Position Title:	Research Fellow/Senior Research Fellow – AT1 Geotechnics
Position Classification:	Level B/C
Position Number:	319578
School:	Oceans Graduate School
Supervisor Title:	Professor
Supervisor Position Number:	00030385

Your work area

This position is within the ARC Industrial Transformation Research Hub for Transforming energy Infrastructure through Digital Engineering (TIDE ITRH), based at the Indian Ocean Marine Research Centre (IOMRC) at UWA.

The TIDE ITRH comprises four interlinked research themes working together to deliver projects using advanced data science and engineering techniques to transform the operation of energy infrastructure. The research is a blend of physical and numerical modelling, supported by fieldwork and the robust analysis of key observations from existing facilities. Our industry partners are helping to shape the research direction, drive technology transfer, and assist with mentoring our researchers and students.

The position will be part of the Oceans Graduate School (OGS). The OGS is home to a critical mass of researchers spanning ocean engineering, oceanography and marine science. The OGS hosts the Centre for Offshore Foundation Systems, the Wave Energy Research Centre, the ARC Research Hub for Offshore Floating Facilities, Woodside's FutureLab collaboration network, and the ARC Centre of Excellence for Coral Reef Studies. OGS researchers conduct world-leading research to provide ocean solutions in relation to the marine environment and resources, engineering and technology.

Your role

To work with the Chief Investigators (CIs), Partner Investigators (PIs) and industry partners to undertake geotechnical research within the Applied Theme 1 (Characterising the ocean environment using sparse and uncertain data) research theme.

As the appointee you will, under limited direction of the UWA CIs, participate in and coordinate the experimental, analytical and other research work, relevant to the study of offshore seabed characterisation. The successful candidate will be a geotechnical engineer / researcher with skills in: analysis and interpretation of geotechnical and/or geophysical site investigation data; performing offshore geotechnical design calculations and; conducting statistical calculations. The position requires a background in site characterisation, engineering design and geostatistics, preferably in offshore environments.

Core duties of the position will include the development of novel approaches to quantify how best to characterise the seabed for offshore infrastructure design accounting for the variability of the seabed using limited geotechnical data coupled with geophysical information. Topics may include: quantifying how to best select design lines for deterministic design calculations considering the variability of the seabed, uncertainty in measurements of seabed properties and the proximity of infrastructure to investigated locations; quantifying how to best arrange geotechnical site investigation locations to minimise ground risk and optimise design; considering how to incorporate geophysical data quantitatively into estimation of seabed conditions at a given location for use in design; interpretation of free-fall penetrometer measurements and how their inclusion in site investigation datasets affects uncertainty. Research outcomes from the above (and similar) topics will need to be presented in a manner suitable for direct uptake by industry.

Additional support will be provided by the candidate to a related geotechnical topic in TIDE Applied Theme 3: Soil 'springs' for input to dynamic free-span analysis. This will include support to experimental, numerical and analytical work relevant to the mechanical interaction of free-spanning pipelines with the seabed.

The multi-disciplinary nature of the project will require the applicant to participate in collaboration across the fields of oceanography, hydrodynamics, geotechnics, marine structures and data science.

Key responsibilities

Level B

Collaborate in planning and perform various physical, numerical and analytical modelling to investigate site investigation strategies, and investigate technology and design approaches aimed at accounting appropriately for spatial seabed variability and measurement uncertainty in design.

Support research related to pipe-soil interaction for free-spanning pipelines.

Collaborate and engage with the TIDE ITRH industry partners and the wider oil & gas and offshore renewable energy industries at a local, national and international level.

Work collaboratively with other researchers and students engaged in the research team.

Promote research projects via publication of research papers and presentations at international conferences and workshops.

Support transfer of the TIDE ITRH research into practice in collaboration with the TIDE ITRH industry partners.

Assist in the training of undergraduate, masters, and PhD students.

Assist in establishing the computing systems to support the storage, quality control and analysis of datasets from an extensive array of historic and real-time data streams.

Participate in the TIDE ITRH activities and contribute to/organize group projects, workshops and other processes.

Other duties as directed.

Level C

Plan and perform various physical, numerical and analytical modelling to investigate site investigation strategies, and to develop/implement technology and design approaches aimed at accounting appropriately for spatial seabed variability and measurement uncertainty in design.

Coordinate research investigation related to pipe-soil interaction for free-spanning pipelines.

Collaborate and engage with the TIDE ITRH industry partners and the wider oil & gas and offshore renewable energy industries at a local, national and international level.

Work collaboratively with other researchers and students engaged in the research team.

Promote research projects via publication of research papers and presentations at international conferences and workshops.

Lead transfer of the TIDE ITRH research into practice in collaboration with the TIDE ITRH industry partners.

Supervise the training of undergraduate, masters, and PhD students.

Assist in establishing the computing systems to support the storage, quality control and analysis of datasets from an extensive array of historic and real-time data streams.

Participate in the TIDE ITRH activities and organize group projects, workshops and other processes.

Other duties as directed.

Your specific work capabilities (selection criteria)

Level B

A PhD (or equivalent industry experience) in geotechnical engineering, with a specialisation in offshore geotechnical design and/or geostatistics, or a closely related field.

Relevant research experience (or advanced engineering practice) in one of more of the following areas: offshore geotechnical design, site characterisation, geostatistics.

Demonstrated originality, creativity and innovation in the application of expert scientific knowledge.

Experience preparing manuscripts for publication and giving presentations at conferences.

Strong track record of research publication relative to opportunity.

An ability and willingness to direct and supervise students.

Experience in synthesising research outcomes into design guidance documents is desirable.

Experience interacting with and/or working in the offshore engineering industry is desirable.

Highly developed written and verbal communication skills.

Ability to work independently, show initiative and work productively as part of a team.

Developed organisational skills and demonstrated ability to set priorities, meet deadlines and conduct research.

Demonstrated commitment to service roles in the workplace.

Demonstrated commitment to inclusivity and diversity in the workplace.

Level C

A PhD (or equivalent industry experience) in geotechnical engineering, with a specialisation in offshore geotechnical design and/or geostatistics, or a closely related field.

Recognised research expertise (or advanced engineering practice) in one of more of the following areas: offshore geotechnical design, site characterisation, geostatistics.

Demonstrated originality, creativity and innovation in the application of expert scientific knowledge.

Experience preparing manuscripts for publication and giving presentations at conferences.

Strong track record of research publication relative to opportunity.

Demonstrated track record of directing and supervising students in academia (or managing/mentoring staff in industry).

Experience in using research outcomes in design.

Experience working with and/or working in the offshore engineering industry.

Highly developed written and verbal communication skills.

Ability to work independently, show initiative and work productively as part of a team.

Highly developed organisational skills and demonstrated ability to set priorities, meet deadlines and conduct research.

Demonstrated commitment to service roles in the workplace.

Demonstrated commitment to inclusivity and diversity in the workplace.

Special Requirements

None

Compliance

Workplace Health and Safety

All supervising staff are required to undertake effective measures to ensure compliance with the Occupational Safety and Health Act 1984 and related University requirements (including Safety, Health and Wellbeing Objectives and Targets).

All staff must comply with requirements of the Occupational Safety and Health Act and all reasonable directives given in relation to health and safety at work, to ensure compliance with University and Legislative health and safety requirements.

Details of the safety obligations can be accessed at http://www.safety.uwa.edu.au

Equity and Diversity

All staff members are required to comply with the University's Code of Ethics and Code of Conduct and Equity and Diversity principles. Details of the University policies on these can be accessed at http://www.hr.uwa.edu.au/publications/code_of_ethics, http://www.equity.uwa.edu.au