

We are looking for a

Student Assistant (HiWi) / Research Internship / Interdisciplinary Project / Thesis

to assist with the

Containerization of (Computational Fluid Dynamics) Workflows on High-performance Computing Systems

and / or the

Test & Improvement of a Metadata-Crawler for HPC Simulations

for TUM-students within

Informatics, Data Engineering, Mechanical Engineering, Engineering Science, Electrical Engineering, Aerospace etc.

Part of good scientific practice, is ensuring reproducibility of conducted research. In this work, the workflow of a CFD simulation from compilation over parallel execution to post-processing is moved into a container-based equivalent. The containerized setup is analyzed for practicability and performance on the compute resources provided by the Leibniz Supercomputing Centre (LRZ).

We are also working on solutions to make data findable and reusable by other research groups. This is supported by attaching rich metadata to the research data. In this work, the metadata extraction is to be automated using a python based metadata crawler.

Tasks

- Familiarization with HPC workflows
- Familiarization with LRZ Linux-Cluster and Slurm job scheduling
- Familiarization with metadata-ontologies
- Improvement of a (existing) python toolkit to extract metadata

Requirements

- Knowledge of python
- Knowledge of Linux-CL
- Knowledge of containers (e.g. Docker)
- Experience with HPC-clusters (beneficial)

Benefits

- Flexible working hours
- Joint-mentoring by TUM and LRZ: exclusive experience with HPC-clusters
- Experience with state-of-the art container and metadata concepts
- Insight into a nationwide research project
- Credentials of prestigious research facilities (TUM and LRZ)
- Recognition within your study program (just for thesis / internships / projects)
- Payment will be according to TV-L



Image: SuperMUC (Hohenegger / LRZ)



Contact

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