GEOMAR
Helmholtz-Zentrum für Ozeanforschung Kiel

GEOMAR Helmholtz Centre for Ocean Research Kiel is a foundation under public law jointly financed by the Federal Republic of Germany (90%) and the State of Schleswig-Holstein (10%). It is one of the internationally leading institutions in the field of marine research.

Through our research and our commitment to the transfer of knowledge and technology, we contribute significantly to the preservation of the function and protection of the ocean for future generations.

The research unit Marine Evolutionary Ecology of the research division Marine Ecology offers a position for a

Doctoral researcher (m/f/d) in Marine Data Science in the project "*Applying inverse reinforcement learning to understand what motivates individual fish movement*"

starting as soon as possible, presumably on 01. January 2026.

The position offers the opportunity to pursue a doctoral degree as a member of the graduate school "Helmholtz School for Marine Data Science" (MarDATA). MarDATA is dedicated to training a new generation of "marine data scientists" by integrating expertise from computer science and mathematics into the field of ocean sciences. The school's interdisciplinary focus spans supercomputing, modeling, (bio)informatics, robotics, statistics, and big data methodologies. Doctoral researchers benefit from a structured training program that promotes cross-disciplinary collaboration and provides in-depth scientific insight as well as a systematic approach to marine data science. For more information, visit: https://www.mardata.de/.

Job Description

We are seeking a doctoral student to study the applications of inverse reinforcement learning (IRL) to understand what motivates fish movement. The successful candidate will focus on fine-tuning IRL for fish movement datasets generated by acoustic telemetry in the wild. The planned work involves optimizing IRL using agent-based simulations, applying IRL to empirical fish movement data to study reward functions in the context of adaptive strategies, and using IRL to model fish movement in future marine environments. The position is embedded in the Marine Behavioural Ecology Group at GEOMAR, focusing on how individual behaviour scales up to macro-scale ecological patterns, and in the Probability and Statistics Group at the Christian-Albrechts-Universität zu Kiel, focusing on stochastic processes and their applications. Data is already collected for the planned work, but the candidate will have the opportunity to contribute to additional data collection in the field.

Qualifications

Required

- A diploma/MSc degree or equivalent qualification in Mathematics, Biology, Marine Biology, Statistics, Computer Science or related subjects
- Experience in modeling and statistics.
- Proficiency in programming
- Excellent knowledge of English (written and spoken)

If the required degree is not completed at the time of application, the degree certificate must be handed in before the start date of the contract and the application must contain plausible evidence that the degree can be finished before that date.

Desirable

- Scientific publications based on MSc thesis
- Proficiency in machine-learning methods
- Knowledge of theoretical foundations of stochastic and machine-learning methods
- Knowledge of movement ecology and geolocation methods
- Knowledge of marine ecology
- Experience with agent-based simulations

At a workplace, directly on the Kiel Fjord with many leisure and recreational opportunities, we offer you:

- Good conditions for work-life balance: We offer, among other things, the possibility of mobile working and individual working time arrangements, vacation courses for the children of our employees, and good support in finding a place in a daycare center at the Kiel site
- Support services for professional and personal life situations
- An exciting work environment with the opportunity to provide important impetus for the development of sustainable solutions
- Exciting topics in an international environment
- Work in the field of marine and climate research, a forward-looking area with social significance
- 30 vacation days + additional time off at Christmas Eve and New Year's Eve
- Company pension plan and capital-forming benefits

The position is available for a funding period of 3 years. The salary depends on qualification and could be up to the class E13 TVöD-Bund of the German tariff for public employees. This is a full-time. The position cannot be split. The fixed-term contract shall comply with Section 2 Paragraph 1 of The Act of Academic Fixed-Term Contract (German WissZeitVG).

GEOMAR Helmholtz Centre for Ocean Research Kiel seeks to increase the proportion of female scientists and explicitly encourages qualified female academics to apply. GEOMAR is an equal opportunity employer and encourages scientists with disabilities to apply. Qualified disabled applicants will receive preference in the application process.

Please send your application for this post **not later than 19. October 2025** under the following link:

Online application

As soon as the selection procedure has finished, all your application data will be removed according to data protection regulation.

For further information regarding the position and research unit please contact Christopher Monk (cmonk@geomar.de) or Sören Christensen (christensen@math.uni-kiel.de).

We will answer all your questions if you send us an e-mail to bewerbung@geomar.de. In doing so, please refer to the keyword "**MarDATA-Swimulation**".

For further information on GEOMAR Helmholtz Centre for Ocean Research Kiel or the Helmholtz Association, please visit www.geomar.de or www.helmholtz.de.

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GEOMAR is committed to an objective and non-discriminatory personnel selection. Our job advertisements address all people. We expressly renounce the submission of application photos.

The TOTAL E-QUALITY award is presented to GEOMAR for efforts in terms of human resource management aimed at providing equal opportunity.