specifically improving team communication to leverage every member's contributions.

- Presented numerous times in academic and extra-carricular settings: best scientific talk at Jesus College's Graduate Conference 2016, best poster at the University of Oxford's SIAM Student Chapter conference 2014, represented the University of Auckland at management consulting, awarded the top grade for undergraduate project presentation and numerous high school debating awards.

**Technical Skills:**

- Have had over six years of research and commercial programming experience for a wide range of projects and using numerous languages, including Python, Matlab, Javascript, Java and Fortran. Predominantly algorithm implementation but also web applications, parallelisation and scripting. Most proficient in Python.

- Self-taught web development and managed websites as webmaster for four Cambridge University societies. This included PHP, Jekyll, Wordpress and Weebly websites. Also developed web applications using Django (Python), Wt (C++) and node.js frameworks. Some experience with databases throughout these projects.

- Frequently self-taught new tools to achieve solutions such as engineering software: Abaqus, Solidworks, Eclipse reservoir simulator; graphics software: Inkscape, Gimp, Lightwave; and presentation software: Latex, Beamer and reveal.js.

- Pursued independent learning since secondary-school, such as undertaking on-line courses through Coursera in digital security, cryptography, compilers, control systems and digital signal processing.

## TECHNICAL PROJECTS AND EMPLOYMENT

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| Oct 2013 – July 2017 | University of Cambridge, **PhD Candidate**: Developing mathematical models for control systems of smart and flexible manufacturing processes. Implemented solutions in Matlab and Python and scripted simulations in ABAQUS for comparison. This has so far led to two publications in the peer reviewed International Journal of Mechanical Sciences. |
| Jul 2016 – Oct 2016 | Cambridge Consultants Ltd., **Software Engineer Internship**: Worked to develop and deploy algorithms for a node.js based digital service for automated home heating. This included data analysis, simulation and back-end development. |
| Jun 2013 – Sep 2013 | University of Cambridge, **Research Assistant**: Investigated the effects of a uniform flow on a compact acoustic source using asymptotic analysis. |
| Apr 2013 – May 2013 | University of Auckland, **Research Programmer**: Parallelised an electromagnetic multi-resolution time domain finite-element solver in Fortran using both 'openMP' and 'openMPI' libraries to be run on the NESI compute cluster. |
| Jan 2013 – Apr 2013 | New Zealand Defence Technology Agency, **Research Engineer**: Analysed the performance of clustering algorithms for radar identification. This involved signal feature extraction and implementation testing in Java and Octave. |
| Mar 2012 – Dec 2012 | Self Employed, **Software Developer**: Developed student registration software for the Institute of Aikido Auckland using the Django framework in Python and client management tools in VBA and Excel for Family Works, a New Zealand charity. |
| Dec 2011 – Feb 2012 | University of Auckland, **Summer Research Scholarship**: Developed a boundary element solver in Matlab to compute the forces of a micro-device in proximity to a deformable sample. This contributed to a publication in the peer reviewed Journal of Applied Physics. |
| Mar 2011 – Sep 2011, Early 2012 | University of Auckland, **Final Year Project**: Analysed the performance of a selection of non-linear, derivative-free optimisation algorithms for reservoir management. This involved implementing several algorithms in Matlab and running large simulation sets over many computers.This work was published in SIURO. |
| Dec 2010 – Feb 2011 | New Zealand Defence Technology Agency, **Research Engineer Internship**: Statistically analysed the performance of Java and Matlab implemented algorithms to isolate discrete radar units. |
| Dec 2009 – Feb 2010 | Auckland Bioengineering Institute, **Summer Research Scholarship**: Developed an existing Javascript interface for feature identification in MRI images and investigated facial expression geometry using singular value decomposition. |

## OTHER EMPLOYMENT

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| Oct 2013 – Mar 2017 | University of Cambridge, **Undergraduate Supervisor** |
| 2010 – 2011, 2013 | University of Auckland, **Teacher Assistant and Marker** |
| 2006 – 2009 | Alpha Business Solutions Ltd., **Document Warehousing Assistant** |
| 2005 – 2013 | Various, **Volunteer Work**: Martial arts instructor, trampoline coach, coastguard crew, William C. Daldy maintenance and crew, regional park tree planting and pest control. |

## OTHER INFORMATION

**Positions of Responsibility:**
Webmaster for Jesus College Middle Combination Room (MCR) 2015/16 and 2016/17; Academic Officer for Jesus College MCR 2014/15; Webmaster for Jesus Mayball 2014; Head of IT for the Champions Trophy 2010 and 2011, an international management consulting competition; Rangitoto College prefect.
**Interests:**
Having practised martial arts since the age of four, I have achieved black belts and taught in both Karate (Shodanho) and Aikido (Nidan) as well as having learnt Judo, Systema, JiuJiutsu and Capoeira.
I enjoy outdoor pursuits such as cycle touring, long distance running and climbing.