## Position Summary

A **Research Associate** (Level A) is expected to contribute towards the research effort of UNSW and to develop their research expertise through the pursuit of defined projects relevant to their field of research.

The purpose of this role is to conduct research in the field of Machine Learning, Fairness and Bias in AI, and Spatio-Temporal Forecasting. This is a joint project between researchers in the United States and Australia funded by the Collaboration Opportunities in Responsible and Equitable AI under the U.S. NSF and the Australian Commonwealth Scientific and Industrial Research Organization (CSIRO). Led by researchers at the University of New South Wales on the Australian side and Emory University, Arizona State University and George Mason University on the U.S. side, this project aims to mitigate bias in AI-powered modeling and prediction of disease spread for pandemic prevention and response. To accomplish this objective, the teams will investigate how biased data spreads to modeling pipelines and leads to biased AI solutions. In addition, the researchers will leverage different metrics of fairness in AI and study how these fairness measures can be incorporated into AI optimization procedures to mitigate bias.

The role of the **Research Associate** reports to Professor Flora Salim, and has nil direct reports.

## Accountabilities

Specific accountabilities for this role include:

* Conducts research in the areas of machine learning, specifically self-supervised learning, fairness in machine learning, and debiasing AI, for spatio-temporal forecasting applications, independently and as part of a team.
* Contribute to the writing of scientific papers and reports for international top-tier journals and conferences in AI, machine learning, and spatial computing, and progress reporting to other researchers and industry partners.
* Assist with the coordination of research activities and actively contribute to research outputs to meet project milestones.
* Contribute to the preparation of research proposal submissions to funding bodies and actively seek collaboration with industry partners as appropriate.
* Participate in and/or present at top-tier conferences relevant to the project as required.
* Develop machine learning (ML) experiments with time-series and spatio-temporal data, and fair ML benchmarking.
* Develop analytics, data mining, and machine learning models required by the projects.
* Develop open and reproducible experiments and/or demos as required by the projects
* Develop and contribute to open source and publicly available software packages.
* Manage project deliverables and ensuring outputs are delivered in time, in close collaboration with supervisors and stakeholders.
* Align with and actively demonstrate the [UNSW Values in Action: Our Behaviours](https://unsw.sharepoint.com/sites/values-in-action) and the [UNSW Code of Conduct](https://www.gs.unsw.edu.au/policy/documents/codeofconduct.pdf).
* 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

* A PhD in a related discipline, and/or strong research experience in one or more of the following:
  + Time-series and/or spatio-temporal data mining
  + Deep learning, self-supervised learning, and/or multimodal contrastive learning
  + Fair machine learning
  + Sequence modelling, including experience with text, genetic sequences, or similar.
* Proven commitment to proactively keeping up to date with discipline knowledge and developments.
* Demonstrated ability to undertake high quality academic research and conduct independent research with limited supervision.
* Demonstrated track record of top-tier publications and conference presentations relative to opportunity, particularly in highly prestigious Q1 journals and conferences in AI, machine learning, and data mining, statistical ML, and/or epidemiology research.
* Strong coding capabilities in running ML and data analytics experiments.
* Strong interests in the digital, technical, and societal aspects of public health research domain
* Demonstrated ability to work in a team, collaborate across disciplines and build effective relationships.
* Evidence of highly developed interpersonal skills.
* Demonstrated ability to communicate and interact with a diverse range of stakeholders and students.
* 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.

Pre-employment checks required for this position

* Verification of qualifications

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.