EU RIA H2020 Proposal Template

ROBHOOT

Abstract

In the last decades, we have experienced an exponential growth in the capacity to generate and store data of diverse nature, thanks in part to the electronic devices connected to the Internet, and in the capacity to analyze them with Big Data analytics and Artificial Intelligence techniques. And curiously, the complex and global challenges that we are facing in our digitalized societies show how vulnerable we are. Nature has been adapting and evolving in its struggle for survival with other species and the environment. Biological interactions and traits diversify across multiple scales of organization, from neurons to populations and space-time scales, maintaining a complex ecological balance. This endless eco-evolutionary arms race inspires a new Artificial Intelligence approach for a sustainable knowledge-based global society. The signs of identity are evolution and interaction and are substantiated by federated networks, that is, heterogeneous networks with internal nodal structure, in which many different groups of species, humans and technologies coexist to exploit resources in complex ecosystems. Our mission is to lay the foundations of an open and cooperative science ecosystem that help us to face the challenges of global sustainability. We validate our approach with a case study focusing on the sustainability of the Oceans, the largest ecosystem on the planet and a major player in the climate balance.