

# Helmholtz AI projects - 2020 call

August 11, 2020

## Background

The Helmholtz AI Cooperation Unit (Helmholtz AI)<sup>1</sup>, will permanently and strategically drive and coalesce the field of applied Artificial Intelligence within the Helmholtz Association. As an interdisciplinary platform, Helmholtz AI will compile, develop, foster, and promote Artificial Intelligence-based approaches for all Helmholtz Centers.

One essential component is funding research projects that address the topics of applied Machine Learning and Artificial Intelligence. These annual calls are based on the general concept for Helmholtz AI and are in line with the future topics of the Initiative and Networking Fund (INF). These projects initiate cross-cutting research collaborations and identify innovative research topics in this area. In addition, they underpin the growth of the Helmholtz AI network within Helmholtz and with external partners; they include the opportunity to access and employ computing resources of HAICORE.

## Objective of funding

The objective of this second call for Helmholtz AI projects is to initiate and facilitate activities that address cross-center challenges and methods. It aims at several smaller collaborative projects with the potential to facilitate follow-up projects. It fosters co-development of solutions with potential users.

First results are expected by mid-2022, i.e. one year after funding starts. The results shall contribute to the vibrant Helmholtz AI community, fertilize cross-center collaborations, collaborations with external partners, and contribute to international visibility.

## Goals

A Helmholtz AI project addresses two overarching goals:

1. exploit new Machine Learning, Statistical Learning and Artificial Intelligence approaches in the applicants' research field(s), and
2. foster interaction and method transfer between application domains and research fields (in and between Helmholtz Research Areas).

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<sup>1</sup> Concept for Helmholtz AI:  
[www.helmholtz.de/fileadmin/user\\_upload/01\\_forschung/Helmholtz\\_Inkubator\\_HAICU.pdf](http://www.helmholtz.de/fileadmin/user_upload/01_forschung/Helmholtz_Inkubator_HAICU.pdf)

In order to allow for vigorous exploration of new approaches and to encourage disruptive ideas, Helmholtz AI projects explicitly call for 'high risk, high gain' project proposals and value (fast) failure over incremental advances. Projects should address, if appropriate, reproducibility and explainability. Where applicable, projects are co-created and iteratively developed with users and further stakeholders (e.g. non-academic ones). Activities within projects should strongly impact research at participating Helmholtz Centers and should contribute to the overall development of the Helmholtz AI community within Helmholtz and with external partners.

## Thematic criteria and general requirements

Projects shall be aligned with the goals formulated in the Helmholtz AI concept. Applications that meet the following criteria will be evaluated based on the award criteria (see below in "Evaluation process, selection, and award criteria").

### 1. Thematic criteria

- a. Projects shall focus on data analysis, method application and method development (or similar activities) in line with the above goals.
- b. Projects with a substantial share of or focus on data collection, data preparation/cleaning or validation are not eligible for funding.

### 2. General requirements

- a. Helmholtz AI projects shall combine substantial and reasonably balanced contributions from scientists from at least two Helmholtz centers.
- b. External partner(s) with outstanding expertise or access to specific resources may be included in an (international) consortium, e.g. for joint supervision of students. Funding will be provided only for Helmholtz centers; in cases of indispensable expertise, funding may also be provided for a highly qualified university partner (within Germany).
- c. A concise cooperation and management plan of the project should comprise effective communication, participation and decision-making mechanisms between the partners.
- d. Applications shall outline deliverables that can be achieved over the course of the funding period and demonstrate tangible outcomes. First deliverables need to be envisioned after 12 months upon the start of the project (non-limiting list: publication of a software or generated reference data set, policy/white paper, educational material, communication material, poster). Applicants shall describe the expected results and impact of the project for the participating centers, the Helmholtz Association and if applicable beyond.
- e. The application shall describe how a swift start of the project is ensured upon the funding decision (e.g. hiring, data provision), as projects are expected to commence as soon as possible after the funding decision. Ideally, the proposal should name, where appropriate, candidates for intended positions.
- f. Helmholtz AI projects can apply for a total volume of up to € 400k in total for a

running time of 2-3 years. In line with INF guidelines, half of the project volume (i.e. max. € 200k) will be funded by the INF and the other half will be contributed by the partners themselves. The latter has to be confirmed by a signed letter from the board of directors when submitting the application.

g. Staff, travel expenses and cost for consumables are eligible for funding; investments are excluded. The draft financial plan shall cover the full running time of the project.

h. A list of independent experts as potential reviewers may be provided. Proposed experts need to be unbiased (criteria are published with this call).

i. Applications submitted for Helmholtz AI projects must not have been submitted to another funding line of the Helmholtz Association; revised resubmissions of previously unsuccessful Helmholtz AI project proposals are welcome and shall be indicated as such with a brief statement summarizing the changes.

## Rights and Obligations

1. During the funding period, projects commit to actively participate in Helmholtz AI cross-field activities, such as progress workshops, method exchange workshops or hackathons.
2. Funded projects commit to acknowledging financial support through the Helmholtz AI projects funding line in any published output.
3. Funded projects commit to share short updates about ongoing projects (e.g. on the website [www.helmholtz.ai](http://www.helmholtz.ai) and associated social media channels) regularly.
4. Annually and at the end of their respective funding period, all Helmholtz AI projects shall submit a short written (final) report demonstrating progress and results (referencing deliverables) to Helmholtz AI central and the Helmholtz AI scientific advisory committee. These reports form part of the general reporting of the Helmholtz AI platform.

## Applications

1. The application consists of:
  - a. Cover page and abstract (information to be entered in the online submission tool)
  - b. Main body (max. 5 pages) and appendices (work packages, deliverables, financial plan, board's confirmation letter, CVs and, if applicable, resubmission statement) in a single PDF file
2. The application shall be written in English. The main body and appendices shall be formatted in DIN A4, Arial, 11pt, 1" margin and single line spacing. A full template specifying the structure and formatting is provided.
3. The main body's structure is:
  - a. Scientific case
  - b. Unique and ambitious approach

- c. AI/ML methods and/or data sets
  - d. Long-term impact
  - e. Implementation and management
4. Important elements on the cover page (information to be entered in the online submission tool) include:
- a. title and acronym
  - b. up to 10 keywords
  - c. names and contact information of the Principal Investigator(s) and naming one as coordinator
  - d. names of participating centers and external partners
  - e. budget
5. CVs of the principal investigators and, if available, CVs of prospective candidates for a specific position should be submitted in the appendix. Please note that your CV should highlight the relevant expertise in AI and also contain references to relevant accomplishments beyond scientific papers and citation metrics; such accomplishments may for instance be software packages, policy papers, standards, datasets, patent filings, entrepreneurship and industry collaborations.
6. A declaration, usually a signed letter, by the board of directors of the participating parties that contribute matching funds guaranteeing the matching of the funds must be included.
7. The application may include a list of up to six unbiased independent experts (information to be entered in the online submission tool) with relevant expertise in the methodological aspects of the application, at least half of the nominees should be female; such experts could be invited to participate in the panel meeting.
8. Revised resubmissions of previously unsuccessful Helmholtz AI project proposals must be accompanied with a brief description of changes applied in the appendix (max. 1 page).
9. An incomplete application may lead to the exclusion of the application from the selection procedure.

### **Evaluation process, selection, and award criteria**

Proposals are subject to the following evaluation procedure. Proposals are checked regarding formal requirements. Proposals are evaluated by a panel of independent experts. The panel performs a pre-assessment of all applications prior to the selection meeting (no presentation). Based on this evaluation, the panel will recommend a list of projects for funding. The President decides which projects shall be funded.

Proposals will be evaluated by a panel of experts, on the basis of the award criteria ‘ambition’, ‘research impact’, ‘methodology impact’ and ‘quality and efficiency of the implementation’. The criterion ‘ambition’ is weighted with 1.5.

Award criteria	Aspects
Ambition (weight 1.5)	<ul style="list-style-type: none"> <li>● Extent to which the proposed project is beyond the state of the art, demonstrates unique innovation potential (e.g. ground-breaking objectives, novel concepts and approaches) and takes on risk</li> <li>● Clarity of the objective(s)</li> <li>● Soundness of concept and credibility of proposed methodology</li> </ul>
Research impact (weight 1.0)	<ul style="list-style-type: none"> <li>● The extent to which the output(s) of the project would contribute to advance the specified research field(s)</li> <li>● The potential to contribute to establishing and strengthening a long-term cooperation between the partners.</li> </ul>
Methodology impact (weight 1.0)	<ul style="list-style-type: none"> <li>● The extent to which the output(s) of the project would contribute to advance the development/implementation/use of the specified method</li> <li>● The potential to exploit and disseminate the project results within Helmholtz and with further partners</li> </ul>
Quality and efficiency of the implementation (weight 1.0)	<ul style="list-style-type: none"> <li>● Quality and effectiveness of the work plan, including the extent to which the resources assigned to work packages are in line with their objectives and deliverables</li> <li>● Appropriateness of the allocation of tasks, ensuring that all participants have a valid role and adequate resources in the project to fulfil that role</li> <li>● Complementarity of the partners and balance of expertise</li> <li>● Readiness of applicants to commence the project within the timeline indicated in the call</li> </ul>

The evaluation procedure and the handling of proposals will be jointly managed by staff at the Helmholtz Association Head Office and Helmholtz AI central (at the Helmholtz Zentrum München). The evaluation meeting will be managed by the Head Office. The scientific leadership of Helmholtz AI (i.e. the scientific director and steering board members) will have no access to submitted proposals or assessments at any stage during and after the evaluation procedure. They will not contact the panel of experts.

### Schedule

Date	Event or action
<b>July 2020</b>	Pre-announcement of Helmholtz AI 2020 project call
<b>August 2020</b>	Announcement of Helmholtz AI 2020 project call
<b>September 2020</b>	Submissions are accepted via online submission portal: <a href="https://application.helmholtz.ai">https://application.helmholtz.ai</a>

<b>1 December 2020</b>	Application deadline
<b>December 2020 - January 2021</b>	Proposals meeting the selection criteria are reviewed and scored by panel members according to award criteria
<b>February 2021 - March 2021</b>	Panel members meet to decide which projects to recommend. The President decides which projects to fund.
<b>March-April 2021</b>	Funding contracts between Helmholtz Association and submitting center are being drawn up
<b>April-June 2021</b>	Start of Helmholtz AI projects

**For further inquiries, please contact via email:**

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**Appendix**

1. Application template
2. Criteria for bias/ conflict-of-interest
3. Information about the processing of personal data