

# Introduction to Helmholtz AI & schedule of the next 2-3 years

Meike-Jana Kalb  
*Helmholtz AI central unit*  
*Helmholtz Munich*



# The six Research Fields of the Helmholtz Association



# The six Research Fields of the Helmholtz Association



# Helmholtz AI is part of...

...data science initiatives within the Helmholtz Association

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Research, funding  
& support



## Our Hub-and-Spoke Model



@helmholtz\_ai



HelmholtzAI

- Headquarter with coordination & outreach at Helmholtz Munich
- Six local units representing the six research fields of the Helmholtz Association
- Each unit hosts at least one research group & AI consultant team

### OUR SIX LOCAL UNITS



HELMHOLTZ  
MÜNCHEN

HZDR  
HELMHOLTZ ZENTRUM  
DRESDEN-ROSSENDORF

KIT  
Karlsruher Institut für Technologie

DLR  
Deutsches Zentrum  
für Luft- und Raumfahrt  
German Aerospace Center

hereon  
Karlsruhe Institute of Technology

FORSCHUNGS-  
ZENTRUM  
JÜLICH  
INFORMATION

HELMHOLTZ  
ZENTRUM  
MÜNCHEN  
HEALTH

HELMHOLTZ-  
ZENTRUM  
DRESDEN-  
ROSSENDORF  
MATTER

KARLSRUHE  
INSTITUTE OF  
TECHNOLOGY  
ENERGY

GERMAN  
AEROSPACE  
CENTER  
AERONAUTICS,  
SPACE AND  
TRANSPORT

HELMHOLTZ-  
ZENTRUM  
HEREON GMBH  
EARTH AND  
ENVIRONMENT



#### ORGANISATION

- Central Unit
- Local Units
- Helmholtz Association

#### FELLOWS & PARTNERS

- Industry
- Research Center
- University

#### RESEARCH FIELDS

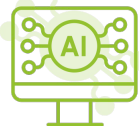
- Information
- Matter
- Energy
- Aeronautics, Space, and Transport
- Health
- Earth & Environment



# 6

LOCAL UNITS

Earth @ Hereon  
Energy @ KIT  
Matter @ HZDR  
Space @ DLR  
Health @ HMGU  
Info @ FZJ



RESEARCH

- 8 early career PIs
- 2 senior PIs (soon)
- >30 researchers
- >30 associates



SUPPORT

- 6 AI consultant teams
- >35 AI consultants



MANAGEMENT

- 3 Project managers
- 1 Network manager
- 2 Exec. assistants



## Maximise research impact by democratising access to AI

- Foster **cross-field creativity**
- **Identify & leverage similarities** between applications
- Integrate **field-specific excellence**
- Improve **quality, scalability and availability** of emerging methods
- Empower current & **next generation of scientists**

# 45

HELMHOLTZ AI PROJECTS  
(2019+20+21)

# 169

AI CONSULTINGS

# >100

TRAININGS &  
HACKATHONS

# 12 M€/Y



[www.helmholtz.ai](http://www.helmholtz.ai)  
[contact@helmholtz.ai](mailto:contact@helmholtz.ai)

# Helmholtz AI

## Research groups & AI consultant teams

### 6 AI consultant teams



#### WEIGEL TEAM

Earth and environment (DKRZ - Hereon)



#### GÖTZ TEAM

Energy (KIT)



#### PIRAUD TEAM

Health (HMGU)



#### STEINBACH TEAM

Matter (HZDR)



#### CAMERO TEAM

Aeronautics, space and transportation (DLR)



#### KESSELHEIM TEAM

Information (JSC - FZJ)



#### DICKSCHEID GROUP

Artificial intelligence for decoding human brain organisation



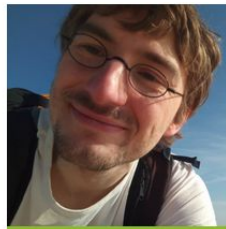
#### GREENBERG GROUP

Model-driven machine learning



#### HOFFMANN GROUP

Artificial intelligence for the future photon science



#### ALBRECHT GROUP

Large-scale data mining in earth observation



#### ALBARQOUNI GROUP

Deep federated learning in healthcare



#### KILBERTUS GROUP

Reliable machine learning



#### PENG GROUP

AI for microscopy and computational pathology



#### URBAN GROUP

Planetary health

### 8 Young investigator groups

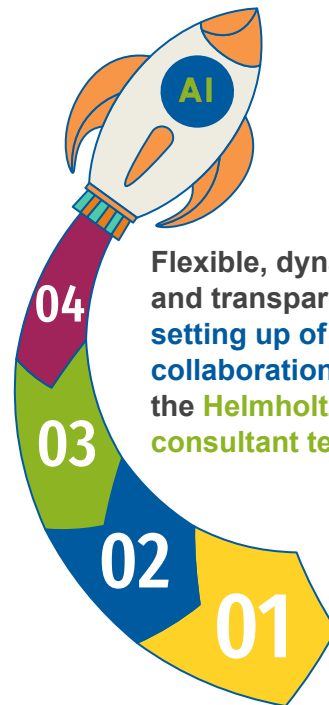
# Helmholtz AI

## Computing resources (HAICORE) & AI consulting

### HAICORE | HELMHOLTZ AI COMPUTING RESOURCES

The “Helmholtz AI computing resources” (HAICORE, €2.5m) provide easy, free and **low-barrier GPU access** to the entire AI community within the Helmholtz Association.

- **Ad-hoc usage** for initial testing with data and/or AI methods at KIT (HoreKa)
- Lightweight projects of **up to 5,000 GPU hours** per half year at FZJ (Juwels Booster)



Flexible, dynamic and transparent **setting up of (free!) collaborations** with the **Helmholtz AI consultant teams**

IDEA

SUBMISSION

REVIEW

COLLABORATION

Two voucher types:

- EXPLORATION (up to 2 weeks)
- REALISATION (up to 6 months)

Voucher submission portal:  
[voucher-system.helmholtz.ai](https://voucher-system.helmholtz.ai)

More info: [bit.ly/HelmholtzAIVoucher](https://bit.ly/HelmholtzAIVoucher)

HELMHOLTZ AI



# Helmholtz AI

## Associates

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### Become a Helmholtz AI associate

With the Helmholtz AI associates, we are extending the network for applied AI within the **Helmholtz Association** to leverage the breadth of activities and strengths of our AI research.

#### Benefits:

- Become part of the **growing Helmholtz AI community** with increasing visibility
- Opportunities for **interaction and networking**
- Use of the **Helmholtz AI affiliation**

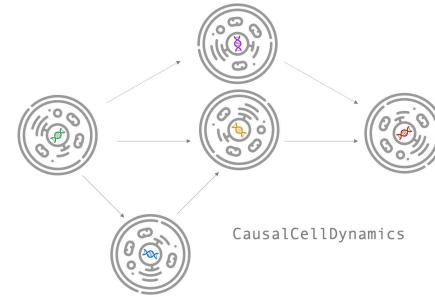


Apply via [www.helmholtz.ai](http://www.helmholtz.ai)

# Helmholtz AI

## Helmholtz International Labs

In the 'Helmholtz International BigBrain Analytics and Learning Laboratory' researchers from **McGill University and MILA in Montreal** and **FZJ/Helmholtz AI in Jülich** develop novel AI-based methods for analyzing high-resolution image data of the human brain.



'Causal Cell Dynamics' brings together 3 sites with pioneering roles in artificial intelligence - **Mila in Montreal, MPI in Tübingen and ICB + Helmholtz AI in Munich**. The major aim is to develop methods for causally structured deep representation learning in order to improve our understanding of cellular decisions.

"Helmholtz international labs cross continents to unleash the potential of AI communities working together"

# Helmholtz AI

## Communication and Community



www.helmholtz.ai



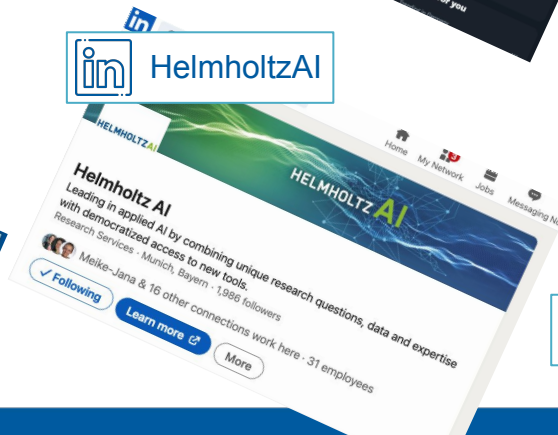
@helmholtz\_ai



Newsletter



HelmholtzAI



The 'Helmholtz AI community' workspace is a **dedicated networking space** for Helmholtz researchers to share information and meet other AI/ML enthusiasts, e.g. to partner up for the annual Helmholtz AI project call.



<https://helmholtzaicommunity.slack.com/join/signup#/domain-signup>

HELMHOLTZ AI

# Helmholtz AI annual project call

## General requirements

### Eligible

all researchers in the Helmholtz Association (qualified universities)

### Duration

2-3 years

### Budget: €400k or more

- €200k from INF, €200k or more matched
- Staff, travel, consumables



### Collaborative

≥ two Helmholtz centers, balanced (one leads/coordinates)

### Contribute to Helmholtz' transfer objective

- external partners
- maturation of finding and results
- exploitation strategy

# Helmholtz AI project call

## Goals for today's Welcome Meeting

### Goals



- “**Onboarding**” of Helmholtz AI projects 2021
- **Get to know each other** and **welcome** our 2021 projects to the Helmholtz AI community



- We at Helmholtz AI would **like to learn** more about our 2021 projects (e.g. focus, requirements)
- We would like to **identify requirements** and wishes on both sides (Helmholtz AI & projects)
- Project PIs might be interested in Helmholtz AI work & **how they can get involved**





# Helmholtz AI project call 2021

## Process

- **33 proposals** were submitted
- **International panel** of 10 experts
  - pre-assessment, assessing the categories defined in the project call
- **INF\*-Budget of 4M€** for this call
- **10 proposals suggested for funding** in a virtual panel meeting
  - 4 Helmholtz research fields represented
  - 12 Helmholtz Centers involved, 8 centers coordinate at least 1 project

## Project Call Coordination

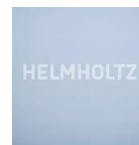
- **Helmholtz Associations Head Office:** coordinating review panel, funding decision, project monitoring
- **Helmholtz AI science management:** coordinating project calls, outreach and community



Jaqueline  
Bender



Nadja  
Danilenko

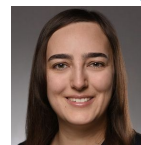


Florian  
Grötsch

Adviser Strategic Initiatives  
Helmholtz Association  
[inkubator@helmholtz.de](mailto:inkubator@helmholtz.de)



Meike-Jana  
Kalb




Karolina  
Worf

Science manager  
Helmholtz AI  
[projects@helmholtz.ai](mailto:projects@helmholtz.ai)

\*INF = Initiative and Networking Fund, a central financing element of the Helmholtz Association

# Helmholtz AI project call 2021

## Timeline

- 
- **9. August:** call open
  - **1. September:** submission portal open
  - **1. December:** submission deadline
  - **December to early 2022:** review process & selection
  - **Spring 2022:** selected projects announced
  - **Now:** project start
  - **Spring 2023:** first deliverable after 1 year
  - **2025:** end of projects

Outreach & proposal planning

Submit proposal via a dedicated submission portal

Submit proposal until end of day (CET)

External review

Formal criteria check

Virtual panel meeting

Funding decision & announcement

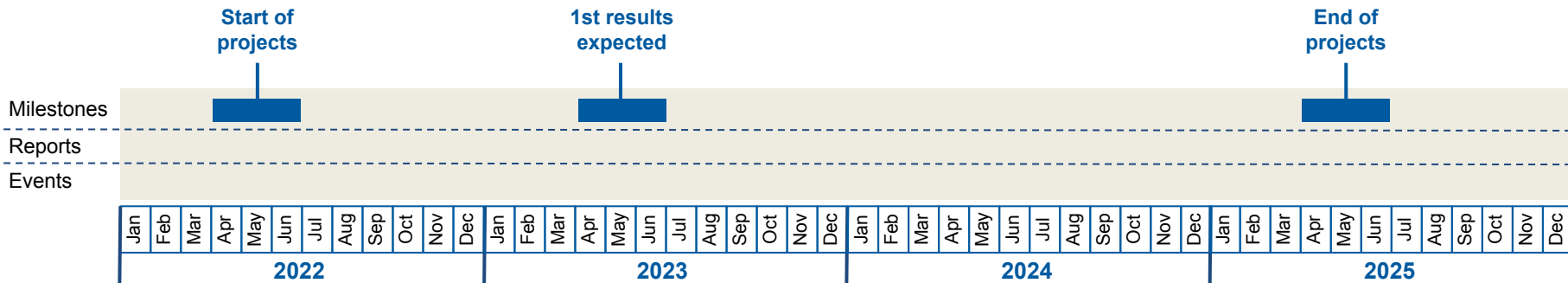
INF contract set up & project start

First deliverable & annual reports

End of project & final report

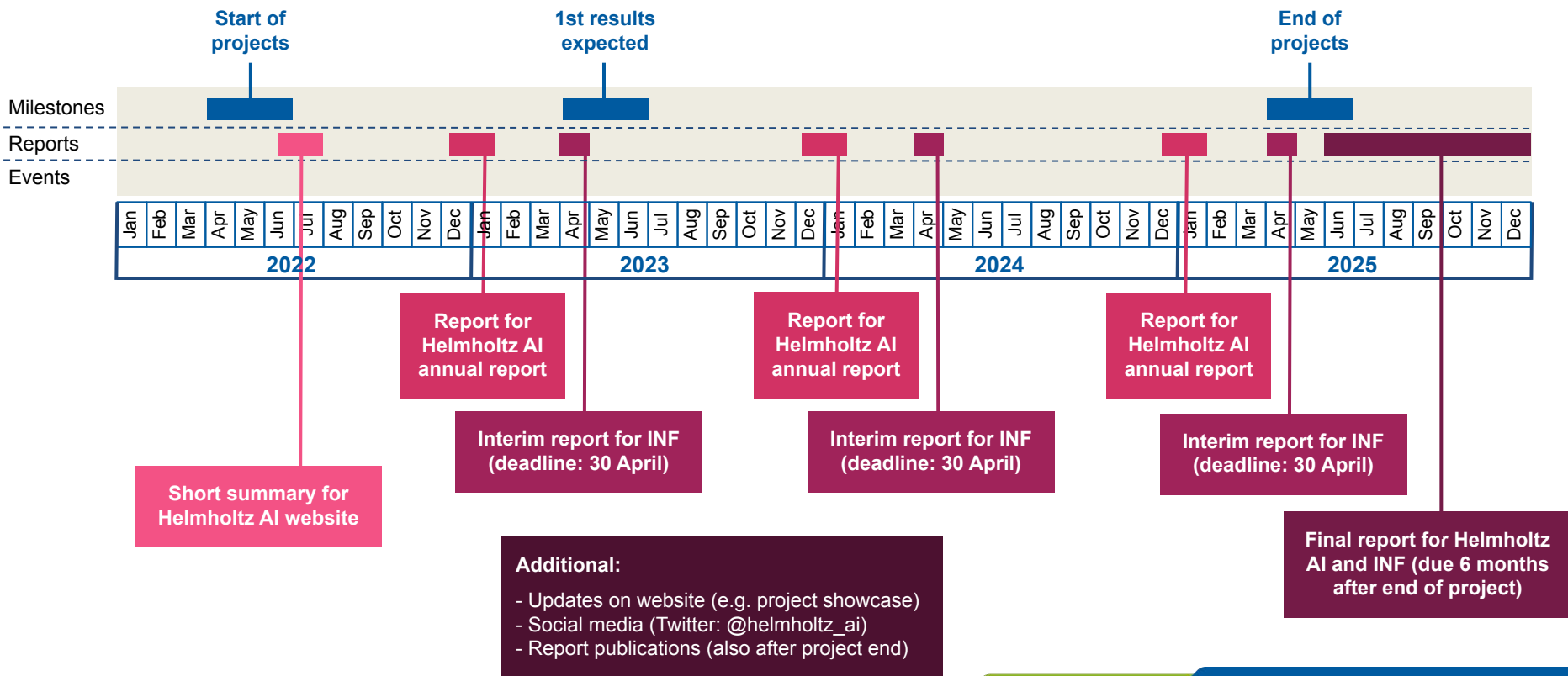
# Helmholtz AI project call 2021

## Rough schedule 2022 - 2025



# Helmholtz AI project call 2021

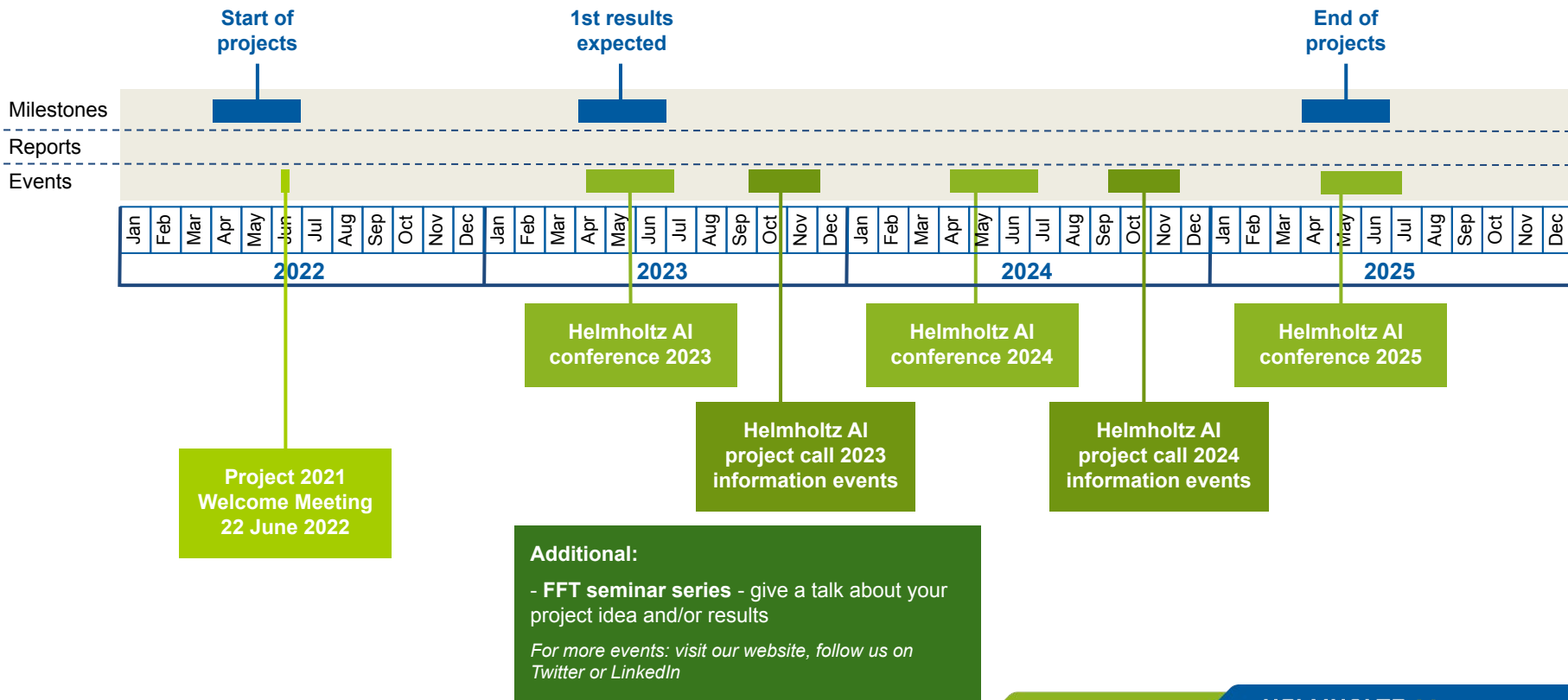
## Rough schedule 2022 - 2025





# Helmholtz AI project call 2021

## Rough schedule 2022 - 2025



# Helmholtz Transfer Strategy & Helmholtz Enterprise

## Information and Contacts

**Contact your respective transfer office** at your Helmholtz center for all transfer related questions and tasks and to get insights to the **Helmholtz Transfer Strategy** ([English](#)/[German](#)).

[Home](#) | [Transfer](#) | [Helmholtz Association Transfer Instruments](#)

## Helmholtz Enterprise

Helmholtz Enterprise (HE) is the internal program for spin-offs from the Helmholtz Association. The overall purpose of the program is to support scientists to work entrepreneurial and start a well-thought-out business.

More information [here](#)



### Julian Alexandrakis

Program Manager Transfer and  
Innovation  
Helmholtz Association

[julian.alexandrakis@helmholtz.de](mailto:julian.alexandrakis@helmholtz.de)

[+49 30 206329-77](tel:+493020632977)

# Helmholtz AI project call 2021

## Join Outreach and our Community

### Please join:

- **We are setting up a mailing list**
  - Receive all necessary information
  - Please let us know, who should be enrolled in the shared Google spreadsheet
- **Helmholtz AI Newsletter**
  - Receive current Helmholtz AI news and keep up to date
  - Join the monthly newsletter:  
<https://bit.ly/HelmholtzAInewsletter>
- **LinkedIn**
  - Join us on LinkedIn *HelmholtzAI*
- **Twitter**
  - Join us on Twitter *@helmholtz\_ai*
  - Share your results with our AI community
  - Please share your or your projects Twitter handle in the Google spreadsheet with us



# Helmholtz AI project call 2021

## Join Outreach and our Community

### Please join:

- **Community Channel ([Slack](#))**
  - Exchange with Helmholtz AI colleagues and find collaborators
- **Helmholtz AI associates**
  - [Become](#) an associate for an even greater AI network
- **[www.helmholtz.ai](http://www.helmholtz.ai)**
  - Publish your project-related job ads, awards and publications ([projects@helmholtz.ai](mailto:projects@helmholtz.ai))
- **Incubator Summer Academy**
  - Register for the incubator summer academy - Zero to Hero in July 2022 (**Registration will open soon**)

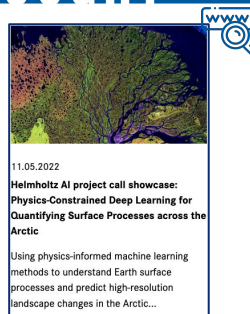
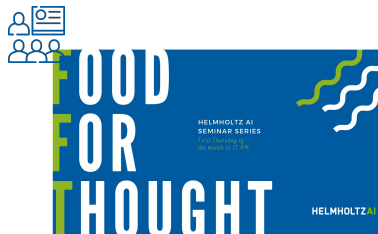


# Helmholtz AI project call 2021

## Join Outreach and our Community

### We will contact you:

- **Food for Thought (FFT) seminar series**
  - Present your project idea & preliminary results
- [www.helmholtz.ai](http://www.helmholtz.ai)
  - Project introduction
  - Weekly highlighted project showcase
- **Helmholtz AI project call 2023/24 information events**
  - Present your project idea & preliminary results



**Contact:**



[projects@helmholtz.ai](mailto:projects@helmholtz.ai)



# Helmholtz AI

## Connect with us

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**HELMHOLTZAI** | ARTIFICIAL INTELLIGENCE  
COOPERATION UNIT

