

Job Description and Person Specification

Last updated: 21/06/2019

JOB DESCRIPTION

Post title:	Research Fellow Topological complexity of neural networks		
School/Department:	School of Mathematical Sciences		
Faculty:	Social Sciences		
Career Pathway:	Education, Research and Enterprise (ERE)	Level:	4
*ERE category:	Research pathway		
Posts responsible to:	Professor of Pure Mathematics		
Posts responsible for:	N/A		
Post base:	Office-based/Non Office-based (see job hazard analysis)		

Job purpose
To undertake research in accordance with the specified research project under the supervision of the award holder. To undertake leadership, management and engagement activities.

Key accountabilities/primary responsibilities	% Time
1. To carry out research in topological methods in the theory and applications of neural networks.	40 %
2. Regularly disseminate findings by taking the lead in preparing publication materials for referred journals, presenting results at conferences, or exhibiting work at other appropriate events.	20 %
3. Contribute to the writing of bids for research funding.	10 %
4. Carry out experimental tests of possible applications and implementations of the theory.	10 %
5. Participate in the relevant activities at the Alan Turing Institute.	5 %
6. Carry out administrative tasks associated with specified research funding, organisation of project meetings and documentation. Implementation of procedures required to ensure accurate and timely formal reporting and financial control.	5 %
7. Supervise the work of junior research staff.	5 %
8. Any other duties as allocated by the line manager following consultation with the post holder.	5 %

Internal and external relationships

Direct responsibility to holder of research award or academic supervisor.

Collaboration with members of the Joining the Dots team within Mathematical Sciences and other departments, as appropriate.

May have additional reporting and liaison responsibilities to external funding bodies or sponsors.

Special Requirements

To attend national and international conferences for the purpose of disseminating research results.

*Applications for Research Fellow positions will be considered from candidates who are working towards or nearing completion of a relevant PhD qualification. The title of Research Fellow will be applied upon successful completion of the PhD. Prior to the qualification being awarded the title of **Senior Research Assistant** will be given.*

PERSON SPECIFICATION

Criteria	Essential	Desirable	How to be assessed
Qualifications, knowledge and experience	<p>PhD or equivalent professional qualifications and experience in Mathematics or Computer Science</p> <p>Detailed understanding and knowledge of topological data analysis</p> <p>Experience with the theory and practice of deep neural networks</p> <p>Good programming skills in Matlab Python, or similar</p> <p>Experience with developing new code to support research</p> <p>Track record of independent research work</p>	<p>Experience with practical applications of deep neural networks</p> <p>Experience of working in an interdisciplinary research environment</p> <p>Teaching at undergraduate level and contributing to teaching at postgraduate level</p>	CV, references, interview
Planning and organising	Able to organise own research activities to deadline and quality standards		CV, references, interview
Problem solving and initiative	<p>Able to develop understanding of complex problems and apply in-depth knowledge to address them</p> <p>Able to develop original techniques/methods</p>		CV, references, interview
Management and teamwork	<p>Able to supervise work of junior research staff, delegating effectively</p> <p>Able to contribute to the team's management and administrative processes</p> <p>Work effectively in a team, understanding the strengths and weaknesses of others to help teamwork development</p>		CV, references, interview
Communicating and influencing	<p>Communicate new and complex information effectively, both verbally and in writing, engaging the interest and enthusiasm of the target audience</p> <p>Able to present research results at group meetings and conferences</p> <p>Able to write up research results for publication in leading peer-viewed journals</p> <p>Work proactively with colleagues in other work areas/institutions, contributing specialist knowledge to achieve outcomes</p>		CV, references, interview
Other skills and behaviours	<p>Understanding of relevant Health & Safety issues</p> <p>Positive attitude to colleagues and students</p>		CV, references, interview

Special requirements	Able to attend national and international conferences to present research results		CV, references, interview
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JOB HAZARD ANALYSIS

Is this an office-based post?

<input checked="" type="checkbox"/> Yes	If this post is an office-based job with routine office hazards (eg: use of VDU), no further information needs to be supplied. Do not complete the section below.
<input type="checkbox"/> No	If this post is not office-based or has some hazards other than routine office (eg: more than use of VDU) please complete the analysis below. Hiring managers are asked to complete this section as accurately as possible to ensure the safety of the post-holder.

- HR will send a full PEHQ to all applicants for this position. Please note, if full health clearance is required for a role, this will apply to all individuals, including existing members of staff.

ENVIRONMENTAL EXPOSURES	Occasionally (<30% of time)	Frequently (30-60% of time)	Constantly (> 60% of time)
Outside work			
Extremes of temperature (eg: fridge/ furnace)			
## Potential for exposure to body fluids			
## Noise (greater than 80 dba - 8 hrs twa)			
## Exposure to hazardous substances (eg: solvents, liquids, dust, fumes, biohazards). Specify below:			
Frequent hand washing			
Ionising radiation			
EQUIPMENT/TOOLS/MACHINES USED			
## Food handling			
## Driving university vehicles(eg: car/van/LGV/PCV)			
## Use of latex gloves (prohibited unless specific clinical necessity)			
## Vibrating tools (eg: strimmers, hammer drill, lawnmowers)			
PHYSICAL ABILITIES			
Load manual handling			
Repetitive crouching/kneeling/stooping			
Repetitive pulling/pushing			
Repetitive lifting			
Standing for prolonged periods			
Repetitive climbing (ie: steps, stools, ladders, stairs)			
Fine motor grips (eg: pipetting)			
Gross motor grips			
Repetitive reaching below shoulder height			
Repetitive reaching at shoulder height			
Repetitive reaching above shoulder height			
PSYCHOSOCIAL ISSUES			
Face to face contact with public			
Lone working			
## Shift work/night work/on call duties			