UNIVERSITY of Reading

JOB DESCRIPTION

Vacancy reference:	SRF37726
Post Title:	Postdoctoral Research Assistant
Grade:	6
School/Department:	School of Psychology and Clinical Language Sciences & School of Biological Sciences
Reports to:	Profs Ingo Bojak & Jon Gibbins
Responsible for:	

Purpose

This exciting position combines computational modelling and experimental research in platelet biology, a dynamic field within cardiovascular biology. It is part of a larger grant that will introduce a philosophical basis for an empirically tractable space of possibilities for biological mistakes, which can be used to identify targets for experimental discovery and/or classify characteristic mistakes exhibited by organismal activities. The overarching aim of this position is to develop practical computational tools and methods corresponding to this novel philosophical framework.

About the grant

Our grant "Mistakes in living systems: a new conceptual framework for the study of purpose in biology" is part of a John Templeton Foundation Cohort Program "Agency, Directionality, and Function: Foundations for a Science of Purpose" that involves 24 large international groups, and at the University of Reading an interdisciplinary collaboration of four Professors from three different Schools. There will be many interactions with these other groups, including international travel (the situation permitting) and we expect the position holder to be enthusiastic about engaging with researchers from a wide variety of backgrounds. This Program brings together natural scientists and philosophers in particular, and a strong interest in the philosophy of biology in a broad sense will be essential to make good use of this completely unique opportunity.

Main duties and responsibilities

The key output of the present position will be data analyses and computational modelling that render philosophical insights into scientific predictions. Work will be carried out in the field of haemostasis primarily, based on existing data and data gathered experimentally for this project. However, the theoretical development will be extended with the intention of finding general patterns across a wide variety of biological systems.

Research:
- Undertake research under the supervision of Bojak (computational modelling, theory) and Gibbins (haematology, experiment)
- Use initiative and creativity to gather, analyse and interpret research data
- Consult with other members of the team (Oderberg, Hill, a PDRA in philosophy) on the philosophical underpinnings of the project
- Carry out independent research within the remit of the wider Templeton Program
- Contribute to the writing of several papers for publication in leading academic journals
- Disseminate research findings through participation in and presentations at conferences, workshops, etc., in particular also at events organized by the Templeton Program
- Contribute to the development of follow-on research proposals and projects
- Collaborate with other colleagues in the University, within the Templeton Program and the wider scientific community in the development of original research

Outreach:
- Contribute regularly to the project's public blog by writing research updates, etc.
- Contribute to video and other media produced for the general public or educational purposes
- Engage with social media to advertise and represent the project (as directed and agreed)

Leadership & Management:
- Undertake project-related administration such as organising project meetings, procuring supplies, plan journeys, etc.
- Help organize meetings, conferences, and public presentations put on by the project team and potentially likewise engage with events organized by the Templeton Program
- Potentially assist with the editing of proceedings or a collection of topical papers
- May supervise the work of support staff (e.g., technicians) and PhD/project students
- Participate in School promotion and recruitment (both SPCLS and SBS) where appropriate

Supervision received

The post will be under the joint supervision of Profs Ingo Bojak (Computational Modelling) (Project PI / Grant Co-I) and Jonathan Gibbins (Haematology) (Project PI / Grant Co-I). The individual will be line managed by Prof Ingo Bojak.

The post is part of a Templeton Foundation grant involving Profs David Oderberg (Grant PI) and Jonathan Hill (Grant Co-I) on the philosophical side. They will provide the general philosophical framework within which the work will be done. Experienced technicians and postdoctoral workers in Platelet Biology Group will also provide initial day-to-day guidance, and a second PDRA in Philosophy will be part of the team.

Supervision given

The post holder will be expected to provide supervision and guidance to undergraduate and PhD students, members of the laboratory, and visitors, who are less experienced with technical approaches to be used in the laboratory.

Contact

The post holder will be a member of the Platelet Biology Group at the University of Reading, within the Institute for Cardiovascular and Metabolic Research and the School of Biological Sciences, and will have contact with many members of this school.

The local supervisor there will be Prof Jon Gibbins(Project PI / Grant Co-I). He will also have hot desk access at the School of Psychology and Clnical Languages Sciences, where the line manager will be Prof Ingo Bojak (Project PI / Grant Co-I). Prof Jonathan Hill (Grant Co-I) is also available in this School.

They will meet members of other schools within the University, in particular in the Department of Philosophy where the Grant PI, Prof David Oderberg, is located, as well as external collaborators from within and without the larger Templeton cohort.

Terms and conditions

This is a full-time 1.0 FTE post for up to 32 months. A delay to the intended start date of 1st December 2021 may limit the duration of the position.

There are no specified hours of work, but you will be required to work such hours as are necessary to carry out the duties associated with the post. Overtime is not payable.

This document outlines the duties required for the time being of the post to indicate the level of responsibility. It is not a comprehensive or exhaustive list and the line manager may vary duties from time to time which do not change the general character of the job or the level of responsibility entailed.

Date assessed: 17 September 2021.

PERSON SPECIFICATION

Job Title	School/Department
Postdoctoral Research Assistant	SPCLS & SBS

Criteria	Essential	Desirable
Skills Required	• Constructing and evaluating computational models of complex / biological systems • Performing analyses of large sets of data with statistical and computational tools • Ability to program or "script" (in any suitable language, e.g., Python, C++, Matlab, ...) • Competence in using technical devices (e.g., lab equipment) • Ability to communicate effectively (written and oral) • Ability to work effectively as a team member within a large interdisciplinary group	• Performing data analysis and the visualization of data with software tools (e.g., R, Python, or Matlab) • Proficiency in the use of bioinformatic tools • Competence in laboratory techniques (molecular biology, protein biochemistry, microscopy, tissue culture, animal or human studies) • Creative development of new theories and approaches
Attainment	• A PhD in an area relevant to the project, like systems biology, haematology, physics • Relevant research submitted for peer review • Good background in computing and applied mathematics	• Prior postdoctoral position in a relevant field • A track record of published peer-reviewed research • Interdisciplinary research
Knowledge	• Basic understanding of data analysis and statistics • Basic understanding of computational modelling and numerical simulation • Basic understanding of biology (e.g. systems biology, physiology, cell biology, biochemistry) • Laboratory health and safety practices (essential for existing skills, will be taught if acquiring new skills)	• Advanced knowledge in mathematics, statistics, bioinformatics and numerical methods • A background in haematology • Advanced understanding of research techniques in molecular biology (PCR, cloning, etc.), protein biochemistry (immunopre-cipitation, SDS-PAGE, Western blotting etc.), microscopy (fluorescence: intravital, confocal), tissue culture and animal models of disease • Knowledge of or study in the philosophy of biology, philosophy of sciense in general, agency, teleology, and/or Aristotelian metaphysics

Relevant Experience	• Experience with applying computational modelling to experimental data • Carrying out both independent and directed research • Experience of managing a project and record keeping • Experience with public speaking at conferences, events, etc. • Networking in order to drive mutual research interests	• Previous postgraduate experience in a relevant field (see above) • Working with large or complex data • Applying control theory or machine learning
Disposition	• Professional • Able to work both independently and within a team • Well-organized and with attention to detail • A finisher / completer • Interest in philosophy, especially philosophy of science • Willingness to learn new techniques, e.g., to contribute to experimental studies • Openness to work across traditional discipline boundaries	• Enjoying outreach, public performance, social media management, video production, etc.

Completed by: Profs Ingo Bojak and Jonathan Gibbins   Date: 17/09/21