

Machine learning for the classification of coral reef biophony



Coral reefs are home to 30 % of marine biodiversity and provide goods and services to over a billion people worldwide. Due to the increasing impact of human activities, up to 90 % of coral reefs could disappear by 2050. France is the fourth country with the most coral reefs in the world and the only country with coral reefs in all oceans, and therefore has a great responsibility in protecting these ecosystems. Current monitoring methods are no longer sufficient to meet the needs of those involved in coral reef management, particularly because of their limited spatial and temporal coverage.

Reef Pulse develops monitoring and restoration tools to safeguard coral reefs globally using soundscape recording and Artificial Intelligence. Reef Pulse was founded in 2021, is based in Reunion Island (France, Indian Ocean) and was awarded several innovation prizes. Digital signal processing tools and Artificial Intelligence algorithms automatically analyse the data collected, enabling the daily and yearly comparison of the ecological status of many locations. To complement this diagnosis, Reef Pulse is developing in 2025 a restoration solution based on broadcasting ambient sound recorded on healthy reefs onto degraded areas. Our partners include several universities, research laboratories, Protected Marine Areas stakeholders, and public authorities. Most of our funding is provided by French funds but also comes from the European Union through the ERDF and BestLife2030 programmes.

Internship description

You will join the R&D department and will help develop specialised classification models for the automatic detection of biologic and anthropic sounds underwater. You will first study the state of the art related to signal processing, machine learning, underwater audio analysis, professional audio-related challenges, as well as industrial software pipeline. To get familiar with the diverse soundscape of marine environments, you will manually annotate samples using our internal annotation system with careful listening. Finally, you will learn to use and understand our internal and external tools, mostly in Python 3, in order to add new features to our current pipeline. The development will include benchmarking of other state-of-the-art models and their integration in our system, performance optimisation for our current models, enhancement of our high-level inhouse visualisation tools for result analysis, as well as new features and improvements for our software infrastructure.

We are looking for a final-year student in a Computer Science or Information Technology masters, with a passion for acoustics and natural sciences. This internship will require organisational skills, thoroughness, autonomy, as well as soft skills for efficient team working.

Requirements

- Final-year Master student in Computer Science or Information Technology, with a major in machine learning
- Familiar with Python 3 and standard data manipulation libraries
- Ready to move to work in our office based in Reunion Island

Nice to have

- Fundamental and theoretical knowledge of machine learning
- Experience with MLOps
- Familiar with audio signal processing
- Familiar with Linux

Internal tools

- Project management with Notion
- Code in Python 3 using VSCodium
- Continuous integration using Github Actions
- Agile methodology
- Shared bibliography with Zotero 9

Internship details

- Internship offer released on 06/07/2026
- 6-month internship with flexible start date between September 2026 and March 2027
- Compensation at the legal amount in effect for internship (approx. 650€ per month)

Hiring process

Please send your resume, cover letter, and references (name and email address of people we should contact) to contact@reef-pulse.com in English or French, with the subject "Internship R&D MLOps".

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