

EU RIA H2020 Proposal Template

ROBHOOT

Abstract

Eco-evolutionary biology teaches us how interactions and traits evolve and diversify across levels of biological organization, from neurons to populations and ecosystems. Evolving networks in nature with ever changing traits and connectivity patterns can inspire a new discovery computation for a global-sustainable knowledge-inspired society. Many studies have shown sustainability could be achieved by strengthening transparency, communication, and rapid access to discovery technologies. Sustainability goals, however, depend on global access to discovery-based knowledge. Yet, science-enabled technologies targeting knowledge discovery to reach sustainability goals are not in place. We propose an eco-evolutionary biology-inspired discovery computation technology for a knowledge-inspired society. We introduce evolutionary biology-inspired and artificial intelligence solutions for sustainability in natural ecosystems. We validate our approach with a sustainability of the Seas case study in federated networks, where many distinct groups of species, humans and technologies coexist exploiting resources in complex ecosystems. Knowledge discovery running on a federated network encompass a hybrid-technology to lay out the foundation of an open- and cooperative-science ecosystem for computation discovery in the face of global sustainability challenges. The project summarized here is not only set out to deliver knowledge discovery computation in federated networks, but also to provide fully reproducible open-source software solutions of a science-enabled technology to connect knowledge-inspired societies to global sustainability challenges.