

## Konrad Zuse Schools of Excellence in Artificial Intelligence 2022-2027.

### An initiative for German higher education institutions, research institutions and companies.

#### Programme objectives

The German Academic Exchange Service (Deutscher Akademischer Austauschdienst – DAAD) finances the ‘Konrad Zuse Schools of Excellence in Artificial Intelligence 2022– 2027’ programme with funding provided by the Federal Ministry of Education and Research (BMBF).

Artificial Intelligence (AI) or machine learning automatically derives actions based on pattern recognition in large heterogeneous data sets or the perception of relevant environmental parameters, thereby maximising the chance of successfully achieving objectives set for specific action frameworks. Scientific disciplines such as bioinformatics / biometrics, econometrics, operations research, decision theory, network theory, physics, process engineering, etc, as well as engineering sciences, computer science, mathematics, statistics, medicine, data science<sup>1</sup> are just some of the fields in which AI is increasingly used and in which legal and ethical issues play a major part alongside technical aspects.

Nowadays we encounter Artificial Intelligence in almost all areas of life: whether in daily routine, industry or academia – the fields of application of AI as a key technology will develop rapidly and provide decisive stimuli for progress and structural change in society. In the close interplay between social and engineering sciences, joint, integrative research approaches can contribute significantly to the increasingly effective investigation and use of the potential offered by AI.

In order to strengthen the standing of German AI research and application in the context of international competition, the Federal Government’s AI strategy<sup>2</sup> focuses on international cooperation with the aim of training the personnel required for AI development and application in Germany. To this end, the very best German and international AI talent is to be attracted and retained in Germany as an AI hub.

German higher education and research institutions not only offer excellent study and research opportunities in the field of AI, they also engage in numerous research and development collaborations with industry and business. The growing number of industry-specific AI application areas also offers attractive employment and career opportunities for top national and international AI specialists.

This is where the funding programme ‘Konrad Zuse Schools of Excellence in Artificial Intelligence’ comes in:

the programme will promote the establishment of probably three ‘Konrad Zuse Schools of Excellence in Artificial Intelligence’ providing excellent, research-based training at master’s degree and at doctorate level. German higher education institutions (universities and universities of applied sciences) will be responsible for the Schools.

Each School will form the umbrella for an association of academically proven researchers who are interested in innovative teaching and are drawn from several higher education institutions and non-university research institutions, as well as representatives of commercial research and development departments (fellows). Particularly qualified colleagues from abroad can be included as associated fellows. These fellows will form transdisciplinary, cross-locational teams, enabling them to provide the following for young AI researchers and for outstanding German and non-German students at master’s degree and doctorate level,

<sup>1</sup> [https://gi.de/fileadmin/GI/Allgemein/PDF/GI\\_Arbeitspapier\\_Data-Science\\_2019-12\\_01.pdf](https://gi.de/fileadmin/GI/Allgemein/PDF/GI_Arbeitspapier_Data-Science_2019-12_01.pdf), Page 18

<sup>2</sup> [https://www.bmbf.de/files/Nationale\\_KI-Strategie.pdf](https://www.bmbf.de/files/Nationale_KI-Strategie.pdf)

- innovative paths to academic qualification,
- interdisciplinary research relating to AI,
- transdisciplinary career paths in industry and academia.

The Schools will act as cross-locational networks and pay particular attention to the integration and supervision concept for their German and international students and early career researchers, for whom summer schools, joint project work, excursions to companies or trade fairs and the like will be organised. The inclusion of fellows from industry – who, like the academics, will act as mentors – aims to give the Schools an application-oriented perspective and contribute to the diversification of young AI researchers' career paths.

One of the special features of the Schools is that continuous support will be available from master's degree level (scholarships) through to doctorate level (jobs). In addition to this directly funded young talent, other students following participating degree courses as well as doctoral candidates in equal numbers can likewise be included in a School's supervision measures and activities.

The Schools' unique features will be their combination of excellent, research-based education at master's degree and doctorate level, supervision provided by mentors from both academia and industry and cross-locational networking. These are the prerequisites for achieving the following medium and long-term programme objectives (see the funding programme's impact analysis structure).

The programme is to make a long-term contribution

- to the professional profiling of the participating higher education institutions in research-based teaching within the AI sector;
- to meeting the demand for researchers and for expertise in the AI sector in Germany;
- to the transdisciplinary and cross-locational networking of academia and industry and the intensification of knowledge transfer in the AI sector;
- to enhancing the excellence and perspectives of higher education and research through international exchange and the international appeal of Germany as an AI science hub;
- to enhancing the standing of AI content in research, teaching, industry and society.

The following programme objectives (outcomes) are derived from these impacts:

- The participating Schools are established as a national and international brand for cutting-edge research.
- Students and doctoral candidates have successfully completed their education.
- Those who have completed the programme are qualified to take up positions in academia and industry in the AI sector, whether as AI specialists or as transdisciplinary experts.
- Research-related AI networks are established (with national and international partners).
- Concepts for the sustainability of the Schools have been developed.

These programme objectives should be achieved by means of the following direct results of measures / activities (outputs):

- The Schools have national and international visibility.
- Innovative study and research programmes in the field of AI are (further) developed/advanced and offered at participating Schools.
- Subject-specific and interdisciplinary research achievements are made and communicated.
- A comprehensive programme of preparation, supervision and networking has been established.
- Cross-locational networking is consolidated involving key protagonists from academia and industry.

The use of results-oriented monitoring right from the start of funding is intended to effectively support Schools in the planning and control of their project objectives and measures.

The focus areas defined can vary from project to project. Each project must contribute to all programme objectives (outcomes), but not necessarily to the same extent. While there is some room for flexibility when it comes to wording project objectives and how to achieve these, the project objectives must be in line with the programme objectives. The project objectives must be specified based on the programme's impact analysis structure. Measurable project objectives and results and related indicators must be specified. These must be outlined in the application and in the project planning summary. Regarding the instructions for results-oriented project planning, the results framework and the list of indicators, please refer to Annex 3 'Guide to Results-oriented Monitoring'.

Once the Schools have been established, the DAAD evaluates this model for potential long-term sustainability.

In addition, an advisory board made up of academics as well as representatives of research organisations and companies will provide key support for the Schools in establishing contacts and networking with each other as well as with other relevant players in academia, business and politics.

#### Two-stage application procedure

The application and selection of projects will take place in two stages:

##### **Stage 1: Expression of interest – submission of a project outline**

The first stage involves the submission of a project outline which includes qualification and research concepts for a School on AI subjects as well as a supervision concept. Between five and seven concepts will be selected based on the project outlines submitted. At Stage 2, the selected applicants will then be invited to submit an application for AI School funding.

##### **Stage 2: Application for funding for an AI School**

The second stage involves submission of an application for funding for a concretely developed AI School project. This must describe the prerequisites relevant to the AI School, experience, project objectives, intended results, underlying strategies and concepts, measures for results-oriented monitoring and quality assurance as well as sustainability and the securing of the Schools' results (see "Selection criteria").

#### Eligible measures / activities

The following measures are eligible in particular. Where possible and expedient, these should include digital methods and components:

- (Further) development and implementation of study and qualification programmes. These include, for example:
  - adaptation of existing course offerings and new development of content for teaching and learning materials for the School's joint curriculum;
  - development and introduction of innovative, mainly digitally supported collaborative teaching and learning scenarios;
  - conception and implementation of further education and training measures for fellows, students and early career researchers at the Schools (e.g. in the field of media didactics or practical demonstrations);
  - participation in 'AI Campus'<sup>3</sup> activities, adaptation of the teaching and learning formats developed by the Schools for this purpose.
- Development and implementation of preparation, counselling, supervision and networking programmes. These include, for example:

<sup>3</sup> <https://ki-campus.org/>

- development and introduction of concepts for recruiting, selecting, integrating and supervising young AI talent, for collaboration and networking, for further developing content and structures, and for attracting more fellows and cooperation partners, especially from industry;
  - coordination meetings for reflection on and further development of the School concept;
  - implementation of IT measures at the institutions participating in the School (e.g. for in-house IT adaptations, interface programming);
  - conception of and participation in events relevant to the School;
  - supervision measures (e.g. summer schools, company visits, visits to specialist trade fairs, networking activities for students and doctoral candidates).
- Award of scholarships for national and international master's degree students.  
It is possible to complete part of the master's programme abroad.
  - Recruitment of AI early career researchers as academic personnel during their doctoral studies. In exceptional cases, a doctoral scholarship can be awarded to early career AI researchers instead of hiring them.  
It is possible to complete part of the doctorate abroad.  
  
Note: Since the main aim is to attract talented non-German researchers, students from abroad should account for at least 50% of the recipients (in total and in terms of scholarships and jobs).
  - Implementation of public relations and marketing measures. These include, for example:
    - conception and implementation of project-related public relations and academic communication.

#### Eligible grant expenditure

Any expenditure that is necessary and appropriate for project implementation (implementation of the measures/activities) is eligible for funding. This includes in particular:

#### **Personnel resources for project implementation and support**

- Academic personnel (this also includes early career AI researchers)
- Academic assistant
- Student assistant
- Other personnel

Personnel expenditure include the gross salary paid by the employer. Annual bonus payments are only eligible for funding during the approval period and only insofar as the payment date is within this period.

If there are difficulties in employing student research assistants to undertake project-related administrative activities, applications can instead be submitted for expenditure on TV-L employees (up to salary group 8) if required.

#### **Material resources**

- Fees

Expenditure on mobility and accommodation can be submitted and claimed in addition to the fees in line with the basic principles of economic efficiency and frugality (supporting documents to be submitted if necessary).

The following are eligible for funding, for example:

- fees for participating School fellows who carry out additional teaching and development activities, supervision and assessment activities, as well as organisational expenses for events, committees, and the like;
- language courses, training courses and the like;

- teaching substitutes or guest researchers if the workload of a university teacher is reduced to an appropriate extent due to their project management function in the DAAD-funded AI School project.

Fees in relation to personnel employed by the grant recipient are generally not eligible for funding.

- Travel expenses for project personnel

Expenditure on travel and/or flights undertaken by the grant recipient's personnel can be submitted and claimed under BRKG/LRKG.

- Stays by project staff

Expenditure on overnight accommodation and meals for the grant recipient's personnel can be submitted and claimed under BRKG/LRKG.

- Equipment funding in Germany/outside Germany

- Consumables (e.g. office supplies, facilitator utensils for workshops, conferences, events);
- Assets (e.g. hardware and software for in-house IT development/adaptation in justified cases for the project duration);

Note: The rental of equipment and the procurement of software licences for the project duration are eligible for funding.

- Room rental (e.g. for events, conferences, further education, training, committee meetings);
- Printing/publications/advertising and public relations (e.g. flyers, advertising posters, advertisements, publications, translations);
- External services (e.g. catering for events, IT services (including for the development of digital teaching/learning materials or the implementation of online events));
- Miscellaneous expenditure (such as bank charges, participation fees).

### Funded individuals

- Travel expenses for funded individuals

- Mobility scholarships may be awarded in the following cases (see Annex 1 'Mobility scholarships' regarding the rates):
  - o for travel from the home country to Germany and back (applies to non-German scholarship holders);
  - o for interim journeys to the home country and back to Germany (applies to non-German scholarship holders; for a scholarship period of up to two years: one journey to the home country; for a scholarship period of more than two years: two journeys to the home country);
  - o for periods of residence abroad during the award period (applies to German and non-German scholarship holders).
- Expenditure on travel and/or flights in relation to attending selection interviews can be submitted and claimed in line with the basic principles of economic efficiency and frugality.
- Expenditure on travel and/or flights for the following groups of people to attend the likes of strategy/working/board meetings, training and study activities, conferences, workshops, seminars, excursions, internships, training courses or language courses during the project duration can be submitted and claimed in line with the basic principles of economic efficiency and frugality:
  - o scholarship holders (master's degree students and doctoral candidates),
  - o other students and researchers from participating partner institutions and

- third parties (e.g. experts, professors, speakers, associated non-German fellows etc) who do not belong to one of the member institutions of the AI School and who do not receive a fee.
- Stays by funded individuals
  - Residence scholarships may be awarded in the following cases (see Annex 2 'Residence scholarships' regarding the rates):
    - for the duration of the scholarship period in Germany (applies to German and non-German scholarship holders);
    - for periods of residence abroad during the scholarship period (applies to German and non-German scholarship holders);

**Note:** A stay by accompanying spouses and/or children is an additional scholarship benefit in the context of the awarded scholarship (applies to non-German scholarship holders).
  - Expenditure on overnight accommodation and meals in relation to attending selection interviews can be submitted and claimed in line with the basic principles of economic efficiency and frugality.
  - Expenditure on overnight accommodation and meals for the following groups of people to attend the likes of strategy/working/board meetings, training and study activities, conferences, workshops, seminars, excursions, internships, training courses or language courses during the project duration can be submitted and claimed in line with the basic principles of economic efficiency and frugality:
    - scholarship holders (master's degree students and doctoral candidates),
    - other students and researchers from participating partner institutions and
    - third parties (e.g. experts, professors, speakers, associated non-German fellows etc) who do not belong to one of the member institutions of the AI School and who do not receive a fee.

If the grant is partially transferred, the above expenses in relation to the grant recipient's transfer recipient are not eligible for funding.

**The following expenditure is not eligible for funding:**

- basic infrastructural equipment,
- interpreters,
- gifts for guests,
- mainframe usage.

It is expected that basic equipment (e.g. office and laboratory space, video conferencing systems, platforms for digital exchange) is provided.

For digital modules, a uniform platform is to be used across sites.

**Type of financing**

Funding is provided in the form of full financing.

**Funding period**

The funding period begins at the earliest on 1 July 2022 and ends at the latest on 31 December 2027.

**Grant amount**

The maximum amount of the DAAD grant per budget year can be:

2022	€ 600,000
2023	€ 1,700,000
2024	€ 2,500,000
2025	€ 3,000,000
2026	€ 3,000,000
2027	€ 3,000,000

**Discipline(s)**

The programme is open to all AI-related disciplines.

Target group	Master's degree students and doctoral candidates as well as academics, professors and representatives from industry (fellows).
Eligible applicants	<p>Eligible applicants are officially recognised German higher education state institutions. The German higher education institution submitting the application also acts as the lead cross-locational AI School (= sponsoring institution).</p> <p>It is possible to transfer part of the grant to other German partner institutions in the network.</p>
Application	<p><b>Stage 1: Expression of Interest</b> The project outline may only be submitted in complete form and before the deadline via the DAAD portal (<a href="http://www.mydaad.de">www.mydaad.de</a>).</p> <p><b>Stage 2: Application for funding for an AI School</b> The application for project funding must be submitted in full and on time exclusively via the DAAD portal (<a href="http://www.mydaad.de">www.mydaad.de</a>).</p>
Application requirements	<p><b><u>Application documents relevant to selection</u></b></p> <p><b>Stage 1: Expression of Interest</b></p> <ul style="list-style-type: none"> <li>• The DAAD portal is to be used to enter information via the application form (including details of all participating institutions by selecting the type of partner in the 'Project partners' tab)</li> <li>• For technical reasons, the DAAD portal is to be used to enter the sum of at least 1 euro in any chosen field in the financing plan (and no more) so that the application can be sent</li> <li>• Provide a project outline (Stage 1) (see template; Attachment type: Project description)</li> <li>• Provide a preliminary financing plan (Stage 1) (see <b>template</b>; Attachment type: Supplementary financial information)</li> <li>• Provide a project planning summary (see <b>template</b>; Attachment type: Programme-specific attachments)</li> <li>• Provide an overview of the participating and future fellows and their institutions as well as planned measures for attracting additional fellows, especially from industry (Attachment type: Programme-specific attachments)</li> <li>• If applicable, mention existing or intended written expressions of interest by the fellows and their institutions with regard to participation in the AI School or cooperation agreements (Attachment type: Contracts/agreements)</li> <li>• Provide an endorsement by the management of the higher education institution submitting the application (see <b>template</b>; Attachment type: Programme-specific attachments)</li> </ul> <p><b>Stage 2: Application for funding for an AI School</b></p> <p>Use the DAAD portal – Project overview – Basic functions – Financing plan to provide an</p> <ul style="list-style-type: none"> <li>• updated financing plan</li> </ul> <p>Use the DAAD portal to submit additional information relating to the project via – Project overview – Basic functions – Project documents:</p> <ul style="list-style-type: none"> <li>• Project description (Stage 2) (see <b>template</b>; Attachment type: Project description):</li> <li>• giving a description of the cornerstones of the respective School and outlining the objectives and selection criteria of the funding programme with a description of the intentions of the proposed School, the interaction between the participating fellows and their institutions, the implementation</li> </ul>

concepts and the planned organisational and governance concepts for the inter-institutional Schools.

- Provide an updated project planning summary (see **template**; Attachment type: Programme-specific attachments)
- This should if necessary include a revised overview of the participating and future fellows and their institutions as well as planned measures for attracting additional fellows, especially from industry (Attachment type: Programme-specific attachments)
- Provide copies of cooperation agreement(s) between the participating institutions; written expressions of interest by the fellows and their institutions (Attachment type: Contracts/agreements)
- Provide sample AI School curricula (Attachment type: Programme-specific attachments)

The application documents must be named according to the guidelines and submitted under the specified attachment type by the application deadline.

Subsequent submissions and amendments, including to the financing plan, will no longer be considered after the application deadline. Incomplete applications will be excluded from the selection procedure.

#### Application deadline

#### Stage 1: Expression of Interest

The application deadline is 22/10/2021.

#### Stage 2: Application for funding for an AI School

The application deadline is 15/03/2022.

#### Selection procedure

#### Selection of applications for project funding

The expressions of interest (Stage 1) and the applications for project funding (Stage 2) will be reviewed by a selection committee appointed by the DAAD, which will consist of teachers and researchers from the higher education sector and other non-university research institutions such as the Max Planck Society and representatives of the Stifterverband on behalf of the companies.

In relation to Stage 2, the plan is to conduct a review of written applications combined with a personal presentation on the part of the applicants. The evaluation at both stages is based on the following selection criteria.

Note: The respective selection criteria must be taken into account in the project outline at Stage 1, but it is not necessary to go into each criterion in detail.

#### Selection criteria

Innovative breadth and excellence of the participants is a prerequisite for the establishment of a School.

1. Relationship of the project to the programme objectives (as per the impact analysis structure) and results-oriented planning using indicators that meet the SMART criteria
2. Professional quality/excellence of the School concept

This includes:

- a technologically and scientifically innovative AI topic that is viable in the long term;
- ideally, training should also go beyond traditional subject or application boundaries, thereby opening up new fields of technology/science or options for using AI;
- involvement of academically proven fellows from relevant and varied disciplines;
- inclusion of relevant fellows from the R&D departments of companies to ensure practical orientation and diverse career paths for young AI researchers;

### 3. viability of the overall concept of personnel and inter-institutional cooperation for cross-locational teaching, supervision and networking

This includes:

- comprehensible differentiation from existing formats of graduate education or a concept for their integration;
- existing concepts for cross-locational teaching and/or block phases;
- recruitment and selection concept for high-performing national and international students which is then supported by the DAAD; the possibility of unusual and flexible access routes can also be taken into account;
- existing concepts for the reciprocal assignment of students and supervisors; content design of a mentoring concept;
- admission of the first students and doctoral candidates as early as winter semester 2022/23 and a guarantee of admission of the second cohort of students/doctoral candidates by winter semester 2023/24;
- proven existence of opportunities for students and doctoral candidates to take final examinations;
- existing concepts for the integration of students at different sites to promote the development of a “School identity”;
- innovative supervision and mentoring concept within the School and offerings that can be used across Schools;
- innovative networking concept within the School and between the participating Schools;
- existence of sound agreements on cooperation between higher education institutions and companies; organisation of and reflection on cooperation between fellows and participating institutions;

### 4. Securing of results and sustainability

This includes:

- concept for binding young AI talent to German academia and industry;
- willingness to participate in the further development and expansion of the ‘AI Campus – The Learning Platform for Artificial Intelligence’<sup>4</sup> and to make available suitable digital learning content specialised in the field of Artificial Intelligence on this platform so as to contribute to enhancing the standing of AI content in research, teaching, society and industry;
- concept for academic communication and knowledge transfer of the results achieved;
- a concept for the School’s sustainability.

### Scholarship selection procedure

#### **Selection of funded individuals for the Schools**

A selection committee appointed by the AI School decides on scholarship applications.

The selection procedure must be described in the project description.

This should include the following:

- public announcement of the scholarship or job offer (for doctoral candidates);
- composition of the selection committee;
- selection criteria (e.g. selection of the best candidates, subject-specific or personal aptitude, etc);
- award of the scholarship by scholarship agreement (e.g. “Scholarship Award Letter” and “Declaration of Acceptance”); award of a scholarship-

<sup>4</sup> <https://www.ki-campus.org/>

certificate (here: mention of the DAAD and the funding organisation, concrete description of the scholarship benefits and their amount (e.g. residence and mobility lump sums, tuition fees, additional benefits, etc)).

#### Contact

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#### Attachments to the call for applications

1. Mobility scholarships
2. Residence scholarships
3. Guide to Impact-oriented Monitoring

#### Important information and templates

##### Important information:

- Information for Fellows
- Mobility information for those with a disability or chronic illness

##### Form templates:

- Project outline (Stage 1)
- Financing plan (Stage 1)
- Project description (Stage 2)
- Project planning summary
- Endorsement by university management

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