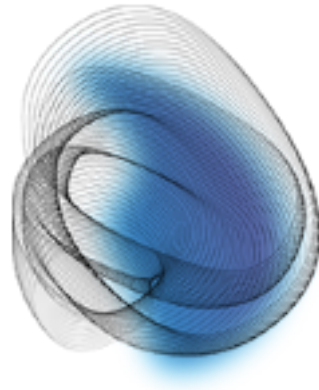# KonKIS 24 - Konferenz der deutschen KI-Servicezentren 2024 (Conference of the German AI Service Centers 2024)

Wednesday, 18 September 2024 - Thursday, 19 September 2024

Göttingen, Alte Mensa

Sessions / Tracks

 KonKIS 24 - Konferenz der deutschen KI-Servicezentren 2024 (Conference of the German AI
Service Centers 2024) / Sessions / Tracks

Saturday, 27 July 2024

Abstracts for posters can still be submitted.

Please submit your abstract here.

Session 1. AutoML: Efficient Development of new AI Applications

Chair: Prof. Dr. Marius Lindauer (LUH)

Content / Abstract:
Automated Machine learning supports domain experts and ML practitioners in efficiently developing new AI applications. Well-known tasks of AutoML include hyperparameter optimization, neural architecture search, ML pipeline design and meta-learning. In this session, we will briefly introduce the main ideas behind AutoML, a short hands-on on how to run AutoML, and short spotlight presentations of AutoML projects.

Topics of interest:
We welcome abstract submissions for short presentations on any topic touching upon automating any aspect of machine learning, broadly interpreted. Following the topics of the international conference on AutoML, this could include but is not limited to
- model selection (e.g., Neural Architecture Search, ensembling)
- configuration/tuning (e.g., via evolutionary algorithms, Bayesian optimization)
- AutoML methodologies (e.g., reinforcement learning, meta-learning, in-context learning, warmstarting, portfolios, multi-objective optimization, constrained optimization)
- pipeline automation (e.g., automated data wrangling, feature engineering, pipeline synthesis, and configuration)
- automated procedures for diverse data (e.g., tabular, relational, multimodal, etc.)
- ensuring the quality of results in AutoML (e.g., fairness, interpretability, trustworthiness, sustainability, robustness, reproducibility)
- supporting analysis and insight from automated systems
- Applications: open-source AutoML software and applications in this category that help us bridge the gap between theory and practice
- Benchmarks: submissions to further enhance the quality of benchmarking in AutoML
- Datasets: New datasets, collections of datasets, or meta-datasets that open up new avenues of AutoML research

Agenda:
- 30min: (20+10) tutorial on the basics of AutoML and how it can support developers in more efficient development of AI applications
- 30min: hands-on tutorial with a Jupyter Notebook showing how to run AutoML in practice
- 30min: 3 short spotlight talks (5+5) about AutoML projects

Session 2. Using and Integrating Health Data

Chair: Hendrik Nolte (GWDG), James Bowden (UMG), Dr. Nicolai Spicher (UMG)

Content/Abstract:
This session focusses on the integration and processing of health data. We are looking for talks from various related topics which explore the various challenges and some employed solutions for integrating or processing health data.

Topics of interest include:
- Integration process of health data with the use of research data management systems (e.g. XNAT, ORTHANC, the Leibniz Data Manager, or a broader data lake)
- Security and legal aspects (e.g. encryption, anonymization, access control, AAI, pseudonymization, patient consent, enforcing the correct processing of patient consent revocations)
- How can researchers actually make use of these integrated data sets, (e.g. example use cases when working with XNAT, data stored in the BIDS format, or any other use cases where cross-data source, or cross domain data is processed)
- Challenges concering processing and scalability

Agenda:
- Welcome: 5 min
- 4 contributed talks (each 15 min + 5 min discussion)
- Conclusion: 5 min

Session 3. Large Language Models

Chair: Dr. Jennifer D'Souza (TIB)

Content/Abstract:
This session will delve into the intricacies of Large Language Models (LLMs). The session aims address the impact of these AI systems along the topics of interest (see below), exploring their capabilities, implications, and potential applications.

Topics of interest:
- Pretraining Techniques for LLMs: Exploring foundational strategies and algorithms in the development of LLMs.
- Testing and Evaluating LLM Fitness:Methods for assessing LLM performance on well-known tasks and benchmarks.
- Application of LLMs in Scientific Research: Case studies and examples of LLMs driving discovery and innovation in various scientific fields.
- Innovative Insights Generation: Strategies for leveraging LLMs to generate novel insights and accelerate research outcomes.
- Challenges and Solutions in LLM Application: Discussing the practical challenges encountered in applying LLMs to scientific research and potential solutions.

Agenda
- Welcome and Introduction
- 5-7 short presentations
- Discussion

Session 4.Large AI Models by and for Europe

Chair: hessian.AI

Session 5. AI-Applications in Clinical Practice: Challenges and Successes

Chair: Jun.-Prof. Dr. Anne-Christin Hauschild (UMG), Dr. Nicolas Spicher (UMG), Dr. Zully Ritter (UMG)

Content / Abstract:
Nowadays, AI applications in healthcare and in general for clinical practice have proved to be successful in specific tasks like diagnosis prediction, risk estimation (e.g., heart failure risks), alarm and order automation, or cancer differential diagnosis; on the other hand, these achievements are confronted to endurance challenges related mainly to patient security (data privacy and data ownership) and bias additionally to ethical issues. Even without considering the regulation of AI and the coming AI Act, AI solutions to be implemented in clinical practice have been developed in academia and industry. In our session, we will provide insights into already proven solutions and those being tested to be efficiently implemented in clinical setups. We will present and delve into machine-learning approaches using mainly clinical, image, and biosignal data. Concerning solutions to handle data privacy properly, among other patient security issues, we will present in this session how, for example, federated learning is gaining in importance as an appropriate technique, allowing not only to solve the problems related to data sharing (both ethical and technical) but also even improving the performance of AI solutions in the case of not having enough or representative data to find a good performing AI solution.
Aiming to share and discuss the lessons learned during designing and testing AI solutions for clinical practice, we invite you to participate and be part of it.

Topics of interest include:
- Lessons learned from AI projects in clinical practice
- Federated Learning as a novel modality enabling AI in clinical practice
- Translation of AI methods for biosignal processing towards clinical practice

Agenda:
- Topic introduction (Anne-Christin Hauschild, UMG)
- Keynote (Michael Dietrich DFKI)
- 4 contributed talks (each 10 min + 5 min discussion)

Session 6. Multi-Modal Foundation Models

Chair: Laszlo Friedmann (Moderation), Dr. Joachim Köhler, Dominik Wolfschläger (all WestAI)

Content / Abstract:
With the rapid progress in the field of large language models in recent years, the transfer of the un-derlying technology, i.e. foundation models, to new modalities has become one of the most im-portant research topics in artificial intelligence. With the introduction of CLIP at latest, this develop-ment has been extended to multi-modal foundation models which are able to process different types of modalities, such as images or text. Due to their outstanding properties, such as

their excellent ze-ro- or few-shot capability, and their ability to process different modalities, multi-modal foundation models offer huge potential across domains and applications. The overall scope of this session is therefore intended to be broad and to cover all topics related to multi-modal foundation modelsn

Topics of interest include:
- Vision / sound / language / ... models in any possible combination
- Data- and energy-efficient pre-training
- Methodologies for efficient transfer and model compression
- Application to specific domains
- Ethics, risks, and fairness
- Securing private data

Agenda:
- Introduction: 5 min
- Keynote: Dr. Jenia Jitsev (FZ Jülich). Open multi-modal foundation models: reproducible science of transferable learning
- 4 contributed talks (each 10 min + 3 min discussion)

Session 7. Applications of Artificial Intelligence in the Energy Sector

Chair: André Baier, Dominik Beinert (Fraunhofer IEE)

Content / Abstract:
This session focuses on the application of artefitial intelligence in the energy sector. We are looking for talks from various related topics which explore the challenges and some of the employed solutions for the critcal energy infrastructure.

Topics of interest include:
- Forecasting generation and consumption
- State estimation for electrical grids
- Vegetation detection for overhead condutors
- Bird detection on wind sites
- Autonomous agents for grid operation und energy markets

Agenda
- Welcome: 5 min
- 4 contributed talks (each 15 min + 5 min discusison)
- Conclusion: 5 min

Postersession

Check details for the postersession.

Abstract Submission:

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