|  |  |
| --- | --- |
|   |  POSITION  **DESCRIPTION** |

|  |  |
| --- | --- |
| **Position Title**  | Research Associate- Data Science/Machine Learning (Underwater Sound) |
| **Classification**  | Level A |
| **School/Division** |  |
| **Centre/Section** | Oceans Institute |
| **Supervisor Title**  | Senior Lecturer, School of Biological Sciences and Oceans Institute |
| **Supervisor Position Number**   |  |
| **Position Number** | NEW |

**Your work area**

Tracking elephants deep in the rainforests of the Republic of Congo; understanding how cryptic species communicate; and monitoring diversity of bird populations are all examples of what can be done with sound recordings on land, but what about underwater? At AIMS@UWA we want to bring the same capabilities we have on land to underwater environments and monitor biodiversity and ecosystem health for marine seascapes across the globe. We are enabling this through international collaboration and the development of a Global Library of Underwater Biological Sounds (GLUBS), which aims to integrate passive acoustic monitoring (PAM) datasets from around the world paired with the latest in artificial intelligence capabilities.

AIMS@UWA Alliance is a strategic partnership between UWA and AIMS. The Alliance aspires to produce an internationally recognized cohort of emergent tropical marine researchers in Western Australia and to direct their work towards the sustainable protection and use of our marine heritage by integrating fundamental and applied research and by leveraging the infrastructure and research strengths of both organizations.

The UWA Oceans Institute and School of Biological Sciences bring together the University of Western Australia’s multidisciplinary research strengths across areas including oceanography, ecology, engineering, resource management and governance to address key ocean challenges. We work with local, State, and Federal governments, industry and business, research institutions and the community to help generate solutions towards the sustainable use of ocean resources.

The Australian Institute of Marine Science (AIMS) is a leader in tropical marine science. Established in 1972, the Institute's primary function is research for sustainable use and protection of the marine environment. The Institute investigates topics from broad-scale ecology to microbiology. AIMS is committed to the protection and sustainable use of Australia’s marine resources. Its research programs support the management of tropical marine environments around the world, with a primary focus on the Great Barrier Reef World Heritage Area, the pristine Ningaloo Marine Park in Western Australia and northwest Australia.

**Reporting structure**

Reports to: Tim Langlois, UWA Senior Lecturer, School of Biological Sciences and Oceans Institute

Dotted line reports: Mathew Wyatt, AIMS Data Scientist and Miles Parsons, AIMS Research Scientist

**Your role**

As the appointee you will, under broad direction, develop and apply novel approaches and machine learning techniques for the detection, classification and identification of marine fauna from PAM validated with paired visual identification data. You will be responsible for the development of techniques to generate datasets for species identification and ecosystem health, which can then be applied to existing datasets from Australia and internationally.

You will work closely with research staff across UWA and AIMS, and be expected to develop your own area of research interest to support the core science in collaboration with teams across AIMS and UWA. You will also have the opportunity to acquire new data sets in the field.

**Your key responsibilities**

Develop, test, and apply novel analytical approaches to PAM datasets for the characterisation and identification of marine species

Show initiative and work productively independently and as part of a team

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

Supervise and assist with the training of research students

Other duties as directed

**Your specific work capabilities (selection criteria)**

A PhD in passive acoustic monitoring (PAM), ecoacoustics, data science, machine learning or other related disciplines with a strong quantitative background

Demonstrated experience in programming with scientific languages such as Python, Malab, or R

Demonstrated experience in working with, and analyzing large datasets

Demonstrated experience with the use of machine learning techniques for use with sound data

Demonstrated experience working independently and productively in multidisciplinary teams on a range of projects

Highly developed written and verbal communication skills, evidenced by published manuscripts and conference presentations

Willingness to supervise and train postgraduate or undergraduate research students, and to provide a bridge between discipline experts in machine learning and applied marine research

Desirable

Tertiary qualifications in ecology or marine ecology

Experience with fieldwork in marine environments

Software development skills, and demonstrated use of cloud based processing environments

 Knowledge of acoustic propagation

**Special requirements (selection criteria)**

Occasional interstate and overseas travel may be required

Current “C” class driver’s licence

**Compliance**

Ensure you are aware of and comply with legislation and University policy relevant to the duties undertaken, including:

The University’s Code of Conduct [hr.uwa.edu.au/policies/policies/conduct/code/conduct](https://www.hr.uwa.edu.au/policies/policies/conduct/code/conduct)

Inclusion and Diversity [web.uwa.edu.au/inclusion-diversity](https://www.web.uwa.edu.au/inclusion-diversity)

Safety, health and wellbeing [safety.uwa.edu.au/](https://www.safety.uwa.edu.au/)