

HELMHOLTZAI CONFERENCE 2025

# AI FOR SCIENCE

3–5 JUNE 2025  
MESSE KARLSRUHE

## EVENT PROGRAM



DeepL

IBM



NTT DATA

pro-com  
DATENSYSTEME



SMIGHT



HELMHOLTZAI

HELMHOLTZ  
MUNICH

KIT  
Karlsruher Institut für Technologie

HELMHOLTZ  
RESEARCH FOR GRAND CHALLENGES

HZDR  
HELMHOLTZ ZENTRUM  
DRESDEN-ROSSENDORF



hereon



DLR

JÜLICH  
Forschungszentrum

# PROGRAM OVERVIEW

## TUESDAY · 3 JUNE, 2025

09:00–11:00	Registration	AI World Café
11:00–12:00	Opening Remarks & Welcome	
12:00–12:45	Keynote: Michael Bronstein	
12:45–14:00	Lunch	Pitch & Networking Event
14:00–16:00	Session 1a	Session 1b
16:00–16:30	Coffee Break	
16:30–18:30	Poster Session I	
18:30–19:30	Science Slam	
19:30–21:00	Networking & Food Reception	

## WEDNESDAY · 4 JUNE, 2025

09:00–10:30	Session 2a	Session 2b
10:30–11:00	Coffee Break	
11:00–12:30	Applied AI @ KIT	
12:30–14:00	Lunch	
14:00–14:45	Keynote: Ribana Roscher	
14:45–15:30	Panel Discussion	
15:30–15:35	Announcement of 2024 Project Call Awardees	
15:35–16:00	Coffee Break	
16:00–18:00	Poster Session II	
18:00–19:00	Commute to Conference Dinner	
19:00–23:00	Conference Dinner at "Wildparkstadion" – KSC Stadium	

## THURSDAY · 5 JUNE, 2025

09:00–10:30	Session 3a	Session 3b
10:30–11:00	Coffee Break	
11:00–12:30	KI meets IA	
12:30–12:45	Poster Prize/Closing	
12:45–14:00	Lunch	

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# WELCOME NOTE

Dear participants,

**Welcome to HAICON25 in Karlsruhe!** We are excited to gather with you at the Helmholtz AI Conference to dive into the latest breakthroughs and ideas in artificial intelligence for science.

Over the past years, AI has evolved and spread to become an essential tool across scientific disciplines. At Helmholtz AI, we are committed to pushing the boundaries of AI research, supporting the development and swift implementation of new methods, and applying them to tackle some of society's most pressing challenges. **HAICON plays a central role in our mission:** it provides a perfect venue for sharing knowledge, sparking collaboration, and inspiring fresh ideas.

AI for science is by now firmly and widely recognised for abundant opportunities, to accelerate discovery and to innovate beyond boundaries. We have been onto something when we started HAICON with a focus on the Helmholtz Association in 2020; we have been growing ever since and I am delighted that we can welcome more and more attendees from the entire AI ecosystem, including industry and international visitors. We believe in innovation through collaboration and it often happens at the intersections of disciplines – so take the opportunity to explore new AI methods and applications both within and beyond your own field.

Over the next three days, **you can look forward to a jam-packed program full of inspiring talks, engaging poster sessions, and plenty of opportunities to network and exchange ideas.** This program booklet will guide you through the range of topics and cutting-edge work being presented, and we hope it will spark new research directions and collaborations.

**I sincerely thank our outstanding keynote speakers, panelists, and reviewers** for shaping this year's scientific program and for ensuring the high quality of contributions. Your insights and commitment have been invaluable.

Special thanks also to the organizing team, whose tireless efforts have made HAICON25 possible.

**Let's make these days a celebration of innovation, curiosity, and collaboration – and move AI for science forward together.**

We are delighted to have you with us. **Enjoy the conference!**

Sincerely,

**Fabian Theis**

*Scientific Director*

Helmholtz AI

# WELCOME NOTE

**Dear participants of the Helmholtz AI Conference,**

Artificial intelligence continues to redefine the boundaries of science, technology, and society. As data becomes ever more central to how we understand and shape our world, AI offers unprecedented opportunities to address some of the most urgent challenges of our time – from climate resilience and sustainable mobility to intelligent manufacturing and energy transition.

At HAICON25, we gather to share ideas, deepen collaborations, and inspire one another across disciplines. This conference is not only a showcase for technological innovation but a vibrant forum for ethical reflection and societal engagement. Its mission – to explore the real-world impact of AI – aligns closely with the values of the Karlsruhe Institute of Technology (KIT).

At KIT, we combine deep expertise in engineering and natural sciences with a strong commitment to responsible innovation. Through initiatives such as the KIT Center for Information Systems Technologies (KCIST) and our active role in the Helmholtz AI platform, we are contributing to a future in which AI is trustworthy, transparent, and beneficial to all.

We are proud to support HAICON25 and to be part of a growing community that shapes the data-driven future with curiosity, integrity, and ambition.

I look forward to the fruitful conversations ahead and wish all participants a productive and inspiring conference.

Warm regards,

**Prof. Jan S. Hesthaven**

President, Karlsruhe Institute of Technology

## NOTES

[illegible]

# GENERAL INFORMATION

## VENUES

2 June

### **Karlsruhe Institute of Technology (KIT) – Campus North**

Hermann-von-Helmholtz-Platz 6 · 76344 Eggenstein-Leopoldshafen  
ZEISS Innovation Hub@KIT

3 –5 June

### **Messe Karlsruhe**

Messeallee 1 · 76287 Rheinstetten

## REGISTRATION COUNTER OPENING HOURS AT MESSE KARLSRUHE

Tuesday, 3 June 08:00 – 18:30

Wednesday, 4 June 08:00 – 18:00

Thursday, 5 June 08:30 – 13:00

## CONTACT

Email: [haicon@eventlab.org](mailto:haicon@eventlab.org)

Phone: +49 341 30 88 84 / 71 or / 87

## WIFI

SSID: HAICON25

Password: Karlsruhe2025

## MEDIA CHECK

If you have already uploaded your presentation and would like to make changes, you can always re-upload. You'll need your abstract ID to upload a presentation.



## POSTER SESSIONS

The poster sessions will take place on Tuesday (16:30–18:30) and Wednesday (16:00–18:00). Beverages and appetizers will be served during Tuesday's session.

Location: Ground floor, DM Arena Corridor and Hall 1 Corridor

The poster presentations will be scheduled in two groups:

- Tuesday: PSI
- Wednesday: PSII

You can find all abstracts and poster IDs  
in our online program. \_\_\_\_\_





## POSTER PRIZE AWARD | JUNE 5 FROM 12:30

Stay tuned until the end of the conference.

The poster prize will be awarded on Thursday, 5 June.

**The poster prize will be decided by you, the attendees – not a jury.**

**How to Vote:** Voting is done via Slido. Each attendee has three votes.

**How to Log In:** You have two options:

1. Use the login link sent to the email address you used to register for HAICON25.
2. Scan the QR code that will be provided on-site and log in using the same email address you used for registration.

Please note: Login is only possible with your registered email address.

## AI WORLD CAFE | JUNE 3 FROM 9:00–11:00

Join an interactive discussion format that brings together experts, researchers, and innovators from the Helmholtz AI community and beyond. In dynamic small-group conversations, participants exchange ideas, address pressing challenges, and spark new directions in AI research. Got a big question in mind? Bring it and host a discussion table of your own.

## SCIENCE SLAM | JUNE 3 FROM 18:30–19:30

The Science Slam is back!

Get ready for a fun, creative, and accessible way to connect through science. Join us and our host Alexander Lammers as researchers take the stage to entertain and inspire. Don't miss this energetic highlight of the conference!

## CONFERENCE DINNER AT "WILDPARKSTADION"

Enjoy a unique evening at the "Wildparkstadion" (KSC stadium).

In addition to delicious food and drinks, a great program awaits you.

The shuttle buses to the "Wildparkstadion" will depart at 18:00 from Messe Karlsruhe. The meeting point is located outside the venue's entrance.

Date: Wednesday, 4 June

Time: 19:00 –23:00

Address: Adenauerring 17 · 76131 Karlsruhe

Plan your trip. \_\_\_\_\_



# GENERAL INFORMATION

## PROGRAM CHAIR COMMITTEE

- 👤 **Timo Dickscheid** · FZJ
- 👤 **Judith Katzy** · DESY
- 👤 **Benjamin Schäfer** · KIT

## ORGANIZING TEAM

- 👤 **Mishal Benz** · KIT
- 👤 **Hallah Butt** · KIT
- 👤 **Marina Djordevic** · KIT
- 👤 **Markus Götz** · KIT
- 👤 **Kaleb Phipps** · KIT
- 👤 **Sebastian Pütz** · KIT
- 👤 **Elisabetta Giubilato** · Helmholtz AI
- 👤 **Ina Ivanova** · Helmholtz AI
- 👤 **Angela Jurik-Zeiller** · Helmholtz Munich
- 👤 **Fritz Niesel** · FZJ
- 👤 **Susanne Wenzel** · FZJ

## KEYNOTE SPEAKERS

- 👤 **Michael Bronstein** · University of Oxford, USA
- 👤 **Ribana Roscher** · University of Bonn

## INVITED TALKS

- 👤 **Conrad Albrecht** · DLR
- 👤 **Ali Bekar** · Hereon
- 👤 **Vincent Fortuin** · Helmholtz Munich
- 👤 **Jeffrey Kelling** · HZDR
- 👤 **Tingying Peng** · Helmholtz Munich
- 👤 **Benjamin Schäfer** · KIT
- 👤 **Christian Schiffer** · FZJ

## PANELISTS

- 👤 **Ribana Roscher** · University of Bonn
- 👤 **Michael Bronstein** · University of Oxford, UK
- 👤 **Fabian Theis** · Helmholtz Munich

## APPLIED AI @KIT

- 👤 **Oliver Kraft** · KIT
- 👤 **Martin Frank** · KIT
- 👤 **Melanie Schienle** · KIT
- 👤 **Frederike Zufall** · KIT
- 👤 **Felix Kahlhöfer** · KIT
- 👤 **Pascal Friederich** · KIT
- 👤 **Barbara Bruno** · KIT

## KI MEETS IA: BRIDGING GERMAN-FRENCH AI RESEARCH

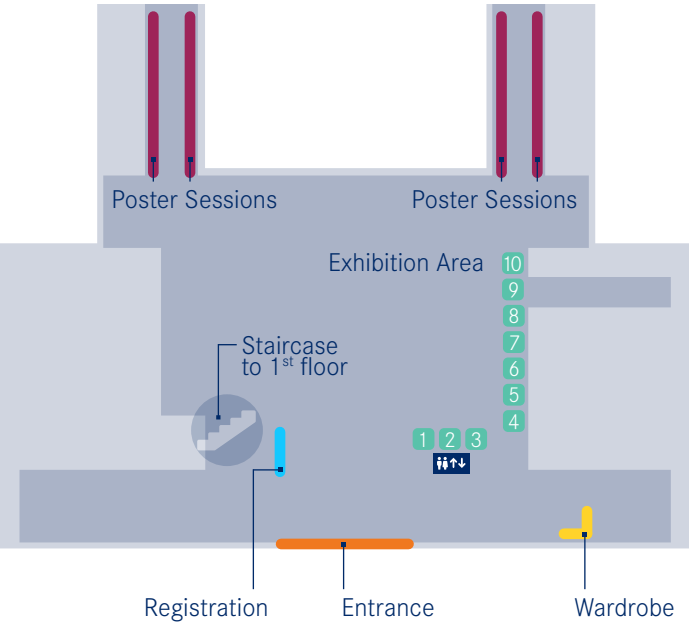
- 👤 **Nicolas Vayatis** · Ecole normale supérieure Paris-Saclay, Centre Borelli
- 👤 **Julien Donini** · National Centre for Scientific Research (CNRS)
- 👤 **Sophie Achard** · University of Grenoble Alpes

## MODERATORS

- 👤 **Charlotte Debus** · KIT
- 👤 **Tobias Weigel** · Hereon

# SITE PLAN · MESSE KARLSRUHE

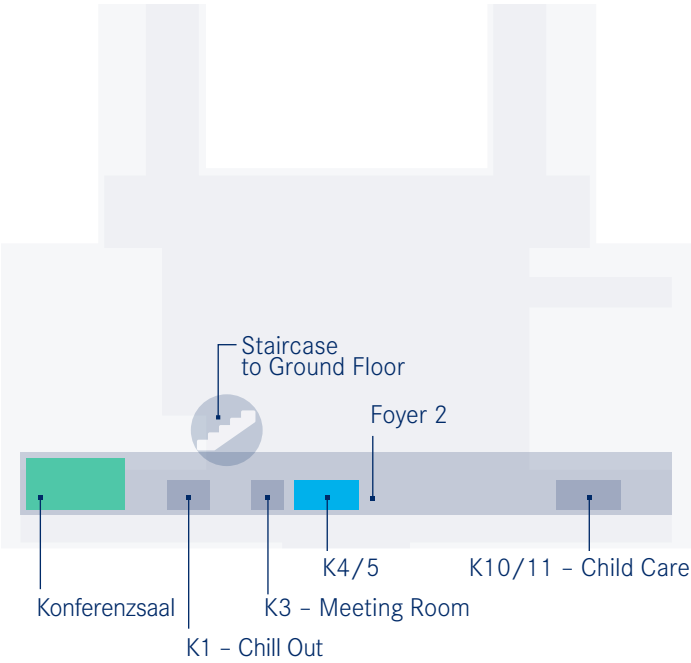
## GROUND FLOOR | AKTIONSHALLE



## EXHIBITION SPACES

- 1 Helmholtz AI Resources Corner  
(Consultants, Project Call, HAI Associates)
- 2 HIFIS
- 3 HIDA
- 4 Helmholtz Imaging
- 5 Helmholtz Metadata Collaboration
- 6 sysGen GmbH
- 7 DeepL SE
- 8 NTT Data
- 9 pro-com DATENSYSTEME GmbH
- 10 IBM Deutschland GmbH

1<sup>ST</sup> FLOOR



# PROGRAM · TUESDAY, 3 JUNE

## Ground Floor / Aktionshalle

09:00– **AI World Café: Collaborative Conversations**

11:00 Moderator: Susanne Wenzel

## Konferenzsaal


11:00– **Opening Remarks & Welcome Note**

12:00 Moderators: Charlotte Debus | Tobias Weigel

11:00– **Introduction**

11:15  Charlotte Debus · Karlsruhe Institute of Technology (KIT)  
Tobias Weigel · Helmholtz-Zentrum Hereon

11:15– **Opening Remarks**

11:25  Jan Hesthaven · President Karlsruhe Institute of Technology (KIT)


11:25– **Welcome Note**

11:35  Petra Olschowski · Minister of Science, Research and the Arts of Baden-Württemberg

11:35– **Helmholtz AI in 2025**

11:50  Fabian Theis · Helmholtz Munich

11:50– **Program Outlook**

12:00  Benjamin Schäfer · Karlsruhe Institute of Technology (KIT)  
Judith Katzy · Deutsches Elektronen-Synchrotron (DESY)

12:00– **Keynote: Michael Bronstein**

12:45 Moderator: Tobias Weigel

**Biology 2.0 and data sources in the age of AI**

 Michael Bronstein · University of Oxford, United Kingdom

12:45– **Lunch**

14:00

## Foyer 2

12:45– **Pitch & Networking Event**



14:00 Moderator: Mayra Marin

**Open to registered participants only**



## Konferenzsaal

**14:00– Session 1a: Foundation Models I**

16:00 Moderator: Charlotte Debus

**14:00– CytoNet: A Foundation Model for Cytoarchitecture in the Human Cerebral Cortex**14:15  Christian Schiffer · Forschungszentrum Jülich (FZJ)**14:15– Advancing Global Carbon Stock Mapping with the 3DABC Foundation Model**14:30  Gunyesn Joshi · Helmholtz-Zentrum Dresden-Rossendorf (HZDR)**14:30– Making the CLIP model segmentation-aware: an investigation based on high resolution transmission electron microscopy data**14:45  Bashir Kazimi · Forschungszentrum Jülich (FZJ)**14:45– TerraMind: Large-Scale Generative Multimodality for Earth Observation**15:00  Johannes Jakubik · IBM Research Europe**15:00– Synthetic Data Generation for Adverse Weather Conditions using CTRLorALter with Depth Control.**15:15  Meghna Umesh Prabhu · dSpace**15:15– Multimodal Whole Slide Foundation Model for Pathology**15:30  Sophia Wagner · Harvard Medical School, USA**15:30– FLAIR: VLM with Fine-grained Language-informed Image Representations**15:45  Rui Xiao · Technical University of Munich**Foundation Models I Poster Spotlights****15:45– LLM Agents & Scientific Reasoning for Research Plan Generation**15:48  Tim Schopf · Technical University of Dresden**15:48– AI-Assisted Plain Language Translation in Health Communication: Opportunities and Challenges for Editorial Workflows**15:51  Julian Hörner · University of Hildesheim**15:51– Explainable Graph Neural Networks for Single-Cell RNA-Seq-Based Phenotype Classification**15:54  Shubhi Ambast · Deutsches Zentrum für Neurodegenerative Erkrankungen (DZNE)

# PROGRAM · TUESDAY, 3 JUNE

- 15:54– **Streamlining Generative Diffusion Models: The Impact of Data Pruning**  
15:57  Rania Briq · Forschungszentrum Jülich (FZJ)
- 15:57– **Variational Autoencoders as an enabling technology for regulatory inference in bacteria**  
16:00  Willow Kion-Crosby · Institute for Molecular Infection Biology (IMIB)


## K4/5

- 14:00– **Session 1b: Discovery and Explainable AI**  
16:00 Moderator: Tobias Weigel
- 14:00– **Explainable AI for Complex (Power) Systems: Anticipating Extreme Events and Modeling Uncertainty**  
14:15  Benjamin Schäfer · Karlsruhe Institute of Technology (KIT)
- 14:15– **Scientific Discovery with AI through Remote Sensing**  
14:30  Conrad Albrecht · German Aerospace Center (DLR)
- 14:30– **Cost-Sensitive Uncertainty-Based Failure Recognition for Object Detection**  
14:45  Moussa Kassem Sbeyti · Karlsruhe Institute of Technology (KIT)
- 14:45– **Data Splitting Against Information Leakage with DataSAIL**  
15:00  Roman Joeres · Helmholtz Centre for Infection Research (HZI)
- 15:00– **Learnable polynomial, trigonometric, and tropical activations**  
15:15  Ismail Khalfaoui Hassani · Forschungszentrum Jülich (FZJ)
- 15:15– **Charting  $\gamma$ -Secretase Substrates by Explainable AI**  
15:30  Stephan Breimann · Ludwig Maximilian University Munich
- 15:30– **Architecture of an AI-based Aircraft Maintenance Defect Management System with Knowledge Graph RAG**  
15:45  Rohin Majeti · German Aerospace Center (DLR)




## Discovery and Explainable AI | Poster Spotlights

15:45– **GEOMAGFOR - Geomagnetic core field forecasting:  
a case study**

15:48  Jan Simkanin · Helmholtz-Zentrum Dresden-Rossendorf (HZDR)


15:48– **Topological deep learning for robust prediction of drug  
response from perturbation transcriptomics**

15:51  Glenn Weber · Technical University Eindhoven, Netherlands

15:51– **Model-Agnostic Predictive Uncertainty For Earth  
Observation Applications**

15:54  Luis Marchante Arjona · German Aerospace Center (DLR)

15:54– **Multi-Omics data analysis with Gibbs Sampling**

15:57  Zahra Moslehi · Karlsruhe Institute of Technology (KIT)

15:57– **Bayesian Approach to Integrative Pathway Enrichment  
Analysis of Multi-Omics Data**

16:00  Sareh Ameri Far · Goethe University Frankfurt

16:00– **Coffee Break**

16:30

## Ground Floor / Aktionshalle

16:30– **Poster Session I**

18:30

18:30– **Science Slam incl. Food Reception**

19:30 Moderator: Alexander Lammers

19:30– **Networking & Food Reception**

21:00

# PROGRAM · WEDNESDAY, 4 JUNE

## Konferenzsaal

### 09:00– **Session 2a: Deep Learning for Images**

10:30 Moderator: Charlotte Debus

09:00– **AI for microscopy image analysis and computational pathology**

09:15  Tingying Peng · Helmholtz Munich


09:15– **Geometry-Regularized Random Forest Autoencoders for Semi-Supervised Data Visualization**

09:30  Adrien Aumon · University of Montréal, Canada

09:30– **Utilizing CNNs for classification and uncertainty quantification for 15 families of European fly pollinators**

09:45  Thomas Stark · German Aerospace Center (DLR)

09:45– **Model Fusion via Neuron Transplantation**

10:00  Muhammed Öz · Karlsruhe Institute of Technology (KIT)

10:00– **Machine Learning-based inverse problem solving for COXINEL Beamline**

10:15  Ankush Checkervarty · Helmholtz-Zentrum Dresden-Rossendorf (HZDR)

### Deep Learning for Images | Poster Spotlights

10:15– **Automated cytoplasm and nucleus segmentation in Soft X-ray Tomography**

10:18  Ayse Erozan · University of Heidelberg

10:18– **GEMCONT: Genetics-based Multimodal Contrastive Learning Enhances Phenotypic Representations and Boosts Genetic Discovery**

10:21  Daniel Sens · Helmholtz Munich

10:21– **A Comprehensive Pre-validation Tool for Scientific Image Datasets**

10:24  Ella Bahry · Max Delbrück Center (MDC)

10:24– **Resource-optimized Cloud Masking via Federated Learning for Multispectral Small Satellite Earth Observation Missions**

10:27  Tianyi You · Technical University of Munich

10:27– **Creating a Pan-Arctic Retrogressive Thaw Slump Dataset with Harmonized Sentinel-2 Data and Deep Learning Methods**

10:30  Jonas Küpper · Alfred Wegener Institute (AWI)

## K4/5

### 09:00– Session 2b: Deep Learning for Time Series

10:30 Moderator: Tobias Weigel

#### 09:00– Accurate and Scalable Neural PDE Emulators for 09:15 Climate Modeling

👤 Ali Bekar · Helmholtz-Zentrum Hereon

#### 09:15– Explainable time-series forecasting with sampling-free 09:30 SHAP based on attention manipulation

👤 Matthias Hertel · Karlsruhe Institute of Technology (KIT)

#### 09:30– Harnessing AI and ML Innovations for the 09:45 High-Luminosity LHC: Transitioning from R&D to Production

👤 Jan Sark · University of Toulouse, France

#### 09:45– Efficient Seasonal Hydrological Prediction with 10:00 HydracastAI

👤 David Mengen · Forschungszentrum Jülich (FZJ)

#### 10:00– The case for personalised machine learning for 10:15 observational sciences

👤 Emille Ishida · University of Clermont Auvergne, France

### Deep Learning for Time Series | Poster Spotlights

#### 10:15– Identifying Nonlinear Time-Dependent Dynamics in 10:18 Power Grid Frequency

👤 Xinyi Wen · Karlsruhe Institute of Technology (KIT)

#### 10:18– Step by Step: Towards a gapless 1 micron BigBrain 10:21 with Diffusion Models

👤 Jan-Oliver Kropp · Forschungszentrum Jülich (FZJ)

#### 10:21– Multimodal Deep Learnings and Interpretability for 10:24 Automated Mallampati Scoring and Endoscopy Prediction

👤 Chloe Kim · Cranbrook Kingswood Schools, USA

#### 10:24– Using a Superdroplet Machine Learning Emulator as 10:27 Warm Rain Parameterisation in a Realistic Climate Model Experiment

👤 Paul Keil · Helmholtz-Zentrum Hereon

#### 10:27– Transfer Learning-Based Data-Driven Surrogate 10:30 Models for Pretraining Thermal Building Control Reinforcement Learning Agents

👤 Thomas Krug · Technical University of Rosenheim

### 10:30– Coffee Break

11:00

# PROGRAM · WEDNESDAY, 4 JUNE

## Konferenzsaal

11:00– **Applied AI @KIT: Robots, laws, particles and more**

12:30 Moderators: Benjamin Schäfer, Markus Götz

All speakers: Karlsruhe Institute of Technology (KIT)

11:00– **Welcome**

11:10  Oliver Kraft

11:10– **HPC@KIT**

11:23  Martin Frank

11:23– **Collaborative nowcasting and short-term probabilistic predictions for infectious diseases**

11:36  Melanie Schienle

11:36– **AI and Law**

11:49  Friederike Zufall

11:49– **Simulation-based inference for particle physics**

12:02  Felix Kahlhöfer

12:02– **Machine Learning for Design and Autonomous Discovery of Materials**

12:15  Pascal Friederich

12:15– **Social and embodied AI: when Artificial and Human Intelligence meet**

12:30  Barbara Bruno

12:30– **Lunch**

14:00

**Konferenzsaal**

14:00– **Keynote: Ribana Roscher**  
14:45 Moderator: Charlotte Debus

**Towards Sustainable Crop Production:  
Machine Learning and Robotics for Digital Agriculture**  
👤 Ribana Roscher · University of Bonn

14:45– **Panel Discussion**  
15:30 **"The good, the bad and the ugly: the role of data in AI  
for science"**  
Participants: Fabian Theis, Michael Bronstein, Ribana Roscher

15:30– **Announcement of 2024 Project Call Awardees**  
15:45

15:45– **Coffee Break**  
16:00

**Ground Floor / Aktionshalle**

16:00– **Poster Session II**  
18:00

18:00– **Commute to Conference Dinner**  
19:00

19:00– **Conference Dinner at "Wildparkstadion"**  
23:00 **(KSC Stadium)**

# PROGRAM · THURSDAY, 5 JUNE

## Konferenzsaal

### 09:00– Session 3a: Foundation Models II

10:30 Moderator: Charlotte Debus


#### 09:00– **Agentic Systems Are Upon Us**

09:15  Sebastian Lobentanzer · Helmholtz Munich

#### 09:15– **Summation Compression for Very Low-Rank Adaptation**

09:30  Alessio Quercia · Forschungszentrum Jülich (FZJ)

#### 09:30– **Unveiling protein domains and families in 183,044 novel orthologs exploring multiple protein language models and over 16 Million open reading frames recovered from thousands of terrestrial metagenomes**

09:45  Breno Livio de Almeida · Helmholtz Centre for Environmental Research (UFZ)

#### 09:45– **Genetic analysis of retinal foundation model embeddings links morphology to ocular disease risk**

10:00  Liubov Shilova · Helmholtz Munich

#### 10:00– **MatBind: Probing the multimodality of materials science with contrastive learning**

10:15  Adrian Le Yang · Forschungszentrum Jülich (FZJ)

#### 10:15– **COSMOS: Cross-Modality Self-Distillation for Vision Language Pre-training**

10:30  Sanghwan Kim · Helmholtz Munich

## K4/5


### 09:00– Session 3b: Mathematical Approaches

10:30 Moderator: Tobias Weigel

#### 09:00– **Recent advances in deep Bayesian optimization for scientific AI**

09:15  Vincent Fortuin · Helmholtz Munich

#### 09:15– **Closing the Loop between Simulation and Experiment in Plasma and Photon Science**


09:30  Jeffrey Kelling · Helmholtz-Zentrum Dresden-Rossendorf (HZDR)

#### 09:30– **The Threat of Explanation-Aware Attacks**

09:45  Maximilian Noppel · Karlsruhe Institute of Technology (KIT)

- 09:45– **Amortized Bayesian Inference of bacterial cell-cycle states in scRNA-seq data with Neural Posterior Estimation**  
 10:00  Laura Jenniches · Helmholtz Centre for Infection Research (HZI)
- 10:00– **AI4OS: a comprehensive toolbox to develop AI models in EOSC**  
 10:15  Borja Esteban Sanchis · Karlsruhe Institute of Technology (KIT)
- 10:15– **Using physics-inspired neural networks to exponentially speed up the optimisation of complex diffractive gratings**  
 10:30  Eric Prehn · German Aerospace Center (DLR)

## Konferenzsaal

- 11:00– **KI Meets IA: Bridging German-French AI Research**  
 12:30 Moderator: Marie Piraud
- 11:00– **Welcome Note**  
 11:05  Otmar Wiestler · President Helmholtz Association
- 11:05– **The Centre Borelli at Ecole Normale Supérieure Paris-Saclay: From the Theoretical Foundations of AI to Actionable AI for Science and Technology**  
 11:18  Nicolas Vayatis · Ecole normale supérieure Paris-Saclay, Centre Borelli, France
- 11:18– **The CNRS AISSAI Center: AI for Science, Science for AI**  
 11:41  Julian Donini · University of Clermont Auvergne, France
- 11:41– **AI institute "MIAI Cluster"**  
 11:59  Sophie Achard · University of Grenoble Alpes, France
- 11:59– **Panel Discussion:**  
 12:30 **Explore ways to foster collaboration between Germany and France in AI**
- 12:30– **Poster Prize & Closing**  
 12:45
- 12:45– **Lunch**  
 14:00

# PARTNERS



## HIFIS – Helmholtz Federated IT Services

**HIFIS** is the digital platform of the Helmholtz Association. It provides and brokers cloud services for everyone in Helmholtz and collaboration partners. It delivers training and support on using those services and more generally on good research software engineering.

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## HELMHOLTZ IMAGING

### HELMHOLTZ IMAGING

We catalyze scientific discovery from sensory measurements to knowledge.

Images capture the world of science. From nanotechnology to astronomy, and from particle physics to marine biology, images store spatially and temporally resolved information across all scales and research domains. Helmholtz Imaging's mission is to unlock the potential of imaging in the Helmholtz Association across all research domains and along the entire imaging pipeline, to improve leverage and accessibility of the innovative imaging modalities, applications and data treasures, and to enable the delivery of generalizable imaging solutions. All scientists can contact the platform for direct support for imaging-related inquiries or the connection with other imaging experts from Helmholtz. No imaging challenge is beyond our scope.





## HMC – Helmholtz Metadata Collaboration

Better research through better metadata!

The Helmholtz Metadata Collaboration improves metadata generation, harmonization and scientific use in Helmholtz. Together with data infrastructure providers, scientists and policy makers, we work towards establishing a Helmholtz FAIR data space to allow machine actionable exchange and re-use of scientific data and information assets across the association.

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## HiDA – Helmholtz Information & Data Science Academy

The Helmholtz Information & Data Science Academy (HiDA) is dedicated to the development of information and data science skills of scientists within the Helmholtz Association and beyond. Together with its partners, HiDA offers a comprehensive range of training opportunities, promotes the exchange of knowledge between researchers through mobility programs and networking events, and supports the Helmholtz Centers in recruiting talent. HiDA also serves as the umbrella organization for the six HIDS schools, which train doctoral researchers at the interface between data science and the Helmholtz research domains.



# DeepL

### DeepL SE

**Find DeepL SE at exhibition space number #7.**

**DeepL** was founded by Jaroslaw Kutylowski and is operated by DeepL SE in Cologne, Germany.

Ever since the launch of DeepL Translator in August 2017, DeepL has been setting records for machine translation quality. DeepL Pro, released in March of 2018, allows subscribers to unlock the full capacity of DeepL's AI translation technology. DeepL Pro subscribers can benefit from an optimized web translator, integrate our algorithms into translation software, or build new apps and services with the DeepL API.



**NTT Germany AG & Co. KG**

**Find NTT DATA at exhibition space number #8.**

**NTT DATA**, part of the global NTT Group, is a trusted partner for research institutions, delivering advanced AI infrastructure and data center services. We support scientific innovation with scalable, high-performance computing, secure IT environments, and tailored solutions for data-intensive research. Combining global expertise with local presence, we help research organizations across Germany accelerate discovery and navigate the digital future with confidence.



sysGen

**Find sysGen at exhibition space number #6.**

**sysGen GmbH** is a solution-oriented and manufacturer-independent IT supplier for industry, trade, research, and education. The company specializes in developing, producing, and distributing high-quality system solutions, servers, workstations, and components, including system and application software and services for professional use.

The comprehensive IT offering includes revolutionary and forward-looking solutions for the areas of Artificial Intelligence (AI) / Deep Learning, High Performance Computing, High Availability Computing (HA), Software-Defined Storage, Network, Virtualization and Cloud Computing. For all solutions and system deliveries, additional services are offered, such as on-site installation with integration into existing IT infrastructures, employee training for hardware and software. Our offers are preceded by qualified advice, and a fee-based, Europe-wide IT service rounds off our range of services.

As a partner of renowned companies such as NVIDIA, Supermicro, Gigabyte, AMD, Intel, DDN, GRAIDtech, etc., we offer innovative IT solutions that meet all requirements.

#### **About us:**

- sysGen GmbH was founded in 1995 and has established itself as a solution-oriented IT supplier in the areas of research, teaching, industry, trade, and public authorities.
- sysGen GmbH specializes in high-quality system solutions, servers, workstations, components, and services.
- sysGen GmbH offers personal consultation in advance for all procurements.
- sysGen GmbH offers a wide range of services in the service and support segment.



## IBM Deutschland GmbH

**Find IBM at exhibition space number #10.**

**IBM** Storage solutions for data and AI deliver data at scale while maintaining high performance, low latency and managed data access with limited to no downtime. Realize faster time to value for data with a unified storage platform that consolidates file, block and object data services and integrates with existing IT investments.



### pro-com DATENSYSYSTEME GmbH

**Find pro-com DATENSYSYSTEME at exhibition space number #9.**

**pro-com DATENSYSYSTEME GmbH**, based in Eislingen, is one of the leading Lenovo and IBM business partners in Germany.

With a comprehensive service portfolio, we develop customized IT strategies and implement innovative systems. Our particular focus is on High-Performance Computing.

Our HPC and AI solutions are based on state-of-the-art HPC servers from Lenovo with the latest Intel and AMD processors, Lenovo GPU servers equipped with AMD and NVIDIA technologies, as well as powerful AI storage systems from IBM.

We analyze your current structure and provide you with a suitable selection of components that equip your IT structure flexibly and with a future-oriented approach.



### SMIGHT

At **SMIGHT** we are helping Distribution System Operators (DSOs) to enable the energy transition whilst maintaining grid stability; by giving them the tools they need to digitise their grid and thereby bring transparency into their low voltage networks.

We do this by offering IoT enabled current and voltage sensing technology, which is installed across all phases on secondary substation and distribution cabinet feeders.



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8 - 11 June 2026, Munich

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