

AI4EOSC: Artificial Intelligence for the European Open Science Cloud

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The **AI4EOSC (Artificial Intelligence for the European Open Science Cloud)** project aims at contributing to the landscape of Artificial Intelligence (AI) research with a comprehensive and user-friendly suite of tools and services within the framework of the European Open Science Cloud (EOSC). This innovative platform is specifically designed to empower researchers by enabling the development, deployment, and management of advanced AI solutions. Key features of the platform include support for **federated learning**, which facilitates collaborative model training across distributed datasets while ensuring data privacy; **zero-touch model deployment**, which streamlines the transition from development to production environments; **MLOps tools**, which optimize the lifecycle management of AI models; **model serving** on serverless computing platforms, and the visual design of **composite AI pipelines**, which integrate multiple AI techniques for enhanced analytical capabilities.

Our presentation will provide a comprehensive exploration of the AI4EOSC platform's high-level architecture, highlighting its capacity to address the diverse and evolving needs of researchers across a wide range of scientific disciplines. By offering a robust and flexible infrastructure, the platform not only supports domain-specific customization but also fosters interdisciplinary collaboration, reflecting the ethos of the European Open Science Cloud.

We will also discuss the foundational frameworks and technologies that constitute the backbone of the platform, emphasizing their scalability, interoperability, and adherence to open science principles. These technologies enable seamless integration with existing research workflows and ensure that the platform remains accessible and sustainable for the scientific community.

To illustrate the practical utility and transformative potential of the AI4EOSC platform, we will present real-world case studies from ongoing projects, including the noteworthy contributions of **iMagine** and **AI4Life** projects. These practical use cases exemplify the platform's effectiveness in addressing complex challenges, such as enabling cross-domain data analysis, fostering reproducible research and accelerating the pace of scientific discovery.

By showcasing these examples, we aim to highlight the capabilities and practical utility of the AI4EOSC project, as well as its significant impact on the scientific community.

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