Contribution ID: **25** Type: **Full presentation: long (25 mins.)**

Helmholtz Federated IT and Accessible Compute Resources for Applied AI Research

Monday, 2 November 2020 14:05 (25 minutes)

Research is increasingly driven by close cooperation between teams from multiple institutions and often disciplines, leveraging rich scientific expertise and capacities. This puts pressure on the seamless and highly performant interaction of heterogeneous IT services. Such services include large data transfer, high performance computing, post-processing and analysis pipelines; add to that documentation services and collaboration tools of all kinds, whose importance has been demonstrated forcefully this year.

The Helmholtz Association with its more than 40.000 employees performs outstanding research covering the research fields Energy, Earth & Environment, Health, Aeronautics, Space & Transport, Matter and Key Technologies. The Helmholtz Information & Data Science Incubator [1] was founded in 2016 to combine and enhance the diverse, decentralised expertise of the Association in the pioneering field of Information and Data Science.

Embedded in this context, the platform "Helmholtz Federated IT Services"(HIFIS) [2] has been established to provide such common access to IT resources, as well as training and support for professional and sustainable scientific software development. From the very beginning, the requirements of the whole Helmholtz scientific communities have been surveyed extensively, now allowing to shape and operate services according to their needs.

An organizational and technological key to allow common access to IT services is the establishment of an authentication and authorization infrastructure, named Helmholtz AAI, which is based on the European AARC blueprint architecture for AAI. Based on this infrastructure, cloud services for data management, collaboration and scientific work are offered as prototypes and will go into production by end of 2020. The full establishment of such federated IT infrastructure in Helmholtz will allow closer partnering to European IT and research communities such as EGI and EOSC.

Access to powerful compute resources is crucial for the machine learning (ML) and artificial intelligence (AI) community. For Helmholtz, this has been pushed forward by the "Helmholtz AI computing resources" (HAICORE) initiative with resources being installed and operated at two research sites: A first HAICORE resource has been recently installed comprising latest NVIDIA DGX A100 - one of the first installations in Europe [3]. The common access to these capacities is established using the AAI service offered by HIFIS.

Fostering collaborative research in applied ML/AI, allowing to crosslink all of Helmholtz'research fields, is the main objective of the cooperation platform "Helmholtz AI". In close cooperation with HIFIS and exploiting capacities of HAICORE, project calls are being delivered by Helmholtz AI. Starting in 2020, this allowed funding of overall 19 AI projects [4] with a duration of two to three years, involving all Helmholtz research fields.

In this talk, we will present the interaction of these new infrastructural and scientific initiatives, the advantage of their design as long term, sustainable platforms and we will demonstrate the benefits of integrating the needs of the scientific communities from the very beginning in order to sustainably foster cross-institutional and multi-disciplinary research.

[1] https://www.helmholtz.de/en/research/information-data-science/helmholtz-incubator/
[2] https://www.hifis.net
[3] https://www.kit.edu/kit/english/pi_2020_056_super-fast-ai-system-installed-at-kit.php
[4] https://www.helmholtz.ai/themenmenue/our-model/funding-lines/project-call-2019/index.html

Primary author: Dr JANDT, Uwe (DESY, on behalf of HIFIS, HAICORE, Helmholtz AI initiatives of the Helmholtz Association)

Presenter: Dr JANDT, Uwe (DESY, on behalf of HIFIS, HAICORE, Helmholtz AI initiatives of the Helmholtz Association)

Session Classification: Highlights from EGI participants and partners - Part 1