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Integrating data repositories with HPC resources for execution of VHT models

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Introduction

The digital twin concept is gaining traction in research, demanding substantial computational power for simulations. Sano Centre for Computational Medicine, in collaboration with ACC Cyfronet AGH, is actively developing tools to optimize high performance computing (HPC) resources. Our focus is on providing scientists with a user-friendly toolkit for seamless model execution. This paper introduces the integration of the Model Execution Environment platform with data repositories, streamlining data management for researchers.

Description of the problem

Harnessing HPC resources necessitates specific expertise and extensive data management, posing challenges for researchers. Additionally, sharing processed data and research results among teams demands adherence to fair involvement rules, involving external services and consuming valuable time. Our aim is to alleviate these challenges by providing a comprehensive platform for efficient data management.

Related work

While Pegasus and others operate on various infrastructures, Model Execution Environment (MEE) focuses on an established execution framework. Our unique approach prioritizes seamless data staging across diverse repositories, such as Dataverse and Zenodo, enhancing flexibility, streamlining execution and fostering effortless collaboration.

Solution of the problem

Our platform integrates with Dataverse and Zenodo APIs, enhancing efficiency and collaboration by eliminating intermediaries. Customizable repository rules ensure fair data sharing, safeguarding confidentiality.

Conclusions

Our research has resulted in a sophisticated toolkit for medical research efficiency. Future plans include broader integration, simplified data retrieval via Digital Object Identifiers, enhancing accessibility of our toolkit.

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Topic

Needs and solutions in scientific computing: Platforms and gateway

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