Australian National University

Position Description

College/Division:	ANU College of Health and Medicine
Faculty/School/Centre:	John Curtin School of Medical Research
Department/Unit:	Centre for Computational Biomedical Sciences
Position Title:	**MACSYS Post-doctoral Research Fellow**
Classification:	**Academic Level A**
Position No:	
Responsible to:	Professor Eduardo Eyras

PURPOSE STATEMENT:

ANU has an international reputation for research and education and for its groundbreaking contributions to fundamental aspects of science and technology, relevant to the health and well-being of Australia and the world. Discovery research from The John Curtin School of Medical Research (JCSMR) has resulted in 3 Nobel prizes for Medicine and Physiology.

The JCSMR is a multi-disciplinary institute with strong research and a distinguished history in RNA Biology, Cancer Research, Immunology, Rare Disease, Neuroscience, and Indigenous Genomics, organised into three Divisions, Genome Sciences and Cancer, Immunology and Infection Disease, and Neuroscience. Across all three Divisions, advanced computational biology and bioinformatics are strengths that have been consolidated at the Centre for Computational Biomedical Sciences (CCBS) and the Shine-Dalgarno Centre for RNA Innovation. The CCBS leads research by developing innovative algorithms, computational tools, and scalable and secured data infrastructures, empowering ANU and JCSMR roles in national and global research initiatives and collaborations with academia, government, and industry.

We are looking to recruit a highly motivated post-doctoral fellow to join the **Australian Research Council Centre of Excellence for the Mathematical Analysis of Cellular Systems** (MACSYS), the world's largest focused research initiative in mathematical biology. MACSYS brings together mathematical, computational, and biological scientists to generate the mathematics and computational technologies required to make biology predictive; establish mathematical whole cell models (WCMs) for in silico biology as a powerful complement to traditional *in vivo* and *in vitro* approaches; tackle fundamental biological problems; and establish a world-leading research and biotechnology translation environment. MACSYS will strongly emphasise equity and diversity in research, training, and outreach.

Join a dynamic, multidisciplinary team as a Postdoctoral Fellow at the ANU node of MACSYS. In this role, the successful candidate will develop innovative artificial intelligence (AI) and machine learning (ML) methods for the data-driven modelling of biological systems, with emphasis on molecular and cellular systems. This position requires expertise in artificial intelligence/machine learning, scientific inference, bioinformatics, and biological data analysis.

KEY ACCOUNTABILITY AREAS:

Position Dimension & Relationships:

The Postdoctoral Fellow will be a member of Prof. Eduardo Eyras' research group at the Centre for Computational Biomedical Sciences, the John Curtin School of Medical Research, and the ARC Centre of Excellence for the Mathematical Analysis of Cellular Systems. The successful candidate will be expected to work collegially, leading by example to develop and maintain effective, productive and beneficial workplace relationships with all academic and professional staff, students and honorary appointees, as well as with industry stakeholders. This position will also have a mentoring role for students and will engage in collegial and productive collaborations with local, national and where possible, international colleagues.

Role Statement:

- Undertake independent research of relevance to AI/ML applied to the data-driven modelling of biological systems with a view to publishing original and innovative results in refereed journals, present research at academic seminars and at national and international conferences, and collaborate with other researchers at a national level. This includes working as part of a team on an externally funded project subject to deadlines;

- Involvement in professional activities including, subject to availability of funds, attendance at conferences and seminars in the field of expertise;
- some administrative functions primarily connected with the area of research of the academic;
- development of some research-related material for training or other purposes with appropriate guidance from other staff;
- occasional contributions to training in relation to his/her research project(s);
- experimental design, and operation of advanced laboratory and technical equipment or conduct of advanced research procedures;
- attendance at meetings associated with research or the work of the organisational unit to which the research is connected and/or at departmental and/or faculty meetings and/or membership of a limited number of committees;
- provide advice and supervision to undergraduate and graduate students within the field of research;
- other duties as allocated by the supervisor or the Vice-Chancellor consistent with the classification of the position; and
- behave in a collegial manner in accordance with the ANU's Code of Conduct in all areas of Research, Education and Service.

Skill Base

A Level A Academic is expected to make outstanding contributions to the research within the organisational unit and, if applicable, as part of a team on an externally funded project. The Level A Academic is also expected to work with the support, guidance, and/or direction from Level B staff and above with the view to lead or contribute to development of applications for competitive funding, participate in the organisation of academic activities, and assist in the supervision of undergraduate and graduate students within the same research field.

SELECTION CRITERIA:

1. A PhD (or awarding of a PhD within six months of appointment commencement) in a field relevant to bioinformatics and AI/ML applied to biological systems (e.g. mathematics, bioinformatics, computer science, bioengineering, etc.) or equivalent qualifications
2. Research experience in a related area, as evidenced by academic outputs such as publications in peer-reviewed journals, conference proceedings, and presentations at conferences
3. Strong expertise in AI/ML development and biological data analysis
4. Proficiency in analysing diverse biological data types, including DNA, mRNA, and protein
5. Statistical bioinformatics skills for data analysis and interpretation
6. Evidence of experience in the application of quantitative methodologies to problems in biology.
7. An ability and commitment to lead or contribute to applications for competitive external funding to support individual and collaborative research activities
8. The ability to assist in the supervision of graduate and undergraduate students working on research projects.
9. The ability to work as part of a team and to meet deadlines
10. Excellent oral and written English language skills and a demonstrated ability to communicate and interact effectively with a variety of staff and students in a cross-disciplinary academic environment and to foster respectful and productive working relationships with staff, students and colleagues at all levels.
11. A demonstrated understanding of equal opportunity principles and policies and a commitment to their application In a university context

The ANU conducts background checks on potential employees, and employment in this position is conditional on satisfactory results in accordance with the Background Checking Procedure which sets out the types of checks required by each type of position.

Supervisor/Delegate Name:	*Professor Eduardo Eyras*	Date:	*4/22/2024*

References:
General Staff Classification Descriptors
Academic Minimum Standards

Australian National University

Pre-Employment Work Environment Report

Position Details

College/Div/Centre	ANU College of Health and Medicine	**Dept/School/Section**	John Curtin School of Medical Research
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Position No.		**Reference No.**	

In accordance with the Work Health and Safety Act 2011 (Cth) the University has a primary duty of care, so far as reasonably practicable, to ensure the health and safety of all staff while they are at work in the University.

- This form must be completed by the supervisor of the advertised position and forwarded with the job requisition to Appointments and Promotions Branch, Human Resources Division. Without this form jobs cannot be advertised.

- This form is used to advise potential applicants of work environment and health and safety hazards prior to application.

- Once an applicant has been selected for the position they must familiarise themselves with the University WHS Management System via Handbook guidance https://services.anu.edu.au/human-resources/health-safety/whs-management-system-handbook

- The hazards identified below are of generic nature in relation to the position. It is not correlated directly to training required for the specific staff to be engaged. Identification of individual WHS training needs must be in accordance with WHS Local Training Plan and through the WHS induction programs and Performance Development Review Process.

- 'Regular' hazards identified below must be listed as 'Essential' in the Selection Criteria - see ' Employment Medical Procedures' at http://info.anu.edu.au/Policies/_DHR/Procedures/Employment_Medical_Procedures.asp

Potential Hazards

- Please indicate whether the duties associated with appointment will result in exposure to any of the following potential hazards, either as a **regular** or **occasional** part of the duties.

TASK	regular	occasional	TASK	regular	occasional
key boarding	☒	☐	laboratory work	☐	☐
lifting, manual handling	☐	☐	work at heights	☐	☐
repetitive manual tasks	☐	☐	work in confined spaces	☐	☐
Organizing events	☐	☒	noise / vibration	☐	☐
fieldwork & travel	☐	☐	electricity	☐	☐
driving a vehicle	☐	☐			
NON-IONIZING RADIATION			**IONIZING RADIATION**		
solar	☐	☐	gamma, x-rays	☐	☐
ultraviolet	☐	☐	beta particles	☐	☐
infra red	☐	☐	nuclear particles	☐	☐
laser	☐	☐			
radio frequency	☐	☐			
CHEMICALS			**BIOLOGICAL MATERIALS**		
hazardous substances	☐	☐	microbiological materials	☐	☐
allergens	☐	☐	potential biological allergens	☐	☐
cytotoxics	☐	☐	laboratory animals or insects	☐	☐
mutagens/teratogens/ carcinogens	☐	☐	clinical specimens, including blood	☐	☐
pesticides / herbicides	☐	☐	genetically-manipulated specimens	☐	☐
			immunisations	☐	☐

OTHER POTENTIAL HAZARDS (please specify):

Supervisor/Delegate Name:	*Professor Eduardo Eyras*	**Date:**	*5/11/2023*