



THE UNIVERSITY OF MANCHESTER
PARTICULARS OF APPOINTMENT
FACULTY OF SCIENCE & ENGINEERING
SCHOOL OF NATURAL SCIENCES
DEPARTMENT OF CHEMISTRY
RESEARCH FELLOW IN ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING FOR
SCIENTIFIC DISCOVERY
VACANCY REF: SAE-032705

Salary: Grade 7, £48,337 - £59,390 per annum
Hours: Full Time (1 FTE)
Duration: Fixed term available from January 2027 for 24 months
Location: Manchester Institute of Biotechnology (MIB)

Enquiries about the vacancy, shortlisting and interviews:

Name: Prof Roberto Chica
Email: roberto.chica@manchester.ac.uk

BACKGROUND

The Chica Research Group, based within the Manchester Institute of Biotechnology (MIB) and the Department of Chemistry at the University of Manchester, develops computational and experimental approaches for enzyme design and protein engineering.

We seek an outstanding researcher with expertise in machine learning, artificial intelligence, computer science, applied mathematics, statistics, or a related quantitative discipline. The successful candidate will join a highly interdisciplinary research environment and work closely with researchers developing next-generation computational methods for biomolecular design and engineering.

Prior expertise in chemistry, biology, or protein science is advantageous but not required.

Overall Purpose of the Role

The postholder will serve as the group's machine-learning and artificial-intelligence specialist, leading the development and application of modern data-driven methods to challenges in protein engineering and enzyme design.

Working closely with computational and experimental researchers, the successful candidate will analyse large biological, chemical, and experimental datasets; develop predictive models and computational tools; and help identify opportunities where machine learning and artificial intelligence can accelerate scientific discovery.

The role offers substantial scope for methodological innovation and provides an opportunity to help shape the future development of AI-enabled research within the group.

Key Responsibilities, Accountabilities or Duties

The successful candidate will:

- Develop and apply machine-learning approaches to challenges in protein engineering and enzyme design.
- Analyse, integrate, and model large biological, chemical, and experimental datasets.
- Design, implement, train, and evaluate predictive machine-learning models.
- Develop computational tools, workflows, software, and methodologies that support data-driven scientific discovery and expand the laboratory's computational capabilities.
- Provide specialist expertise, guidance, training, and support in machine learning, data science, and artificial intelligence across the research group.
- Collaborate with researchers from diverse disciplinary backgrounds to identify and address scientific challenges using AI and machine-learning approaches.
- Work closely with postdoctoral researchers, PhD students, and other team members on computational and experimental projects.
- Contribute to collaborative research projects, publications, conference presentations, and funding applications.
- Maintain high standards of software development, documentation, and reproducible research.
- Contribute to the strategic development of the group's computational and AI research activities and keep abreast of developments in artificial intelligence, machine learning, data science, and scientific computing.

PERSON SPECIFICATION

Essential

- PhD (or equivalent) in Computer Science, Artificial Intelligence, Machine Learning, Applied Mathematics, Statistics, Physics, Software Engineering, or a related discipline, with additional research knowledge gained in either an academic or industry setting. We are open to candidates who can meet our requirements from diverse backgrounds and differing levels of seniority, and actively encourage individuals from under-represented groups to apply.
- Experience developing, training and evaluating machine-learning and deep-learning

models.

- Strong programming skills, particularly in Python.
- Experience with machine-learning frameworks such as PyTorch, TensorFlow, or JAX.
- Experience working with large and complex datasets.
- Experience developing, training, and evaluating predictive models.
- Strong analytical and problem-solving skills.
- Excellent organisational and time-management skills.
- Ability to evaluate and interpret complex datasets and computational results.
- Ability to communicate complex technical concepts to both specialist and non-specialist audiences.
- Ability to manage competing priorities and deliver research outputs to agreed deadlines.
- Evidence of research productivity through publications, software, or other scholarly outputs.
- Ability to work independently and collaboratively within multidisciplinary teams.
- Excellent written and verbal communication skills.

Desirable

- Experience with advanced deep-learning architectures and methods, such as transformers, self-supervised learning, representation learning, generative models, graph neural networks, or foundation models.
- Experience with large-scale model training, GPU computing, cloud computing, or high-performance computing environments.
- Experience working with biological, chemical, or other scientific datasets.
- Experience mentoring students or junior researchers.
- Ability and willingness to learn new computational methods and technologies.
- Interest in expanding knowledge of chemistry, protein structure, enzyme catalysis, and related aspects of enzyme function and design.