Contribution ID: **43**   Type: **Oral**

Optimizing tokamak operations using Machine learning methods as a service

Wednesday, 14 June 2023 15:30 (30 minutes)

Tokamak operations and Fusion plasma research datasets are vast and complex, presenting various challenges in data analysis and interpretation.

The development of cutting-edge tools based on Artificial Intelligence (AI), and machine learning (ML) algorithms can significantly accelerate fusion plasma research outcomes and optimize the tokamak operations.

We discuss the potential implementations, challenges, and limitations of our ongoing development of a Local Artificial Intelligence-as-a-service (L-AI-aaS) platform.

Our platform aims to streamline data integration from diverse sources generated during WEST tokamak experiments to extract inherent information. Leveraging advanced AI algorithms for in-depth analysis and extracting valuable insights from experimental data rapidly. Such AI trained models and services empower researchers with increased visibility and help in making experiment decisions in operational fusion plasma.

The L-AI-aaS leverages generative AI power and ML techniques for providing services that allows optimizing data preprocessing, and helps in discovering unseen insights and discovering structure and reporting anomalies. Such automation provides a comprehensive analysis of experimental data and saves researchers'time and allows higher-level research tasks.

As a scalable solution, building L-AI-aaS has the potential to become a valuable tool for fusion research projects, driving further innovation and breakthroughs in the field.

Speaker's Affiliation

CEA , France

Member State or IGO/NGO

CEA

Primary author: Mrs ALMUHISEN, Feda (CEA)

Co-authors: Mr MIDOU, Dorian (cea); Mr COLNEL, Julian (cea); Mr FLEURY, Ludovic (cea)

Presenter: Mrs ALMUHISEN, Feda (CEA)

Session Classification: DB/2 Information retrieval, dimensionality reduction and visualisation in fusion databases

Track Classification: Information retrieval, dimensionality reduction and visualisation in fusion databases