POSITION DESCRIPTION

Senior Research Associate/Fellow

Position Summary
Research Imaging NSW (RINSW), is a strategic initiative developed by the University of New South Wales in partnership with South East Sydney Local Health District to provide researchers with state-of-the-art Human Imaging capabilities, that foster increased collaboration between leading academic, research and healthcare institutions at the Randwick Innovation & Health Precinct, as well as nationally and internationally. This UNSW core facility is fully integrated in the Prince of Wales Hospital environment and currently has two 3.0T whole body MRI scanners, one portable MRI and an X-Ray lung ventilation scanner.

The focus of this position will be on the development and translation of advanced MR signal processing methods and pipelines (e.g., image reconstruction algorithms, data modelling and analysis, AI/machine learning) for fundamental Neuroscience applications or clinical/translational research based on multidimensional imaging, structural and quantitative imaging during therapy and intervention of neurological diseases. Current applications include combined EEG/fMRI and anatomical imaging analyses to detect focal epileptic lesions, studies of the maturing brain, stroke and cancer.

The Senior Research Associate (Level B) is expected to carry out independent and/or team research at RINSW within this field and to carry out activities to develop their research expertise relevant to advanced imaging processing. The Senior Research Fellow (Level C) is expected to make independent or original contributions to this research effort and to RINSW and their research partners. They will play a major role on the project and lead respective components of the collaborative research.
The role of Senior Research Associate/Fellow reports to the Imaging Facility Director and has no direct reports.

Level B

Accountabilities

Specific accountabilities for this role include:

- Engage in individual and collaborative research in a manner consistent with disciplinary practice.
- Conduct research/scholarly activities under limited supervision, either independently or as a member of a team and develop an independent research profile.
- Oversee and design new imaging protocols and provide collaborative research support to researchers accessing RINSW.
- Contribute to the development of applications for competitive funding under the guidance of senior colleagues.
- Participate as co-investigator or chief investigator in competitive grant applications or show evidence of active participation in research collaborations funded by competitive grants.
- Mentor and guide students and colleagues and develop the next generation of academics through involvement in supervision and training of HDRs (as per the norms of the discipline).
- Collaborate with investigators and RINSW staff to operationalise research hypotheses and develop imaging analysis plans to achieve study objectives.
- Focus on biomedical modelling, simulation, and data analytics to enable scientific discovery in neuroscience, biomedicine and health.
- Develop and evaluate neuroimaging processing strategies & pipelines.
- Strong commitment to engaging in collaborative research in a core facility environment
- Contribute to the broader activities of RINSW and the Division of Research and Enterprise.
- 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.

Level B

Skills and Experience

- A PhD in a related discipline, preferably in medical physics, imaging science, engineering, computer science, physical science, biomedical engineering or biomedical sciences.
- Proven commitment to proactively keeping up to date with discipline knowledge and developments.
- Demonstrated track record in research with outcomes of high quality and high impact (e.g., first-authored scientific publications in peer-reviewed publications) with clear evidence of the desire and ability to continually achieve research excellence as well as the capacity for research leadership.
- Evidence of strong analytical skills and critical thinking.
- Strong quantitative data analysis skills in signal processing, and strong skills in scientific computer programming; familiarity with computational tools and programming (e.g., MATLAB, Python, C/C++).
- Demonstrated research experience in medical image analysis and processing, e.g., in analysing neuroimaging data such as fMRI, DTI, or MRS and ability to use dedicated software packages/pipelines for specific processing (e.g., Bash or python pipelines containing FSL, Freesurfer, AFNI, R, MATLAB, or SPM scripts).
- Experience in AI/ML techniques applied to image analysis, or a closely related area is highly desired (not required).
- Expertise in combined EEG/fMRI data analysis methodology and modelling is desired (not required).
- A track record of significant involvement with the profession and/or industry.
- High level communication skills and ability to network effectively and interact with a diverse range of students and staff.
- Demonstrated ability to work in a team, collaborate across disciplines and build effective relationships.
- Evidence of highly developed interpersonal and organisational skills.
- 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.

Level C
Accountabilities
- Make independent and collaborative contributions to research that have a significant impact in their field of expertise and create a nationally recognised research track record.
- Develop the RINSW research team in areas of specialist expertise and research methods that are appropriate to the discipline.
- Develop research collaborations both within UNSW and externally and provide research support to researchers accessing RINSW.
- Collaborate with investigators and RINSW staff to operationalise research hypotheses and develop imaging analysis plans to achieve study objectives.
- Develop, design, and oversee new imaging protocols and provide collaborative research support to researchers accessing RINSW.
- Develop and implement AI/DL methods for image and data analyses and analytics for suitable imaging facility projects and deliver solutions of AI, ML and DL for e.g., multi-dimensional and/or multi-modal data.
• Attract peer recognition and establish research networks (based on the norms of the discipline) at the national level.
• Obtain research income from nationally competitive research grants (and/or research fellowships) and research end-users as a member or leader at or above the level that is relevant to the discipline in leading universities.
• Take a leading role in the development of research collaborations, in the publication of high-quality research findings and in the development of own and/or collaborative grant applications.
• Mentor and guide students, research groups, and colleagues; supervise and train HDRs, and contribute to HDR review panels if possible.
• Very strong commitment to engaging in collaborative research in a core facility environment.
• Contribute to the broader activities of RINSW and the Division of Research and Enterprise.
• 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 & safety of yourself or others.

Level C

Skills and Experience
• A PhD in a related discipline, preferably in medical physics, imaging science, engineering, computer science, physical science, biomedical engineering or biomedical sciences.
• At least three years of postdoctoral research experience and/or relevant work experience.
• Proven commitment to proactively keeping up to date with discipline knowledge and developments.
• Demonstrated track record in research with outcomes of high quality and high impact (e.g., first-authored scientific publications in peer-reviewed publications) commensurate with Level C, with clear evidence of the desire and ability to continually achieve research excellence as well as demonstrated capacity for research leadership.
• Evidence of strong analytical skills and critical thinking.
• Strong quantitative data analysis skills in signal processing, and strong skills in scientific computer programming; familiarity with computational tools and programming (e.g., MATLAB, Python, C/C++).
• Demonstrated research experience in medical image analysis and processing, e.g., in analysing neuroimaging data such as fMRI, DTI, or MRS and ability to use dedicated software packages/pipelines for specific processing (e.g., Bash or python pipelines containing FSL, Freesurfer, AFNI, R, MATLAB, or SPM scripts).
• Experience in AI/ML techniques applied to image analysis, or a closely related area is highly desired (not required).
• Expertise in combined EEG/fMRI data analysis methodology and modelling is desired (not required).
• A track record of significant involvement with the profession and/or industry.
• High level communication skills and ability to network effectively and interact with a diverse range of students, staff and facility clients.
• Demonstrated ability to work in a team, collaborate across disciplines and build effective relationships.
• Evidence of highly developed interpersonal and organisational skills.
• 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