

Overview

Name

Dr Richard Matthew Rowan-Robinson

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Communication Details

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Application Statement

My prior experience within academia combined with my recent experience within the retail sector gives me skills which I believe will allow me to contribute strongly to the RSE group as a whole. I believe this opening as a Research Software Engineer will provide me with opportunities to solve problems across diverse projects with positive impacts on society.

In the following, I outline my relevant skills:

My PhD was in Physics with a specialism in magnetic materials. This has given me an excellent understanding of a range of experimental methods, but most importantly a strong foundation in statistics. During my time as a PDRA, I became interested in data science, developing my knowledge with self-led teaching and incorporated it into my research whilst at the University of Sheffield (UoS). More recently, I have been working at Morrisons within their data science division.

I have a strong track record of working with academic and industrial partners, with experience developing software for academic and industrial stakeholders. I have participated in large academic consortiums, including a Horizon 2020 project whilst a PDRA at Uppsala University. My recent work at Morrisons also gives me an industry relevant perspective. This is further bolstered by my experience of working this Thales (also in the Horizon 2020 project) and obtaining industrial letters of support for my previous fellowship applications.

From my work at Morrisons I have experience of testing and debugging software prior to release, where our models must be tested prior to being trialled in store. I have been using git version control for the past 2 years and it is central to my current role.

I am excellent at communicating complex concepts and have utilised this when giving training. As an example, I recently gave a talk on the challenging topic of reject inference to my colleagues at Morrisons. I have found I learn topics best by presenting my work, so am always keen to provide tutorials/talks on the projects I am working on.

My experience with ML encompasses a number of algorithms, including Decisions Trees, Random Forest regression, Linear models, SVMs and time series forecasting using Prophet and Neural Prophet. As a PDRA at the UoS I was designing magnetic alloys, but the alloy parameter space was insurmountable. As such, I developed a Random Forest model for predicting the saturation magnetisation of magnetic alloys, so I could 'home-in' on alloys of interest, saving on time consuming fabrication. I sourced a training data set and created features for training the model. Being a regression model I primarily used the mean absolute error as my optimisation metric. This work later developed into an EPSRC grant application which I co-wrote with my PI (Prof. Nicola Morley) and collaborators within Computer Science (the RSE team were also involved). This project would have explored the use of natural language processing to generate a more diverse training dataset from the growing body of open source research literature.

Since then, I have built classification models during my time at Morrisons, using a range of ML techniques and using the ROC curve and precision-recall curves to assess model reliability. This work has mostly utilised tabular data, but I did complete a training course (run by the UoS RSE team in fact) for Keras/TensorFlow and I am keen to develop this skill.

During my time as a PDRA, I utilised SciPy, Numpy and Matplotlib for data visualisation and analysis. I also gained familiarity with image processing modules such as OpenCV and PIL. More recently, I have been using larger datasets where Pandas has become central to my work. In addition to these core Python skills I have coding expertise in MATLAB, SQL and I am familiar with the Google Cloud Platform.

I developed strong verbal communication skills through giving numerous talks at conferences (please see my C.V for examples) and I also regularly contribute to internal group talks for training and development. I have written fellowship applications, co-authored EPSRC grant applications and written numerous publications which are demonstrative of my strong writing skills. I pride myself on being able to pitch my presentations at a level appropriate to the audience, whether that be training undergraduates on equipment/software or communicating patent potential research concepts to industrial partners. Outside of my professional work, I recently started a blog on my personal website (<https://rich970.github.io/>) where I plan to showcase my hobby data science projects as a way to engage with the wider data science community. The first post is an analysis of the impact of COVID-19 on academic output.

I am a confident networker and during my time as a PDRA I forged multiple new collaborations. For example, at the UoS I developed new collaborations with Loughborough university when a key piece of equipment for my project failed. In addition, I led a White Rose collaboration grant application which required initiating a collaboration with the University of York and the University of Leeds.

I am a creative thinker and I have been creating software to solve my own research problems for many years. These include: tracking magnetic domain walls in microscopy images to work out the domain wall velocity, automated stitching of microscope images to calculate the surface area of samples, digitally overlaying a coordinate system on images of Silicon wafers for mapping, and implementing a model to predict the composition variation of magnetic alloys on these wafers based on the

coordinate positions from these maps. I relish solving these research problems and hence I am ultimately looking to apply these skills to as wide a range of projects as possible with the potential to have impact across various sectors. I believe this role as an RSE would provide me the opportunity to do this within a rewarding and intellectually stimulating environment with opportunities to further develop my skills.

Work Experience	
Morrisons	
Period	04.04.2022 -
Country	United Kingdom
Notice Period (if applicable)	4 weeks
Job Title	Supply chain specialist - Data Scientist
Current/Most Recent Salary	37000 GBP
Reason for Leaving	Morrisons have been excellent employers, but I have come to realise that retail cannot offer the diversity of work available through academia. Additionally, the Morrisons head office is in Bradford, making the commute challenging.

Description

Using SQL, Pandas and Scikit-Learn on a daily basis to understand the enormous amount of transactional and supply chain data which Morrisons has access to, in order to improve processes within the supply chain and in store. This includes developing ML models, data sanitization, feature engineering, and data visualisation.

Work Experience	
University of Sheffield	
Period	24.06.2019 - 31.07.2022
Country	United Kingdom
Notice Period (if applicable)	
Job Title	Research Associate
Current/Most Recent Salary	35000 GBP
Reason for Leaving	My fixed term contract came to an end

Description

This research project was centred around developing new magnetic materials within the class of High Entropy Alloys. These alloys typically contain five or more elements, so I investigated processes to enable rapid and efficient screening of the enormous number of candidate compositions. This included the design of high-throughput experiments as well as exploring the potential of machine learning.

Work Experience

Uppsala University

Period 01.01.2017 - 24.06.2019

Country Sweden

**Notice Period
(if applicable)**

Job Title Postdoctoral Research Associate

Current/Most Recent Salary 432.000 SEK

Reason for Leaving After two and a half years, and already having extended my contract, myself and my partner decided to return to the UK.

Description

At Uppsala University I worked in the new field of magnetoplasmonics, which sits at the junction of plasmonics, magnetism and photonics. I explored the potential of nanostructured magnetic materials for which the optical properties could be controlled with magnetic fields.

Work Experience

University of Nottingham

Period 01.06.2016 - 31.12.2016

Country United Kingdom

**Notice Period
(if applicable)**

Job Title Postdoctoral Research Associate

Current/Most Recent Salary 28982 GBP

Reason for Leaving This was a short-term one year contract and part way into it I was contacted by the group in Uppsala and encouraged to apply for a new position which had opened up, which was able to offer a longer term contract.

Description

In this project I investigated the potential of using strain to control magnetisation within micrometer sized magnetic wires. In collaboration with the University of Leeds, I used specialist microscopy techniques to image the growth of magnetic domains, and completed subsequent image analysis using Python.

Education

Durham University

Period 01.09.2012 - 01.06.2016

Country United Kingdom

Qualification Doctor of Philosophy

Subject Physics

Education

Final Grade

Description

My PhD in Physics was obtained from Durham University. The thesis is titled "Spin-orbit phenomena and interfacial proximity effects in magnetic multilayers". I investigated a variety magnetic phenomena in low-dimensional magnetic systems, designing experiments and writing software to control instruments, alongside a substantial amount of data analysis using Matlab.

Please see the attached CV where I have opted to summarise specific examples of the transferable skills from my education and employment which I believe are relevant to this application.

Education

University of Leeds

Period 01.09.2008 - 01.06.2012

Country United Kingdom

Qualification MPhys

Subject Physics

Final Grade First class honours

Description

An integrated masters course in Physics. In addition, I completed two summer placements in the condensed matter physics research group.

Questionnaire

Diversity Monitoring

Ethnic Origin White

Gender
☒ Male
☐ Female
☐ Other

Is your gender identity the same as the gender you were originally assigned at birth?
☒ Yes
☐ No

Age 30-39

Date of Birth 02-07-1990

Nationality British

Do you consider yourself to have a disability?
☐ Yes
☒ No

If yes, please tick the box(es) alongside any of the statements below that you feel apply to Question not answered.

Questionnaire

yourself:	
What is your religion?	No religion
What is your sexual orientation?	Heterosexual
Teaching Qualifications	
Academic Teaching Qualifications	<input checked="" type="checkbox"/> None <input type="checkbox"/> HEA Associate Fellow <input type="checkbox"/> HEA Fellow <input type="checkbox"/> HEA Senior Fellow <input type="checkbox"/> HEA Principal Fellow <input type="checkbox"/> NTFS Individual Award <input type="checkbox"/> PGCE or Equivalent UK Qualification <input type="checkbox"/> Completed an institutional course in teaching in the HE Sector accredited against the UK Professional Standards Framework <input type="checkbox"/> Accredited teacher of subject by Professional UK Body <input type="checkbox"/> Other UK accreditation for teaching in Higher Education sector <input type="checkbox"/> Overseas accreditation/qualification
Qualification/Accreditation Details	Question not answered.
Criminal Records	
Do you have any unspent conditional cautions or convictions under the Rehabilitation of Offenders Act 1974?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes
Do you have any adult cautions (simple or conditional) or spent convictions that are not protected as defined by the Rehabilitation of Offenders Act 1974 (Exceptions) Order 1975 (Amendment) (England and Wales) Order 2020?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes
If you have answered YES to any of the above questions, please provide details	Question not answered.
Disability Confident	
I consider myself to have a disability as defined by the Equality Act 2010 and would like my application to be considered under the Disability Confident Scheme	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Eligibility to Work in the UK	
Do you currently have the right to work in the UK?	Yes - British or Irish Citizen

Questionnaire

Please provide any other information relating to your eligibility to work in the UK	Question not answered.
If you hold a visa or other permission entitling you to work in the UK, when does it expire?	Question not answered.
National Insurance Number	JS 83 71 36 A
Referees	
1: NAME OF FIRST REFEREE	Nicola Morley
1: Job Title	Professor
1: Relationship to you	PI (whilst at Sheffield University)
1: Email address	n.a.morley@sheffield.ac.uk
1: Address	Question not answered.
1: Telephone number	Question not answered.
1: May we approach the referee without consulting you beforehand?	X Yes _ No
2: NAME OF SECOND REFEREE	Tom Hayward
2: Job Title	Senior Lecturer
2: Relationship to you	Mentor & senior academic in previous research group
2: Email address	t.hayward@sheffield.ac.uk
2: Address	Question not answered.
2: Telephone number	Question not answered.
2: May we approach the referee without consulting you beforehand?	X Yes _ No
3: NAME OF THIRD REFEREE	Vassilios Kapaklis
3: Job Title	Professor
3: Relationship to you	PI (whilst as Uppsala University)
3: Email address	vassilios.kapaklis@physics.uu.se
3: Address	Question not answered.
3: Telephone number	Question not answered.
3: May we approach the referee without consulting you beforehand?	X Yes _ No

Application Source

Application Source Type	Website
Application Source	jobs.ac.uk