

Enhancing FAIR Data Management with LifeBlock: A Semantic and AI-Driven

Wednesday, 2 October 2024 15:30 (15 minutes)

LifeBlock, developed by LifeWatch ERIC, stands at the forefront of the advancement of the FAIR data management principles. This talk explores ways by which LifeBlock integrates federated data sources, employs semantic treatment, and incorporates AI to support ecological and biodiversity research.

LifeBlock excels in federating data from diverse, heterogeneous sources, creating a unified environment for comprehensive data access and discovery. This capability is critical for ecological research, which relies on various datasets from different contexts and methodologies. By federating these sources, LifeBlock contributes to defragmentation, thus accelerating their access and analysis. It also supports multidisciplinary and cross-domain research, which is fundamental for biodiversity and ecology.

The platform leverages semantic technologies to enrich data with meaningful context through ontologies and standardized vocabularies. This semantic treatment enhances data interoperability and usability, facilitating complex queries and advanced analytics. LifeBlock's use as a Scientific Knowledge Graphs (SKGs) further organizes and links data based on semantic relationships, enabling intuitive exploration and knowledge discovery.

AI integration within LifeBlock significantly enhances its functionality. AI algorithms are employed for data quality assessment, automated metadata generation, and intelligent search, reducing manual effort and increasing efficiency. Additionally, AI-driven analytics support predictive modelling and scenario analysis, providing powerful tools for addressing complex queries.

The system ensures proper attribution to the original data sources, rewarding contributors for their data with recognition and potential incentives. Provenance tracking within LifeBlock guarantees the authenticity and traceability of the data, fostering trust and reliability in the dataset.

Through these advanced methodologies, LifeBlock introduces an alternative for FAIR data management, ensuring that ecological and biodiversity data are managed effectively and leveraged to their full potential. This presentation will provide a detailed exploration of these technologies, showcasing their functional aspects and their role in fostering a collaborative and innovative scientific community.

Topic

Co-authors: SAENZ ALBANÉS, Antonio José (LifeWatch ERIC); ARVANITIDIS, Christos (LifeWatch ERIC); LÓPEZ, Joaquín (LifeWatch ERIC); LÓPEZ PANEQUE, Julio (LifeWatch ERIC)

Presenter: LÓPEZ PANEQUE, Julio (LifeWatch ERIC)

Session Classification: Empowering Open Science: EGI Community's Impact on EOSC