

Position Title:	Research Fellow
Position Classification:	Level A/B
Position Number:	
Faculty:	Engineering and Mathematical Sciences
Department:	Mathematics and Statistics
Centre/Section:	Applied Mathematics
Supervisor Title:	Senior Lecturer
Supervisor Position Number:	314547

Your work area

Complex Systems research at UWA is recognised as a strategic focus as part of the Faculty of Engineering and Mathematical Sciences initiative, Engineering for Remote Operations (ERO). ERO research in Complex Systems is directed by project team member the CSIRO-UWA Chair in Complex Engineering Systems, Professor Michael Small. The appointee will be based in the Department of Mathematics and Statistics and work closely with various members of the team in Complex Systems and at UWA School of Animal Biology in the Faculty of Science.

The Department of Mathematics and Statistics has an established and dedicated team of teaching and research staff who engage in a multidisciplinary approach to provide pathways to incorporate mathematics and statistics into undergraduate and postgraduate studies and research. Our program of teaching and research covers the broad fields of applied mathematics, pure mathematics and statistics. The Department of Mathematics and Statistics has been awarded 5 out of 5 in Excellence of Research Australia in Mathematical Sciences (Pure and Applied Mathematics).

Reporting Structure

Reports to: Senior Lecturer

Your role

You will take responsibility for research on the ARC Discovery Project “TSuNAMi: Time Series Network Animal Modelling” under the direct supervision of Dr David Walker, Dr Debora Correa, CSIRO-UWA Chair in Complex Engineering Systems, Professor Michael Small, and Associate Professor Dominique Blache. This project expects to generate innovative techniques from complex systems theory, dynamical systems theory, and data science to transform time series to complex network representations to connect geometric and topological features of the network to system behaviour with applications to animal welfare and stress management.

You will join the Complex Systems research group in the Department of Mathematics and Statistics and work with academics and fellow researchers within that group and also researchers in the School of Animal Biology. You may also be required to supervise honours students and postgraduate research students on projects related to this research.

Your key responsibilities

Work as a full-time researcher in the Department of Mathematics and Statistics, under the supervision of Dr David Walker, Dr Debora Correa, Professor Michael Small, and Associate Professor Dominique Blache.

Contribute in a major way to research connected to the ARC Discovery Project “TSuNAMi: Time Series Network Animal Modelling”.

Participate in other research projects undertaken within the research group as appropriate and as agreed with the supervisory team.

Design and develop mathematical algorithms to characterise and understand correspondences between network structure and system behaviour.

Assist in data management of experimental results and participate in trans-disciplinary research meetings.

Conduct high-quality, high-impact research in applied mathematics, dynamical systems, complex systems, machine learning, mathematical biology, and publish results in peer-reviewed journals and present the results at conferences and elsewhere as appropriate.

Present research activities and results in reports, research publications, and to visitors, potential sponsors and peers.

Contribute to grant writing.

Assist in the supervision of undergraduate students and Masters and PhD students. Work in collaboration with other post-doctoral researchers and academic staff within the complex systems research group.

Perform other duties as appropriate.

Your specific work capabilities (selection criteria)

PhD and Bachelor's degrees in applied mathematics, physics, computing or related fields.

Extensive research experience of at least one of: complex systems, dynamical systems, data science, machine learning.

Experience with relevant computational toolkits (MATLAB, Python, R, etc.)

Experience in working as a team player, preferably within a cross-disciplinary team and record of research publication relative to opportunity.

Highly developed written and verbal communication skills in the preparation of high-quality reports, presentations and publications.

An ability and willingness to direct and supervise final year undergraduate students and PhD students.

Demonstrated ability to work across departments and schools and to understand the organisational culture of academia.

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

Special Requirements

There are no special requirements

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>