POSTDOC IN SEMANTIC WEB AND ONTOLOGY ENGINEERING FOR SOCIAL AND ENVIRONMENTAL

Company Description

BC3 is a Research Centre on the causes and consequences of climate change. Led by one of the most recognized scientists in the Climate Change field -Prof. Maria José Sanz, we produce multidisciplinary knowledge to support decision making towards sustainable development at the international level. With a multidisciplinary team, connected to the main scientific institutions, networks and socio-economic agents, for a decade, our contribution to research of climate change and to the science-policy interface puts us in a unique position to offer knowledge, tools, new methodologies and cross-cutting proposals, that we lead towards action in a collaborative framework with stakeholders, to design and help implement policies aimed at sustainable development.

Information

- Deadline: 2023-05-31
- Category: Academia
- Province: Bizkaia
- Country: Basque Country
- City: Leioa

Company

BC3 Basque Centre for Climate Change

Main functions, requisites & benefits

Main functions

The Basque Centre for Climate Change (BC3) offers a full-time postdoctoral scientist position in order to support the research activities of Research Line (RL) 5 on Integrated Modelling of Coupled Human-Natural Systems, supported by the IKUR programme of the Basque Government on Supercomputing and Artificial Intelligence (HPC/AI). The RL generates multidisciplinary scientific knowledge from human-nature interdependence to address complex sustainability problems through artificial intelligence (AI). The goal of the RL is to provide environmental data, models and understanding by retrieving, evaluating and integrating the existing information in order to support an effective policy-making where nature counts. Besides Ecosystem Services, the RL also tackles Natural Capital Accounting, Food Security, Marine Spatial Planning, and Renewable Energy. We are looking for an individual who can support strategic activities related to integrated data science and collaborative, integrated modelling on the semantic web (semantic meta-modelling). Job description: Contribute to the ARIES platform, a semantic web infrastructure that uses AI to build computational solutions to environmental, policy and sustainability problems. This technology, based on machine reasoning, machine learning, distributed/high-performance computing and multi-disciplinary and multi-paradigm system modelling, is the flagship product of the Integrated Modelling Partnership (IMP) which is expected to serve a growing number of worldwide users (from academia, governments, NGOs and industry) in the years to come. ARIES' current semantic resources have addressed the challenge of using ontologies capable of supporting machine reasoning to address interdisciplinary science problems, reusing existing semantic authorities whenever possible and creating novel semantic content when needed. This position will continue to grow ARIES' semantic resources to address further novel modeling challenges. During the past decade, the RL has envisioned and built the ARIES (ARtificial Intelligence for Environment and Sustainability (https://aries.integratedmodelling.org/) platform, a technology that integrates network-available data and model components through semantics and machine reasoning. Its underlying open-source software (k.LAB, https://docs.integratedmodelling.org/technote/) handles the full end-to-end process of integrating data and with multiple model integration types to predict complex change. It also supports selection of the most appropriate data and models using cloud technology and following an open data paradigm: the resulting insight remains open and available to society at large, and becomes a base for further computations, contributing to an ever-increasing knowledge base. For the first time, it is possible to consistently characterize and publish data and models for their integration in predictive models, building and field-testing technologies that have eluded researchers to date. This postdoctoral research position is dedicated to the use of semantics for solving complex sustainability problems. We are looking for an individual who can coordinate and support the work to establish the most comprehensive knowledge base to implement a Semantic Web for Sustainability. The researcher will work with a team of programmers, modelers and ontologists on diverse scientific modeling and integration applications to (1) research existing authoritative semantic resources and integrate them with ARIES where possible, (2) create new semantic resources as needed, (3) co-develop tools to make semantic annotation easier and more intuitive for scientists with limited exposure to semantics, and (4) develop and build community within and