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**National Institute for
Theoretical and Computational Sciences**

'Deep learning: computer science for wildlife monitoring'

ABSTRACT

Wildlife monitoring has become even more important as biodiversity is declining at an unprecedented rate and effective protection measures are urgently needed. Technological progress has greatly increased the possibilities of studying species that are difficult to observe in their natural environment with the miniaturisation of on-board sensors and the increased memory capacity of recorders. This generally results in long-term monitoring of high-resolution data that can be difficult to handle and time consuming to analyse visually. Processing automation has rapidly become a major issue in ecology and deep learning has proven to be the perfect candidate to answer these new challenges.

During this talk, I will present recent advances in ecology where deep learning has been used to identify the underwater behaviours of sea turtles. I will also show how deep learning can help monitor gibbon populations with a multi-branch CNN enhanced with contextual information.

BIOGRAPHY

Lorène Jeantet is a Postdoctoral Fellow at the African Institute for Mathematical Sciences (AIMS) and the School for Data Science and Computational Thinking at the University of Stellenbosch.

After graduating as an agricultural engineer in 2016 from the School of Agricultural and Life Sciences (ENSAT) in Toulouse, France, she began a PhD in ecology at the French National Centre for Scientific Research (CNRS). Her studies focused on the foraging strategies of sea turtles.

During her PhD, she discovered the world of deep learning and developed a model for automatic identification of underwater behaviour of sea turtles from bio-loggers.

After completing her PhD in 2021, she obtained a postdoctoral position at AIMS. Her research now focuses on developing innovative and efficient machine learning models to analyse long-term monitoring data, such as acoustic, video and time series data of different endangered species. By improving knowledge on their ecology, she can contribute to their conservation.

In 2020 Lorène was awarded a L'Oréal-UNESCO For Women in Science – French Young Talent prize.

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