POSITION DESCRIPTION

Lecturer
Material Studies with Artificial Intelligence

Position Level | B
Faculty/Division | Science
Position Number | 00092384
Original document creation | 12/04/2021

Position Summary
The Lecturer position in Materials Studies with Artificial Intelligence (AI), funded by the Division of Research and Enterprise, is based in the School of Materials Science and Engineering, Faculty of Science. The Lecturer will undertake research and related teaching activities in Machine Learning (ML) and related computational techniques applied to materials research. The Lecturer will also contribute to the wider computational research community in UNSW through cross-faculty projects and training activities through engagements across different disciplines.

The role of the Lecturer reports to the Head of School and the Director of Research Technology Services. The role will contribute to the goals of the School and of the Materials & Manufacturing Futures Institute (MMFI) and Research Technology Services, through strong relationships with the academics and research support staff, and the broader PVC Research Infrastructure programs.

Accountabilities
Specific accountabilities for this role include:

- Conduct research of high quality and high impact in ML techniques that support or complement existing areas of expertise in the School and that contribute to the broader research mission of UNSW. These can include (but are not limited to) data-science applied in areas such as material science, chemistry, physics and related engineering disciplines.

- Actively build internal and external research relationships, leading to competitive government and industry research funding and publication of high-quality outcomes.

- Contribute to cross-disciplinary projects and research proposals involving the School, Research Technology Services and other University Departments, as well as external organisations.
Contribute to training and skills development for the University computational research communities through designing and delivering training courses/programs in relevant disciplines, such as HPC, scientific programming, data science/data analytics applied to specific research domains.

Provide expert advice and consultancy in relevant disciplines, such as HPC, scientific programming, data science/data analysis applied to specific research domains.

Under Research Technology Services, provide user and application supports in computational-related research. Work activities are expected to include:

- problem solving at a high level for designing applications, workflows and data management plans;
- providing support on grant applications that may require application/workflow design, tailored data management plan, or data analytic tools;
- effective project/task management in responding to user support issues, and
- developing and maintaining up-to-date locally written APIs for scientific computing and/or software.

Actively contribute to teaching and development, course coordination, curriculum design, course administration and quality assurance for the core stream curriculum in materials science and engineering, drawing on recent practical and professional experiences.

Use developments in blended learning and other contemporary pedagogical practices to inform course design and delivery.

Supervise and provide training to higher degree research students and honours students as appropriate.

Attend School and Faculty meetings, hold membership on university committees and participate in professional activities as appropriate.

Undertake a range of administrative tasks as directed by the Head of School or the Director of Research Technology Service.

Communicate effectively and respectfully with all staffs and students in the interests of good business practice, collaboration, and enhancement of University’s reputation.

Align with and actively demonstrate the UNSW Values in Action: Our Behaviours and the UNSW Code of Conduct.

Cooperate with all health and safety policies and procedures of the university and take all reasonable care to ensure that your actions or omissions do not impact on the health and safety of yourself or others.

**Skills and Experience**

- PhD degree in Materials Science and Engineering, Physics, Chemistry or a relevant discipline.

- Demonstrated experience in relevant computational techniques and associated tools (examples include but are not limited to: Machine Learning, Density-Functional-Theory, Parallel Computing and/or Task Farming), and demonstrated broad-range of applications in materials research.

- A strong track record in independent and cross-disciplinary collaborative research as demonstrated by high-quality publications, particularly in computational, ML and/or AI techniques.
applied to materials research. Experience with molecular dynamics, inelastic neutron scattering, and functional electronic materials will be favourably regarded.

- An emerging track-record or demonstrated potential for securing research support from competitive grant schemes and industry.
- A demonstrated ability to work positively and cooperatively in a teaching and research-intensive environment, including across disciplines.
- Working experience in a shared computing facility or large lab delivering discipline-based technical support or training.
- Demonstrated experience fostering a Machine Learning/Computational Research community of practice including, for example - development of training programs, seminar series, course syllabus, and interactions with technical leaders in other organisations.
- A demonstrated ability to undertake quality teaching of both introductory and specialist courses at undergraduate and postgraduate level.
- A demonstrated ability to develop quality curriculum in disciplines such as computational and machine-learning in material science, physical properties of materials.
- A demonstrated experience in course or program coordination and administration.
- The ability to apply new and innovative methods for teaching including the capacity to use current and new technologies for delivery in a flexible learning environment.
- Excellent interpersonal, oral, and written communication skills appropriate for interacting effectively with team members, collaborators and colleagues, including the ability to clearly write project and operational documents, produce online contents and contribute to meetings. This includes an ability to communicate well with people of diverse backgrounds and knowledges in research, computing, and management.
- Demonstrated experience of successful student supervision including but not limited to PhD, Honours, Masters, Vacation Scholars projects.
- An understanding of and commitment to UNSW’s aims, objectives, and values in action, together with relevant policies and guidelines.
- Knowledge of health and safety responsibilities and commitment to attending relevant health and safety training.

About this document
This Position Description outlines the objectives, desired outcomes, key responsibilities, accountabilities, required skills, experience and desired behaviours required to successfully perform the role.

This template is not intended to limit the scope or accountabilities of the position. Characteristics of the position may be altered in accordance with the changing requirements of the role.