



Candidate Information

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| Position: | Research Assistant in Scientific Computation |
| School/Department: | Biological Sciences |
| Reference: | 20/108112 |
| Closing Date: | Tuesday 10 March 2020 |
| Salary: | £28,331 per annum |
| Anticipated Interview Date: | Thursday 26 March 2020 |
| Duration: | This post is available until 31 December 2020. |

JOB PURPOSE:

To be an active member of the research team assisting in the planning and delivery of research led by Dr Keith Farnsworth. To develop, implement, and disseminate methods for multi-variable state-space characterisation, sensitivity testing and related quantities for large fisheries-biology simulation models.

MAJOR DUTIES:

1. Undertake applied research activities that may include laboratory experiments, critical evaluation and interpretation, computer-based data analysis and evaluation or library research in consultation with the research grant holder or supervisor including the creation and implementation of mathematical algorithms.
2. Perform a variety of Analysis. Use advanced methods such as Extended Variance Analysis, Feasibility Analysis, Morris Sample Screening, Extended Fourier Amplitude Sensitivity Analysis and Sobol Sensitivity Analysis; specifically to characterise a particular very large fisheries simulation model.
3. Develop and implement machine learning methods for unsupervised state-space characterisation.
4. Present regular progress reports on research to members of the research group or to external audiences to disseminate and publicise research findings.
5. Write up results of own work and contribute to the production of research reports, publications and proposals.
6. Maintain code and data in good order and compliance with QUB and legal requirements for data management.
7. Read academic papers, journals and textbooks to keep abreast of developments.
8. Liaise productively with project colleagues, including at the Marine Institute in Galway.
9. Build and maintain an effective working knowledge and understanding of fisheries management and the relevant computation methods and related ecology and mathematics as part of professional development.

Planning and Organising:

1. Plan own day-to-day activity within the framework of the agreed research programme.
2. Contribute to the planning of research projects, reports and publications etc usually 1-6 months in advance.
3. Read academic papers, journals and textbooks to keep abreast of developments.

Resource Management Responsibilities:

1. Ensure research resources are used in an effective and efficient manner.
2. Ensure health and safety protocols (COSHH) for use of materials are complete and records maintained up to date in compliance with licence requirements.
3. Provide guidance as required to support staff and any students who may be assisting with research.
4. Carry out routine administrative duties as requested.

Internal and External Relationships:

1. Liaise with research colleagues and support staff on routine matters.
2. Make internal and external contacts to develop knowledge and understanding and form relationships for future collaboration.
3. Attend and contribute to relevant meetings.

ESSENTIAL CRITERIA:

1. Primary Degree or equivalent in mathematical subject.
2. 1 years recent relevant work experience.
3. Experience programming for scientific computation to a professional standard R.
4. Experience of quantitative research in fisheries or marine community ecology.
5. Knowledge of Statistics to an advanced level, including R packages and multivariate variance analysis.
6. Strong analytical and problem solving skills.
7. Ability to logically conceptualise and summarise the research findings and data.
8. Ability to interact with research colleagues and support staff.
9. Competent in giving effective and informative oral and poster presentations.
10. Ability to analyse and communicate effectively.
11. Excellent team working skills in multiple internal and external team settings.

DESIRABLE CRITERIA:

1. Post graduate qualification in mathematical subject.
2. Experience of large multivariable simulation modelling.
3. Experience of Bayesian methods and maximum likelihood estimation, multivariate analysis and time-series analysis.