

La Rochelle Université is recruiting a postdoctoral researcher on a 24 months fixed-term contract.

Employer description

In a higher education and research landscape that has been profoundly reshaped for more than a decade, **La Rochelle Université** has chosen to structure its research around a thematic by positioning its scientific and academic strengths on societal and environmental issues. This approach has led to the creation of a teaching and research institute called the LUDI Institute, SmUCS in English (Smart Urban Coastal sustainability), operational since the 1st September 2021.

Bringing together all the laboratories, all the PhD students and most of the institution's masters programmes. This institute aims to address the many scientific issues raised by the anthropisation of the coastal area by facilitating decompartmentalised and interdisciplinary approaches, based on a proactive policy of innovation and dissemination of results, without forgetting the fundamental principles of ethics and scientific integrity.

The creation of the LUDI Institute is surrounded by two other important projects, namely the EU-CONEXUS European university, a network of European partner universities sharing a common speciality, and the CampusInnov site initiative, intended to establish a culture of innovation in both training and research.

Website to consult: [click here](#)

Host Laboratory

Founded in 1993, the *Laboratoire Informatique, Image et Interaction* (L3i – EA 2118) is the research unit of the Department of Digital Sciences at La Rochelle University. The laboratory brings together 98 members conducting research in the fields of computer science, imaging, and interaction. The **Image and Content** team has been dedicated to the analysis of visual and video content since the lab's creation and has recently focused on developing artificial intelligence approaches to study marine animal behavior in order to better understand changes in their environment.

Research context

Coastal ecosystems are highly productive and host essential habitats for numerous marine species, including feeding areas, nurseries, breeding grounds, and migratory corridors. The quality of these habitats determines the renewal and dynamics of marine populations and, more broadly, the productivity of coastal ecosystems. However, these ecosystems are increasingly and durably impacted by the cumulative effects of **climate change** (e.g., rising temperatures, acidification, stratification of the water column) and by expanding **human activities** in coastal zones (e.g., maritime traffic, fishing, marine aggregate extraction, pollution, and offshore wind farms).

Given the rapid intensification of these anthropogenic disturbances, it becomes essential to facilitate dialogue between stakeholders (public authorities, scientists, managers, conservationists, and socio-economic actors) to foster the sustainable development of maritime activities and the protection of marine ecosystems. Effective ecosystem management requires **decision-support systems** capable of guiding spatial planning and conservation strategies. **Digital twins** represent an innovative approach to these challenges. They rely on continuous coupling between a real system and its virtual representation. The real system, informed by collected data, feeds the model, which can then refine its predictions, simulate alternative scenarios, and provide proactive decision-support tools. In ecology, the development of such

systems remains limited due to their complexity and necessitates close collaboration between computer scientists and biologists.

In the marine environment, animal movement monitoring is enabled by **biologging**, which involves equipping animals with electronic devices that continuously record data (e.g., satellite positions, diving profiles, three-dimensional acceleration, oceanographic variables, physiological parameters). These datasets provide insights into animal movements and their responses to environmental conditions. The miniaturization of these devices has increased both the volume and diversity of data collected, generating analytical challenges that require strong interdisciplinary collaboration.

The aim of this project is to develop a digital twin for monitoring coastal marine populations by integrating biologging data into a digital platform (Urban Coastal Lab La Rochelle, UCLR) to understand and predict spatiotemporal variations in habitat use by marine animals in human-impacted coastal environments. Advanced simulation tools based on artificial intelligence will be developed. The project will focus on the case study of the grey seal (*Halichoerus grypus*), for which long-term monitoring has been conducted in the English Channel and the Iroise Sea by La Rochelle University (Pelagis/CEBC). Habitat loss due to climate change or anthropogenic activities (e.g. fisheries, maritime traffic) may directly affect grey seal population dynamics by altering foraging efficiency, movement patterns, reproductive success, or pup survival. The digital twin developed as part of this postdoctoral project will allow exploration of grey seal responses to such disturbances and assessment of the consequences of various future scenarios.

Job description

The postdoctoral researcher will be responsible for developing the simulation infrastructure of the digital twin. As biologging data are multimodal (differing in nature and acquisition frequencies), advanced methods based on artificial intelligence are required. Specifically, the researcher will:

1. **Contextualize movement data with environmental variables** (marine and potentially terrestrial) to simulate "possible" seal trajectories under varying conditions. Multiple generative AI models may be developed and compared (e.g., Conditional Generative Adversarial Networks, Transformers).
2. **Simulate a large number of possible trajectories** from these models in order to generate spatial distribution maps of potential habitats and assess their overlap with anthropogenic activities (e.g., maritime traffic, fisheries). Simulations under alternative climate scenarios will also be performed to identify potential shifts or losses of habitats.
3. **Integrate these simulations into the UCLR platform** to facilitate visualization of habitats under different scenarios. More information on the UCLR: [Urban Coastal Lab La Rochelle](#).

The candidate will also be expected to propose additional AI-based approaches to generalize the methodology to other biologging data types, thereby enabling application of the digital twin to other marine species such as fish, seabirds, and marine mammals.

Results will be disseminated through publications in international peer-reviewed journals and presentations at scientific conferences.

Supervision will be provided by Dr. Marine Gonse and Dr. Mickael Coustaty (L3i). Interactions are also planned with Dr. Cécile Vincent (Pelagis Observatory), an expert in grey seal tagging and telemetry.

Skills required

The candidate must hold a PhD in computer science, artificial intelligence, or machine learning, with applications to multimodal data processing. They must demonstrate the ability to conduct independent research and contribute to a multidisciplinary project at the interface of computer science and marine ecology, working collaboratively with both computer scientists and biologists/ecologists.

Technical Skills:

- Multimodal, spatial, and time-series data analysis
- Strong programming skills in multiple languages (Python, Matlab, etc.)
- Proficiency in English (reading, writing, speaking); French desirable but not mandatory

- Interest in environmental sciences
- Experience with digital twin technologies (desirable)

Operational Skills:

- Rigor, autonomy, and initiative
- Ability to work in a multidisciplinary team
- Strong organizational and time-management skills
- Communication skills for diverse audiences
- Critical thinking and curiosity
- Project management and activity planning
- Reporting progress through concise written summaries
- Strong writing and oral presentation skills in English

Type of recruitment

Category: A

Placement: [Laboratoire Informatique, Image et Interaction \(L3i – EA 2118\)](#)

Recruitment: Fixed-term, 24 months, starting February 2026

Working hours: full-time

Remuneration: From €2069€ gross/month, in accordance with La Rochelle University's contractual personnel management framework.

If the candidate obtained his/her doctorate less than three years ago, a postdoctoral contract may be offered. After 3 years, an equivalent contract will be offered.

Recruitment open to anyone with a RQTH (Qualified Health and Disability certificate).

Benefits

- 75% contribution to home-to-work public transport costs
- Sustainable mobility package for the use of a cycle/carpool for home-work journeys.
- Partner BLABLACARDAILY
- Mutuelle participation of €15/month
- Collective catering on the university campus
- Sport, leisure and cultural activities for all employees

Contact for information on the recruitment procedure

Institut LUDI - Marie de Chalendar - marie.de_chalendar@univ-lr.fr

Scientific Support and Coordination Department

Contact for information on the position to be filled

Dr. Marine GONSE / Contractual Lecturer-Researcher / marine.gonse@univ-lr.fr

How to apply?

Your application must include:

- cover letter
- detailed curriculum vitae
- copy of highest diploma

You can send your application by email to marine.gonse@univ-lr.fr before the **31st October 2025**.