**Tom Farley MSci, PhD**

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Personal Summary

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| I am a physicist with extensive experience using python to design and implement complex data analysis work flows applied to large data sets, with a particular focus on image processing for fusion plasma science. This has included generating novel tomographic reconstructions of plasma structures from fast camera data using knowledge of the confining magnetic field geometry, analysing infra-red camera data to calculate heat fluxes to plasma facing surfaces and applying varied statistical techniques to interpret time series signals from Langmuir probes. I am passionate about data science and love producing flexible and robust automated workflows that can extract the most information possible from complex and varied datasets. |

Key Skills

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| * Programming   + Highly experienced python programmer, applying OOP, TDD and HPC principals and version control to produce complex data analysis codes.   + Experience with C, IDL, MATLAB and the LATEX typesetting language.   + Familiarity with Bash scripting, Perl, C++, Visual Basic and Fortran. * Organisational skills   + Highly organised, creating plans, keeping detailed records and managing time effectively.   + Ability to work under pressure to deadlines. * Communication skills   + Excellent verbal and written communication both verbally at conferences and in scientific writing. * Perform well in a team, integrating readily into different teams and environments. |

Higher Education

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| **Institution** | **Subject** | **Qualification** | **Dates attended** |
| University of Liverpool as part of the Fusion CDT | Fusion Physics | PhD | 09/2013 – 08/2019 |
| University of Bristol | Physics with Industrial Experience | MSci 1st Class Honors | 09/2009 – 07/2013 |

Work Experience:

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| **Position:**  **Organisation:**  **Dates**: | Edge and Divertor Physicist  Culham Centre for Fusion Energy (CCFE, UKAEA)  07/2019 - | **Responsible officer for the MAST-U infra-red (IR) thermography systems**  - Responsible for collection and analysis of IR data central to UK and European experimental fusion physics campaigns  - Installed and operated of £100k+ of IR equipment  - Developed inter-shot analysis code providing heat flux measurements  - Scientific Coordinator for MAST-U experiments  - Managed design and procurement of diagnostic access platform |
| **Position:**  **Organisation:**  **Dates:** | Doctoral Student  University of Liverpool (Based at CCFE)  09/2013 - 07/2019 | **Developed novel tomographic inversion technique for plasma structures**  - Combined knowledge of magnetic geometry and camera viewing geometry to measure properties of helical plasma filaments  - Used synthetic camera datasets to rigorously benchmark new algorithm  - Performed statistical time series analyses of new measurements compared with Langmuir probe measurements  - Performed mass spectrometry and laser photo-detachment measurements |
| **Position:**  **Organisation:**  **Dates:** | Masters Student  University of Bristol (placement at CCFE)  09/2013 - 07/2019 | **Year in industry placement at CCFE reconstructing plasma heat flux profiles**  **-** Developed novel tools to measure the plasma scrape-off layer power decay length from large pulse database of infra-red images of the interior of the JET tokomak  - Masters project performing Density Functional Theory (DFT) *ab initio* calculations of the band structure and Fermi surface properties of the polymorphs of YIr2Si2. |

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| **Brief summary of duties and responsibilities:**  - Planning and administering of lessons.  - Tracking and analysing student progression data.  - Directing and working with teaching assistants.  - Ensuring progress of all students.  - Safeguarding . |

***Job title****: Masters Student*

***Dates****: 09/2016 – 12/2017*

***Name and type of organisation****: North Oxfordshire Academy, Secondary School.*

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| **Brief summary of duties and responsibilities:**  - Admin including database use and liaising with visitors. - Handling of payments. - Creating suitable activities for all visitors to the centre of all ages. - Team leader on selected events. |

***Job title****: Core Staff Member (Full-time, permanent).*

***Dates****: 09/2013 – 09/2015*

***Name and type of organisation****: The Othona Community West Dorset, retreat centre.*

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| **Brief summary of duties and responsibilities:**  - Administering psychological tests both through interview and computer programs.  - Liaising with research participants and participant recruitment. - Data collection, data analysis and data summarisation using both SPSS and Excel. - Frequent literature reviews to help the lead researcher generate new ideas and keep on top of relevant literature.  - Attend meetings with the team and lead researchers to discuss current and future research directions. |

***Job title****: Research Assistant (Part-time and full-time).*

***Dates****: 01/2011 – 09/2012*

***Name and type of organisation****: Cardiff University, Cognitive Neuroscience Research Centre.*

Responsibilities

* Member of the Culham Software Developers Working Group (SDWG). 2017–2019
  + Site wide body responsible for coordinating resources for software developers.
* Founder and coordinator of the Culham Coding Discussion Group (CDG). 2017–2019
  + Fortnightly meetings with online resources to share programming knowledge, expertise and resources.
  + Supervision Masters student, Supervised masters student from University of Lisbon,
  + Portugal working on filament tracking for masters project.
  + 3.5 months
  + Masters student, Supervised masters student from University of Rome, Italy
  + working on filament tracking for masters project.
  + 4 months
  + Undergraduate project, Supervised 3rd year undergraduate student from
  + University of Cagliari, Italy working on filament detection for BSc project.
  + 3 months
  + Outreach MAST-U tours: Frequently lead MAST-U tours for visitors, open evening/day attendees.
  + GCSE work experience: Supervised GCSE work experience student at CCFE.
  + Sun dome: Helped with sun dome science workshop at local primary school.
  + Affiliations Member of the Institute of Physics. 2013–
  + Member of the American Physical Society. 2017–
  + Scientific papers:

References for scientific papers which I have contributed to through research assistance. Contributions found in the acknowledgments sections.

Lawrence, N. S., Verbruggen, F., Morrison, S., Adams, R. C., & Chambers, C. D. (2015). Stopping to food can reduce intake. Effects of stimulus-specificity and individual differences in dietary restraint. *Appetite*, *85*, 91-103.

Snowden, R. J., Craig, R., & Gray, N. S. (2013). Detection and recognition of emotional expressions: Effects of traits of personality disorder and gender. *Personality and Individual Differences*, *54*(2), 158-163.

Sumner, P., Vivian-Griffiths, S., Boivin, J., Williams, A., Venetis, C. A., Davies, A., ... & Boy, F. (2014). The association between exaggeration in health related science news and academic press releases: retrospective observational study. *Bmj*, *349*, 7015.