Postdoc fellowship funding opportunity – Designing RNA with Custom Properties using AI

Background

RNA therapeutics have been successfully implemented as vaccines, and their application to other conditions, such as cancer and rare diseases, is being explored. Custom design of RNA properties (e.g., storage stability, in vivo stability, and translation efficiency) is crucial to developing RNA therapies with increased efficiency and safety. However, this is a significant challenge due to an incomplete understanding of the relationship between RNA sequence and in vivo properties. This project aims to use state-of-the-art artificial intelligence architectures and large datasets to solve this challenge and design RNA molecules with tailored properties.

Project

This position will focus on developing deep learning models to predict and design RNA properties towards improved RNA therapeutics development.

Research Environment

The project is co-supervised by Dr. Paul Jaschke and A/Prof. Georgy Sofronov at Macquarie University in Sydney, Australia, across the Schools of Natural Sciences, Mathematical and Physical Sciences, and Computing. The supervisors have a wide range of experience in synthetic biology, bioinformatics, and statistical machine learning methods and receive support from the ARC Centre of Excellence in Synthetic Biology, Research Centre in Multi-omics, Biomolecular Discovery Research Centre, and the Data Horizons Research Centre. The postdoctoral fellow will work closely with a newly recruited PhD student and other members of the supervisor's diverse research groups on a Macquarie University BioInnovation Strategy project focussed on using AI for synthetic biology.

Position/Funding

We are looking for postdoctoral candidates interested in applying to the Australian competitive fellowship scheme National Intelligence Postdoctoral Grants (https://www.grants.gov.au/Go/Show?GoUuid=886e5160-c6d2-435b-822e-4ceab20dd741) to wholly fund this position. This fellowship requires that the applicant be an Australian citizen, Australian permanent resident, or a New Zealand Special Category Visa Holder. Only applicants who satisfy this requirement will be considered.

The NIPG funding is for two years full-time or four years part-time, **starting in Q3 or Q4 2025**.

Desired Candidate Profile

- PhD in Biological or Quantitative Sciences with experience in AI/deep learning models.
- Experience with RNA biology, synthetic biology and next-generation sequencing experiments.

- Strong record of your ability to complete projects. Evidenced by publications, patents, and similar.
- Record of prior grant application success.

Contact
If you are interested in applying for this funding scheme in collaboration with Dr. Jaschke and A/Prof. Sofronov, please send an email containing: (1) a CV, (2) short message introducing yourself and explaining how this project would fit into your career path, and (3) confirmation that you satisfy the citizenship requirements, to: nipg-postdoc@mq.edu.au

Deadline
Friday 31 January 2025