



HIFIS services for Deep Learning

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DESY / HIFIS

6th Round Table on Deep Learning at DESY 2023
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HIFIS: Digital services for Helmholtz & Partners

- One of the 5 Helmholtz Incubator platforms, along with Helmholtz Imaging
- HIFIS supports scientific projects with **IT resources**, provided for free by the participating centres:
 - ✓ Collaboration tools
 - ✓ Data transfer and storage
 - ✓ Access to supercomputers
 - ✓ ...



<https://helmholtz.cloud/>

HIFIS: Digital services for Helmholtz & Partners

- Codebase for research software

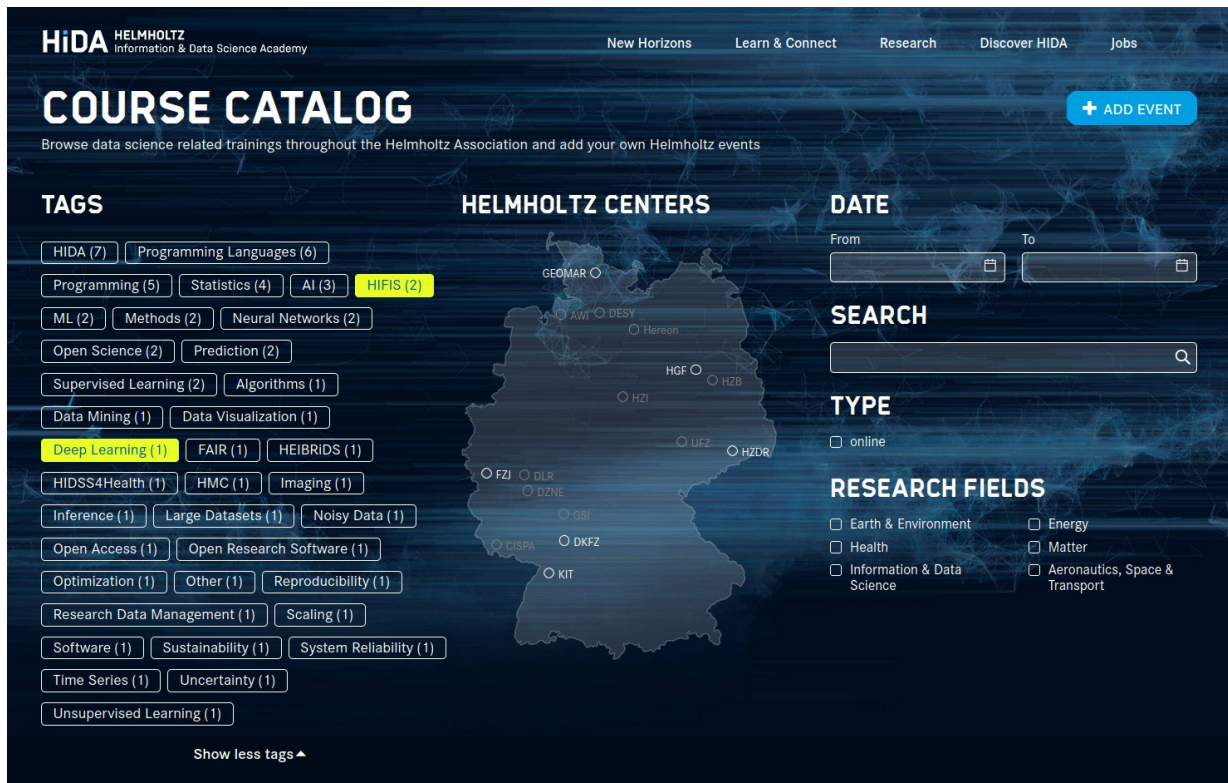


GitLab

codebase.helmholtz.cloud

- Training and consulting
- Research software directory

helmholtz.software



The screenshot shows the HIDA (Helmholtz Information & Data Science Academy) Course Catalog website. The header includes the HIDA logo and navigation links: New Horizons, Learn & Connect, Research, Discover HIDA, and Jobs. The main heading is "COURSE CATALOG" with a subtitle: "Browse data science related trainings throughout the Helmholtz Association and add your own Helmholtz events". A blue button labeled "+ ADD EVENT" is in the top right. The page is divided into three main sections: TAGS, HELMHOLTZ CENTERS, and DATE. The TAGS section lists various categories with counts, including HIDA (7), Programming Languages (6), Programming (5), Statistics (4), AI (3), HIFIS (2), ML (2), Methods (2), Neural Networks (2), Open Science (2), Prediction (2), Supervised Learning (2), Algorithms (1), Data Mining (1), Data Visualization (1), Deep Learning (1), FAIR (1), HEIBRIDS (1), HIDSS4Health (1), HMC (1), Imaging (1), Inference (1), Large Datasets (1), Noisy Data (1), Open Access (1), Open Research Software (1), Optimization (1), Other (1), Reproducibility (1), Research Data Management (1), Scaling (1), Software (1), Sustainability (1), System Reliability (1), Time Series (1), Uncertainty (1), and Unsupervised Learning (1). The HELMHOLTZ CENTERS section features a map of Germany with markers for various centers: GEOMAR, AWI, DESY, Hereon, HGF, HZB, HZI, UfZ, HZDR, FZJ, DLR, DZNE, GSI, CISPA, DKFZ, and KIT. The DATE section has a search bar with "From" and "To" date pickers. The SEARCH section has a search bar. The TYPE section has checkboxes for "online". The RESEARCH FIELDS section has checkboxes for Earth & Environment, Energy, Health, Matter, Information & Data Science, and Aeronautics, Space & Transport. A "Show less tags" link is at the bottom.

HIFIS: Digital services for Helmholtz & Partners

- Data stays in **Helmholtz-owned** data centres
- Helmholtz ID allows to access all the services with your **home institution credentials**



- Partners outside of Helmholtz are included to enable world-wide collaborations (Today almost 30% of users are non Helmholtz)
- **Better synergies and resilience within the Helmholtz Association**

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Compute Projects

Apply for Computing Time at Jülich Supercomputing Centre (JSC).

Slurm FZJ
Infrastructure
Supercompute

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Container-Runtime

Container runtime environment on HPC systems at FZJ / Jülich Supercomputing Centre (JSC).

Container FZJ
Infrastructure
Supercompute

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Data Projects (HDF)

Apply for data projects at FZJ / Jülich Supercomputing Centre (JSC).

JADP FZJ
Infrastructure
Supercompute

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GPU compute Service

Jupyter Notebooks on GPU Nodes containing Nvidia A100 GPUs

Jupyter HPC
Infrastructure
Supercompute

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HAICORE

Dedicated Computing Resources for the Helmholtz AI community.

HAICORE KIT
Infrastructure
Supercompute

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HAICORE

Dedicated Computing Resources for the Helmholtz AI community.

HAICORE FZJ
Infrastructure
Supercompute

Focus on supercompute services



Jupyter

Interactive supercomputing in a browser.

Jupyter FZJ
Collaboration HPC
HTC Supercompute

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Jupyter on HAICORE

Jupyter enables interactive supercomputing on HPC resources.

Jupyter KIT
Collaboration
Supercompute



OpenStack (HDF Cloud)

The Service allows provisioning of user-controlled VMs with Linux OS

OpenStack FZJ
Infrastructure Storage
Supercompute

Supercompute on Jupyter by HZDR



- The software environment covers standard **scientific python** functionality as well as **machine learning tools and libraries**.
- **Direct access** to Helmholtz members
- Limitations
 - ✓ Number of GPUs: **2 per job**
 - ✓ Time limitation per cluster job: **8 hours**
 - ✓ Number of concurrent users depends on the number of available GPUs
 - ✓ Home Directory: **300 GB** soft limit, 400 GB hard limit

In case of problem with access: support@hifis.net

Supercompute on Slurm

by Jülich



- Run jobs on **JEWELS**, Jülich's 85 pflops supercomputer
- Access must be **applied and granted**
 - ✓ Proposal to be submitted (details in helmholtz.cloud)
 - ✓ Open to anyone from a German university or research facility
 - ✓ Or: join a team who already has access
- „No“ limitations

In case of questions: support@hifis.net

Thank you for your attention!



HELMHOLTZ DIGITAL SERVICES FOR SCIENCE –
COLLABORATION MADE EASY.

SUPPORT @ HIFIS.NET

- Since October 2019
- 20k users
- 33 services currently available in the Cloud
- 950+ active projects in the Codebase

- Recent focus on service orchestration

- All links and more info can be found on **hifis.net**