Guide for Applicants

Open Call for Exchange Programmes

Submission starts the **29th August 2024 at 9:00** (Brussels Time),

with deadline the **31st October 2024 at 15:00** (Brussels Time).

Acronyms and definitions

Acronym	Meaning
AI	Artificial Intelligence
EC	European Commission
EU	European Union
FAQ	Frequently Asked Questions
GfA	Guide for Applicants
NoE	Network of Excellence
OC	Open Call

CONTENTS

1. Basic Info about dAIEDGE

dAIEDGE is a Network of Excellence (NoE) for distributed, trustworthy, efficient and scalable AI at the Edge.

dAIEDGE seeks to strengthen and support the development of a dynamic European cutting-edge Artificial Intelligence (AI) ecosystem under the umbrella of the European Lighthouse for AI, and to sustain the development of advanced AI. dAIEDGE fosters the exchange of ideas, concepts, and trends on cutting-edge next generation AI, creating links between ecosystem actors to help both the European Commission (EC) and the European Union (EU) identify strategies for future developments in Europe.

dAIEDGE main objective is to advance Europe's innovation and technology base by developing a comprehensive policy and governance approach to AI.
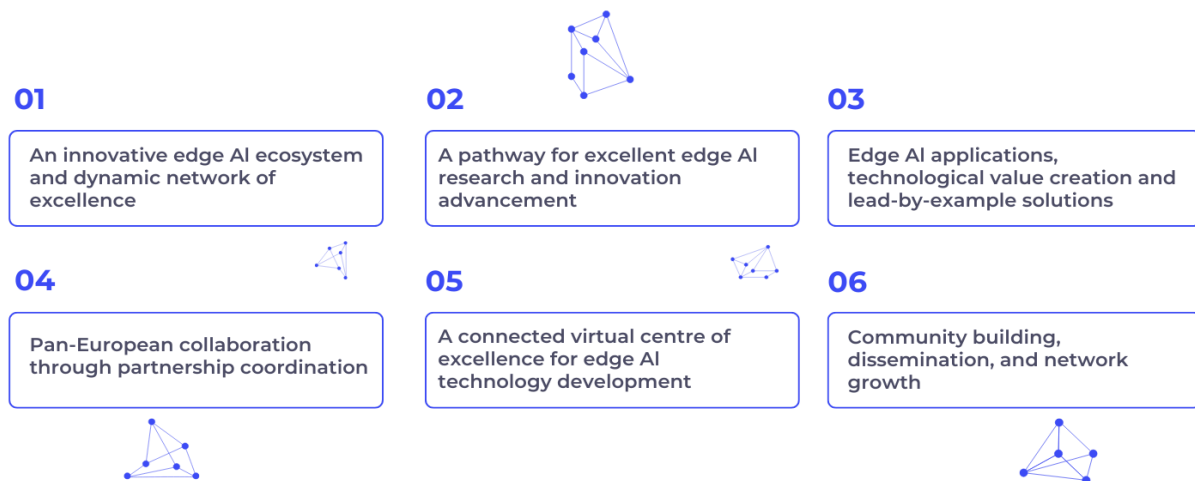
01	02	03
An innovative edge AI ecosystem and dynamic network of excellence	A pathway for excellent edge AI research and innovation advancement	Edge AI applications, technological value creation and lead-by-example solutions
04	**05**	**06**
Pan-European collaboration through partnership coordination	A connected virtual centre of excellence for edge AI technology development	Community building, dissemination, and network growth

Figure 1 – dAIEDGE objectives

dAIEDGE project partners are a multidisciplinary mix of European-level experts with complementary expertise aligned with the project objectives. Find on dAIEDGE website and at Frequently Asked Questions document more information about the 35 partners from 15 European Countries coordinated by Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (DFKI).

This document summarises the main points of the **dAIEDGE Open Call for Exchange Programmes**, which will be open **from the 29th of August 2024 at 9:00 (Brussels Time) to the 31st of October 2024 at 15:00 (Brussels Time).**

You can submit your application to this open call and find more information at:
https://daiedge-1oc.fundingbox.com/

If you have any technical problems or doubts, tell us at: dAIEDGE.help@fundingbox.com

2. What do we offer?

dAIEDGE project is looking for **around 10 Researchers or PhD Students in the field of AI at the Edge** to spend time in one of **the dAIEDGE hosting institutions** to perform common research that leads to significant advances. The result of the programme should ideally lead to a common scientific publication between the beneficiary and the hosting institution.

Each beneficiary of dAIEDGE project Exchange Programme can receive a **maximum amount of up to 60.000 €** for participating in the **up to 7 months** of Exchange Programme, which includes the following stages:

- Stage 1: **Plan Phase**, during which the beneficiary should deliver a Research Plan Document (including challenges, research activities, planned publication and budget), the duration of this stage is up to 2 months and, after completing it, the beneficiary will receive a **maximum amount of up to 15.000 €.**

- Stage 2: **Exchange Phase**, which should lead to a Technical Report on the conducted research (minimal requirement). The duration of this stage is 5 months and, after completing it, the beneficiary will receive a **maximum amount of up to 45.000 €.**

The dAIEDGE Open Call for Exchange Programs has a maximum budget of 600.000 €.

Applicants must indicate the **total required grant** during the application phase.

3. Eligibility Criteria

To participate in dAIEDGE programme, the applicant has to meet all the criteria described in Section 3 of this Guide, positively pass our evaluation process and finally sign the Sub-Grant Agreement with the dAIEDGE Consortium.

The proposals that do not comply with the criteria described in this section will be excluded. We will check the eligibility criteria during the whole evaluation process.

3.1. Who are we looking for?

We are looking for Researchers or PhD Students in the field of AI at the Edge. The applicant can apply as:

A. Natural Person or
B. Single legal entity:
  i. Research and Technology Organisations (RTO),
  ii. Academia or
  iii. SMEs[1] (including startups) legally registered as a company at the moment of the application submission to this Open Call,

  which will delegate its individual Researcher or PhD Student.

Natural persons have to be citizens or permanent residents, and entities/organizations have to be registered in one of the following eligible countries:

- [EU Member States](#)[2] and its Overseas Countries and Territories (OCT), or
- [Horizon Europe Associated Countries](#)[3].

---

[1] An **SME** will be considered as such if it complies with the European Commission's Recommendation 2003/361/EC. As a summary, the criteria defining an SME are:
• Headcount in Annual Work Unit (AWU) less than 250;
• Annual turnover less or equal to €50 million OR annual balance sheet total less or equal to €43 million.
Note that the figures of partners and linked enterprises should also be considered as stated in the SME user guide. For detailed information check EU recommendation:
 https://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_en

[2] Following the Council Implementing Decision (EU) 2022/2506, as of 16th December 2022, no legal commitments can be signed with Hungarian public interest trusts established under Hungarian Act IX of 2021 or any entity they maintain. Affected entities may continue to apply to calls for proposals. However, in case the Council measures are not lifted, such entities are not eligible to participate in the dAIEDGE Open Call.

[3] AC as of 28.08.2024: Albania, Armenia, Bosnia and Herzegovina, Canada, Faroe Islands, Georgia, Iceland, Israel, Kosovo, Moldova, Montenegro, North Macedonia, Norway, Serbia, Türkiye, Tunisia, United Kingdom, Ukraine, for the most up-to-date list please first part of this document.

Applicants subject to <u>EU restrictive measures</u> under Article 29 of the Treaty on the European Union (TEU) and Article 215 of the Treaty on the Functioning of the EU (TFEU)[4] are not eligible to participate in this Open Call.

Beneficiaries must be present full-time at the Hosting Institution for the 5 months of the Exchange Phase. If an applicant is not able to meet this requirement, he/she is not eligible to participate in the dAIEDGE Exchange Programme[5].

dAIEDGE Consortium partners, their affiliated entities, board members, employees or permanent collaborators CANNOT be beneficiaries of dAIEDGE Open Call.

3.2. Candidate's expected profile

Ideal Candidates have experience and advanced knowledge on AI, Deep Learning, Machine Learning, development of AI based embedded systems, Signal Processing and System Integration, with a blend of academic and research experience and practical skills in Software, Hardware and AI.

3.3. What types of activities can be funded?

The Exchange Programme will finance **mobility and costs of living for individuals** (researchers, PhD students) to spend time in a <u>**hosting organisation within dAIEDGE members**</u> in order to perform **common research in the field of AI at the EDGE that leads to significant advances**.

The result of the programme should ideally be a common scientific publication between the beneficiary and the hosting institution. dAIEDGE Consortium encourages the publication in Open Access Journals, but each case will be studied separately.

Your project should have a clear European Dimension, meaning fostering projects that generate a substantial positive impact for European citizens.

3.4. Ground rules

When applying to the dAIEDGE Open Call, please also note that:

- **Be on time and use our system:** only proposals submitted through <u>online form</u> before the deadline of 31st October 2024 at 15:00 (Brussels Time) will be evaluated and considered

---

[4] Please note that the EU Official Journal contains the official list and, in case of conflict, its content prevails over that of the EU Sanctions Map

[5] This requirement may only be subject to change in case of exceptional public health or governmental restrictions, such as pandemics, and only with the express decision (approval) of the dAIEDGE Selection Committee.

for funding. If you submit the form correctly, the system will send you a confirmation of your submission. Get in touch with us if it is not the case.

- **English Language:** your proposal must be written in English in all mandatory parts to be eligible. Only parts written in English will be evaluated. If the mandatory parts of the proposal are in any other language, the entire proposal will be rejected. If only non-mandatory parts of a proposal are submitted in a language different from English, those parts will not be evaluated but the proposal is still eligible.

- **Every question deserves your attention:** all mandatory sections - generally marked with an asterisk - of your proposal must be completed. The data provided should be actual, true, and complete and should allow assessment of the proposal. Additional material, not specifically requested in the online application form, will not be considered for the evaluation.

- **Be exhaustive:** You have to verify the completeness of the form, as it won't be possible to add any further information after the deadline. After the proposal is submitted, you will be able to modify the form until the deadline.

- **Conflicts of interest:** we will take into consideration the existence of a potential conflict of interest among you and one or more Consortium partners. Consortium partners, their affiliated entities, employees, or persons treated as personnel (ex. working under B2B contract) cannot take part in the dAIEDGE programme. All cases of potential conflict of interest will be assessed case by case. See EC definition of Conflict of Interest[6] and check our FAQ for more info.

- **Healthy finances and a clean sheet are mandatory:** we don't accept entities that are under liquidation or are an enterprise under difficulty[7] according to the Commission Regulation No 651/2014, art. 2.18, or that are excluded from the possibility of obtaining EU funding under the provisions of both national and EU law, or by a decision of both national or EU

---

[6] EC definition of Conflict of Interest: https://commission.europa.eu/strategy-and-policy/eu-budget/protection-eu-budget/conflict-interest_en

[7] An enterprise will be considered an undertaking in difficulty if more than half of the capital has disappeared. This refers to the loss of "subscribed share capital". If profit and loss reserves deficit more than 50% of share capital, there is a potential problem with the company. (Article 2, item 18 point a) and b)

(a) In the case of a limited liability company (other than an SME that has been in existence for less than three years […]), where more than half of its subscribed share capital has disappeared as a result of accumulated losses. This is the case when deduction of accumulated losses from reserves (and all other elements generally considered as part of the own funds of the company) leads to a negative cumulative amount that exceeds half of the subscribed share capital. For the purposes of this provision, 'limited liability company' refers in particular to the types of company mentioned in Annex I of Directive 2013/34/EU (1) and 'share capital' includes, where relevant, any share premium .

(b) In the case of a company where at least some members have unlimited liability for the debt of the company (other than an SME that has been in existence for less than three years […]), where more than half of its capital as shown in the company accounts has disappeared as a result of accumulated losses. For the purposes of this provision, 'a company where at least some members have unlimited liability for the debt of the company' refers in particular to the types of company mentioned in Annex II of Directive 2013/34/EU.

Please note that, if your SME exist from less than three years, you won`t be considered as undertaking any difficulties.

authority. We also don't accept entities that are meeting national regulations regarding bankruptcy.

- **It is your proposal:** your project should be based on your original work or your right to use the IPR must be clear. Any work related to the implementation of the project described in the application may not violate the IPR of third parties, and the IPR of the application project may not be the subject of a dispute or proceedings for infringement of third-party IPR.

  dAIEDGE Consortium encourages the use of Open Source Software and Hardware Solutions.

  IPR and confidentiality issues will be assessed case by case and provisions included in each Sub-Grant Agreement if necessary.

- **We do not accept multiple submissions:** You can submit only one proposal to dAIEDGE in this Open Call. If more than one proposal is identified, only the last proposal which has been submitted in order of time will be evaluated.

- **Gender Equality Plan:** public bodies, higher education institutions, and research organisations from EU countries and associated countries must have a Gender Equality Plan (GEP)[8].

- **Acceptance of the Open Call rules:** to apply for this Open Call you have to accept its rules and regulations detailed in this Guide for Applicants.

dAIEDGE is planning some dissemination/information activities about this Open Call. They will be announced at the dAIEDGE OC website and dAIEDGE Social Media channels.

If you need extra hints on how to prepare your application, check out the section: extra Hints to submit your proposal.

---

[8] For more details please check https://research-and-innovation.ec.europa.eu/strategy/strategy-2020-2024/democracy-and-rights/gender-equality-research-and-innovation_en

4. How will we evaluate your proposal?

Our evaluation process is transparent, fair and equal to all our participants with a clearly defined complaint procedure (see section Complaints). We will evaluate your project in 4 phases, as shown in the following graphic:
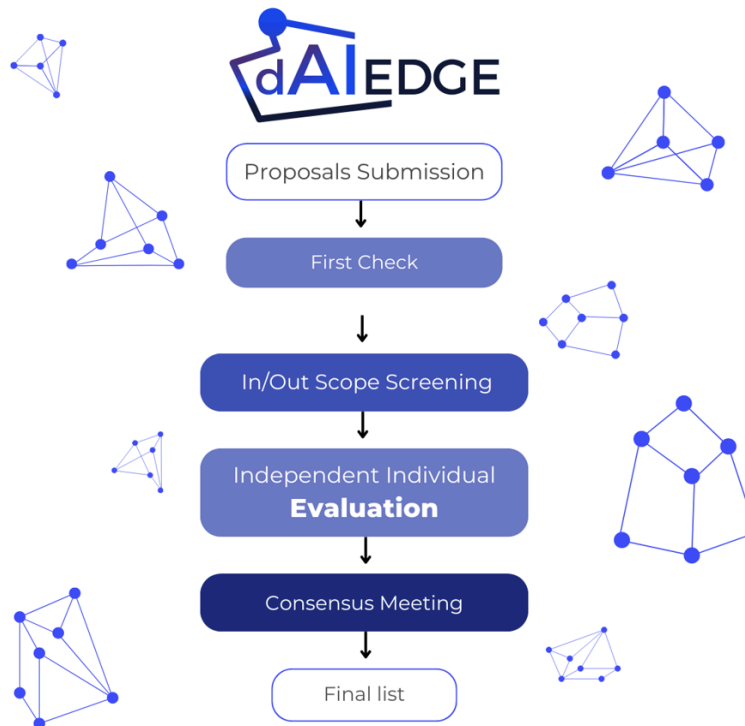

Figure 2 – dAIEDGE evaluation process

For this call, we are looking for the best fit for our project, and we anticipate a high volume of applications. Since our primary concern is quality over quantity, we encourage you to put in the effort to present your application in the best possible way, offering as much detail as you can. This will assist us in evaluating your application and identifying how your proposal aligns with the overall scope of dAIEDGE.

4.1. First Check

After the closure of the open call, we will review the proposal to ensure it meets the conditions outlined in Section 3. This assessment will be based on the statements provided in your proposal.

At this stage, the eligibility criteria are checked against the Declaration of Honour or self-declarations included in the application form, and they will be continuously verified throughout the evaluation process, including the final formal check.

Projects that do not comply with the above-mentioned criteria will be rejected.

As a result of the checking, a 'List of Eligible Applications' will be produced.

4.2. In/Out Scope screening

In case of a high number of applications or special needs of the project, the Selection Committee may decide to implement an additional evaluation step - In/Out Scope Screening.

To maximise the impact within the framework of dAIEDGE, your proposal must be aligned with the scope of activities outlined in Section 3.3 and provide a clear demonstration of this alignment.

For this reason, one partner from the Selection Committee will review the following aspects of your proposal:

- Scope. The objectives of the proposal must fit within the scope of the project, in particular, described in the Section 3.3 of this GfA.
- European Dimension. The project should have a European dimension, as described in Section 3.3 of this GfA.

A partner from the Selection Committee will assess if your proposal matches the criteria mentioned above following a "Yes/No" approach. The partners will justify their assessment in case of rejection of the proposal. The Selection Committee will review the partner's assessment and verify the validity of each rejection, generating an 'In Scope List'.

Please note that proposals that do not comply with the criteria described above will be rejected. Only those meeting all the criteria will proceed to the experts' evaluation phase.

We will inform you about the results of the first check and the in/ out scope screening.

4.3. Experts Evaluation

In this phase, each application will be evaluated by 3 dAIEDGE partners' experts.

Your application will be evaluated within the following awarding criteria:

(1). EXCELLENCE will evaluate:

Ambition: You have to demonstrate how your proposal contributes to the project scope, has a European dimension, and is beyond the State of the Art.

Innovation: You should provide information about the level of innovation and about the degree of differentiation that your research will bring.

Soundness of the approach and credibility of the proposed methodology.

(2). IMPACT will analyse:

Scalability and market opportunity: You have to demonstrate the level of scalability of the results of the research and whether it has market potential.

Environmental impact: You have to demonstrate your research contribution towards environmental impacts to contribute to sustainable development, Green Deal and other European policies.

Social impact: You need to demonstrate your research contribution towards social impacts to contribute to European policies.

(3). IMPLEMENTATION will consider:

Experience: You have to demonstrate your experience in the field of AI at the edge, presenting previous projects or research in the field.

Planning: You should explain how your experience and planning abilities will contribute to get the objectives/deliverables proposed in time.

The evaluators will score each criterion on a scale from 0 to 5:

0 - **The proposal fails to address the criterion** or it cannot be assessed due to missing or incomplete information.

1 - **Poor** – The criterion is inadequately addressed or there are serious inherent weaknesses.

2 - **Fair** – The proposal broadly addresses the criterion, but there are significant weaknesses.

3 - **Good** – The proposal addresses the criterion well but a number of shortcomings are present

4 - **Very good** – proposal addresses the criterion very well but a small number of shortcomings are present.

5 - **Excellent** – The proposal successfully addresses all relevant aspects of the criterion. Any shortcomings are minor.

Each evaluator will produce an **Individual Evaluation Report**. Once the Individual Evaluation Reports are submitted, **the final score for each individual criterion** will be calculated as the average of the scores provided by each evaluator. The **final score per each application** will be calculated as the sum of the scores for each individual criterion.

For each section, **the threshold for individual criteria is 3 out of 5** points. The total maximum score is 15 points, with a **minimum total threshold of 10 points**.

Evaluation Consensus Group

After carrying out the Independent Individual Evaluation, in special cases, experts who have evaluated the proposals will join a Consensus Group, to agree on a common position, including comments and scores for these evaluated proposals with a significant divergence between the evaluators' scoring. In case no consensus is reached between the evaluators, an additional evaluator will be included to provide an extra evaluation.

Once we have an initial ranking, **ties** (if any) will be solved using the following criteria in order of priority:

- The highest score in the Excellence Section.
- Gender balance among the personnel responsible for carrying out the activities.
- The highest score in the Implementation Section.

As a result of the Experts Evaluation, a **'Ranking List'** will be produced. All proposals that reach the threshold or are scored above the threshold, will pass to the next phase.

Please note that we need time to process all the proposals in this phase, so you probably won't hear back for a while.

4.4. Consensus Meeting

Following the Ranking List, the Selection Committee, with the support of 3 Experts who participate in the Experts Evaluation, will decide, at this stage, the Provisional List of beneficiaries and Reserve List. The experts take part in an advisory capacity (i.e. with a voice but without a vote). The decision will be based on the 'Ranking List' obtained as a result of the previous step.

Whilst normally the highest ranked proposals will be selected for funding, the Selection Committee might have fair reasons for objecting to a specific proposal, like the alignment with dAIEDGE goals and scope, the ability to achieve the highest impact possible, as well as the existence of significant ethical concerns or a potential conflict of interest. In this case, the choice may pass to the next-ranked proposal.

The Selection Committee can select proposals until the total budget of 600.000€ available for this Open Call is reached.

The exact number of proposals approved will be decided based on the overall **quality** of the proposals. All decisions are taken by consensus or a minimum of 2/3 majority votes.

After the Consensus Meeting, we will communicate the results to the applicants.

4.5. Formal Check, Sub-Grant Agreement Preparation and Signature

Before you get started with dAIEDGE Exchange Programme, you need to sign the Sub-Grant Agreement with the dAIEDGE Consortium.

Before signing the Agreement, you should provide documents regarding your formal status. The dAIEDGE Consortium will verify them to prove your eligibility.

Be extremely vigilant to:

1. **The nature of the documents we request.** If the documents you provide us with do not prove your eligibility, your participation will end here.

2. **The deadlines that we will give you to hand us these documents.** If you do not deliver the requested documents on time, without a clear and reasonable justification, we will have to exclude you from further formal assessment. Another applicant from the Reserve list will then replace you.

5. The Exchange Programme and Payment Arrangements

Once your eligibility has been confirmed following the formal check and the Sub-Grant Agreement signed, you will become an official beneficiary of the dAIEDGE programme.

As a selected grantee, you can receive a maximum lump sum of up to €60.000.

The beneficiary will be entirely responsible to organise his/her stay at the Hosting Institution, including travel arrangements, searching and booking of accommodation etc. Also, if other expenses like access to HPC infrastructures or servers, travel to congress or events, equipment, publication costs, etc, are to be incurred, they will be covered by the beneficiary.

Total required grant should be indicated by the applicants during the application phase. Also, planned expenses are to be included in the **indicative budget** to be defined by all the applicants during the application phase (please, check FAQ document for examples of budgets).

The lump sum is a simplified method of settling expenses in projects financed from Horizon Europe Programme funds. It means that the grantee is not required to present strictly defined accounting documents to prove the cost incurred (e.g. invoices), but is obliged to demonstrate that the implementation of the project is in line with the milestones set for it.

Simply speaking, it means that the Selection Committee will carefully assess your progress and the quality of your work during Interim Reviews after each stage of the Programme. The milestones (deliverables, KPIs, and ethical recommendations, as well as the budget) will be fixed in the **'Research Plan Document'** elaborated at the beginning of the programme.

The lump sum method does not exempt you from collecting documentation to confirm the costs under fiscal regulations.

The grant will be paid after the Milestone's Review of each stage, following this scheme:

Stage	Name	Duration	Deliverable	Funding
Stage 1	Plan Phase	1-2 months	Research Plan Document (including challenges, research activities, planned publication and budget)	25% of the grant, up to 15.000 €
Stage 2	Exchange Phase	5 months	Technical Report on the conducted research (minimal requirement)	75% of the grant, up to 45.000 €
			TOTAL	up to 60.000 €

A delayed payment mechanism could be applied to the payments if decided by dAIEDGE Consortium. This mechanism implies that up to 15% of each tranche will be paid to the beneficiaries who completed the given stage once the whole dAIEDGE Project is completed. This should happen approximately 9 months after the end of the Project. The expected end of the dAIEDGE Projects is September 2026. Relevant provisions will be included in the Sub-grant Agreements. Please bear in mind that dAIEDGE project might be extended.

Milestones Review

Figure 3 – dAIEDGE milestone review and payment process

Your performance during the Exchange Programme will be reviewed at the Milestone Review (established every time a payment is due), according to the following criteria:

- Deliverable quality (30%).
- Technical performance indicators (60%).
- Deadline Compliance (10%).

Each criterion will be scored from 0 to 10 and, based on the weight of each criterion, the final score will be calculated.

According to this final score, beneficiaries over the threshold (7 points) will successfully receive the corresponding part of the grant and continue the programme. The beneficiaries who haven't reached the threshold (7 points) will be invited to leave the programme without receiving the corresponding payments.

The Selection Committee will review and validate the evaluations, putting special attention to the 'under threshold' cases, if any, by taking into consideration all possible objective reasons for underperformance (i.e. external factors which might have influenced the beneficiaries' performance). The dAIEDGE Selection Committee will make the final decision and approve the payments or invite beneficiary projects which have not reached the threshold to leave the programme.

6. Contact us

How can we help you?

If you have any questions regarding our application process, feel free to email us at dAIEDGE.help@fundingbox.com

Responses to any questions are provided on an individual basis, do not constitute a change to this Guide for Applicants, and are provided for informational purposes.

In case of any technical issues or problems, please include the following information in your message:

- your username, phone number and email address;
- details of the specific problem (e.g. error messages you encountered, bug description, i.e. if a dropdown list isn't working, etc.); and
- screenshots of the problem.

Complaints

If you believe that a mistake has been made after receiving the results of one of the evaluation phases (when foreseen), you may submit a complaint. To do so please email us your complaint in English at dAIEDGE.help@fundingbox.com and include the following information:

- your contact details (including email address);
- the subject of the complaint;
- information and evidence regarding the alleged breach.

You have 3 calendar days to submit your complaint, starting from the day after the communication was sent. We will review your complaint within seven calendar days from its reception. If we need more time to assess your complaint, we will inform you about the extension by email. We will not review anonymous complaints as well as complaints with incomplete information.

Please take into account that the evaluation is run by experts in the relevant field, and we do not interfere with their assessment. Therefore, we will not evaluate complaints related to the results of the evaluation other than those related to procedural or technical mistakes.

7. Last but not least - final provisions

Any matters not covered by this Guide will be governed by Polish law and rules related to the Horizon Europe Programme and general rules of EU grants.

Please take into account that we make our best effort to keep all provided data confidential; however, for the avoidance of doubt, you are solely responsible for indicating your confidential or sensitive information as such.

Your IPR will remain your property.

For the selected grantees, the Sub-grant agreement will include a set of obligations towards the European Commission (for example: promoting the project and giving visibility to the EU funding, maintaining confidentiality, understanding potential controls by the EC/ECA, EPPO and OLAF).

The dAIEDGE Consortium might cancel the call at any time, change its provisions or extend it. In such a case we will inform all applicants about such change. The signature of the Sub-grant agreement is an initial condition to establish any obligations among applicants and any Consortium partners (with respect to the obligation of confidentiality of the application).

8. Extra hints before you submit your proposal

A proposal takes time and effort and we know it. Here are a few crucial points you should read before submitting your proposal.

- Is your proposal in line with what dAIEDGE is looking for? You are not sure? You can consult Section 3.1 and Section 3.3.
- Did you present your project in a way that will convince evaluators? Not sure if you did? Go back to Section 4.
- Is your project fulfilling all eligibility requirements described in the Guide? Check again Section 3.
- Are you sure you can cope with our process of the Sub-grant agreement signature and payment arrangements for selected proposals? You may want to go over Section 4.5.
- Did you check our Sub-grant agreement template? You didn't? Check it here.
- Do you need extra help? Contact us.

Good luck!

ANNEX:

dAIEDGE Hosting Institutions

Universidad de Castilla-La Mancha

Name: Universidad de Castilla-la Mancha

Location: Ciudad Real, Spain

Description: The VisiLab at UCLM is a multidisciplinary research group dedicated to computer vision and image analysis. Apart from more theoretical work (as on the topic of 'adversarial examples'), a wide range of applications/domains is covered: biology and environment, medicine, video surveillance and security, facial analysis, HRI, etc. The Lab has a strong record of participation in European-level research (having coordinated 2 European projects and participated in another 4). For a list of current and past projects see VisiLab webpage.

Name: Sorbonne Université, CNRS, LIP6

Location: Paris, France

Description: The research visit will take place at the LIP6 laboratory, a mixed research unit of Sorbonne Université and the French Centre National de la Recherche Scientifique (CNRS).

The research area of interest is neuromorphic computing having as its basis Spiking Neural Networks (SNNs). LIP6 specializes in the design of neuromorphic algorithms and processors and their reliability, fault-tolerance, and security properties.

Name: Swiss Center for Electronics and Microtechnology (CSEM)

Location: CSEM HQ, Rue Jaquet-Droz 1, 2000 Neuchâtel, Switzerland

Description: CSEM is a private, not-for-profit Swiss research and technology organisation that develops advanced technologies with a focus on industry transfer. CSEM is internationally recognized supporting disruptive activities of companies in Switzerland and abroad.

We are seeking a highly motivated doctoral student to advance our work in intelligent systems, specifically focusing on hardware-aware transformer neural architectures. The doctoral student will be involved in optimizing network architectures, including quantization, pruning, and feature selection. This program offers an opportunity to contribute to groundbreaking research and development in machine learning and computer vision. The ultimate goal is the deployment of a transformer architecture with reduced attention heads onto a microcontroller unit (MCU).

For this, we are looking for a doctoral student with the following profile:

- Expertise in the field of neural networks and specifically transformers architecture.
- Expertise in resource constrained AI (Memory, MAC, Sparsity, etc).
- Experience with deep learning platforms (e.g. Tensorflow and PyTorch).
- Proficient in programming languages such as Python, C++, or MATLAB.

Your mission is to publish a paper in a reputable journal showcasing novelties from algorithmic aspects as well as successful deployment on edge devices. This will give CSEM a clear path forward and a reusable demonstrator to build upon. The project is segmented into three phases:

- Planning phase (1 to 2 months): state-of-the-art literature review and challenge definition.
- Experimental phase (3-4 months): architecture design and deployment on an embedded setup.
- Publication (1 month): data consolidation and dissemination.

Hes·so

Name: Applied Science University Western Switzerland

Location: Neuchâtel - Saint-Imier, Switzerland

Description: HES-SO is the largest university of applied sciences (UAS) in Switzerland and offers a large variety of education programs. Strongly anchored in the regional economy, HES-SO collaborates closely with SMEs, and its R&D also extends to certain aspects of industrial-scale production. HES-SO undertakes research projects with a wide range of partners in Switzerland and abroad. Within dAIEdge, HES-SO is strongly involved in the design of the Virtual Lab reference architecture and the portable deployment and benchmarking of validated AI models across different edge and deep-edge devices.

Name: Blekinge Institute of Technology (BTH)

Location: Karlskrona, Sweden

Description: Blekinge Institute of Technology (BTH) is a prominent public university situated in the province of Blekinge, southern Sweden. Blekinge Institute of Technology, BTH, has a distinctive focus on the digitalisation of society and sustainability. BTH's task is to contribute to a more sustainable societal development through higher education, research, and innovation. BTH conducts education and research in fields in which society has major needs. Through international excellence, we contribute to digital and sustainable transformation. As an institute of technology, we have a responsibility and a unique opportunity to make our contribution to both regional and national competitiveness and to global sustainability. Current research topics include:

- Security mechanisms and concepts for Edge AI implementation
- Input to privacy-preservation and transparency in distributed AI systems, e.g. threat-modelling for distributed AI in XR/Mixed reality systems
- Orchestration concepts to optimize federated ML/DL in context of network-compute fabric or the compute-networking continuum.

dfki
ai

Deutsches Forschungszentrum
für Künstliche Intelligenz
German Research Center for
Artificial Intelligence

Name: German Research Center for Artificial Intelligence (DFKI GmbH)

Location: Kaiserslautern, Germany

Description: DFKI is one of the world's largest nonprofit contract research institutes for software technology based on artificial intelligence (AI) methods. The department Augmented Vision (AV) conducts research on Computer Vision, Artificial Perception and Smart Sensors. In the field of edge computer vision, DFKI-AV focuses on efficient and scalable deployment architectures.

Current research topic include:

- Fitting deep neural networks (DNNs) with a huge number of parameters on FPGA SoCs by exploiting off-chip RAM.
- Efficiently deploying DNNs on FPGA SoCs for processing large inputs.
- Implementing Continual Learning (CL) on FPGA SoCs.

Name: Ubotica Technologies Ltd.

Location: Dublin, Ireland

Description: Ubotica builds space-ready hardware - equipped with AI accelerators - and software for efficiently performing inference onboard spacecrafts. These are combined with Neural Network models to deploy on-satellite state-of-the-art solutions for earth observation and spacecraft control applications.

The visiting researcher would be working on a first-of-its-kind solution to use on-camera AI for estimating spacecraft pose in real-time, leveraging knowledge of spacecraft structure to estimate the instantaneous 6DoF pose of the spacecraft over a given trajectory.

INSAIT | Institute for Computer Science, Artificial Intelligence and Technology

Name: INSAIT, Sofia University

Location: Sofia, Bulgaria

Description: INSAIT aims to contribute to the edge inference for the smart city use case. INSAIT will lead on building multi-tasking vision models suitable for efficient edge inference. The design process of multi-tasking neural networks can greatly benefit from a direct collaboration with edge device experts.

Therefore, the expected visiting researcher is aimed to be someone from the hardware side who understands and can contribute to the neural network design, particularly of transformer network type.

Name: Centre d'excellence en technologies de l'information et de la communication (CETIC)

Location: Charleroi, Belgium

Description: CETIC is an applied research centre in Information and Communication Technologies and Digital Technologies, whose mission is to support Walloon companies by providing them research results.

As part of its research projects related to IoT, CETIC has developed DMWay, a data flow management middleware which facilitates the interconnection of heterogeneous data sources with remote data management systems.

Through dAIEDGE, CETIC aims to provide a dynamic connectivity offered by DMWay to AI processing for benchmarking, design space exploration and use case implementation. Currently, FPGA SoCs appear to be the most suitable technology facilitating the software integration of DMWay and the implementation of AI processing in programmable logic.

Name: University of Modena and Reggio Emilia

Location: Modena, Italy

Description: The candidate will be hosted at the Hipert Laboratory Lab (https://hipert.unimore.it/, https://www.linkedin.com/company/hipertlab) of the Department of Physics Informatics and Mathematics.

The lab research area covers autonomous systems design, from autonomous vehicles to robotics systems, mainly focusing on efficiently deploying local intelligence on high- performance embedded systems (e.g., Nvidia SoCs, AMD/Xilinx SoC).

The candidate will work on AI model deployment and optimization in the context of the smart-city domain, studying and developing novel models for real-time perception tasks (e.g., road users detection, parking spots detection), exploring and profiling cutting-edge HW accelerators for ML/DL edge inference (e.g., HAILO, Axelera), finally studying continual learning and on-device learning algorithm to be deployed in the context of the smart-city use-case domain.

Name: Foundation for Research and Technology Hellas (FORTH)

Location: Heraklion, Crete, Greece

Description: The Foundation for Research and Technology Hellas (FORTH) is the largest research institute of Greece. The Computer Architecture and VLSI (CARV) lab conducts research on all layers of the AI software and hardware stack.

Prospective exchange visitors will have the opportunity to work in one of the following areas of interest in edge-AI:

- Low power accelerator architectures for AI at the edge.
- Embedding layer compression for language models.
- Trusted Execution environments at the edge.
- Fine tuning of AI deployments for heterogeneous accelerator architectures.
- Resource allocation and task placement in distributed heterogeneous deployments.

Name: Visual Communication and Interaction Technologies Centre

(VICOMTECH)

Location: San Sebastian, Spain

Description: Vicomtech is an applied research centre for Multimedia, Communication and Visual Computing Technologies located in San Sebastian (Spain). Vicomtech is a non-profit foundation established in 2001.

Vicomtech has a strong record of projects in ICT technology transfer and applied research with companies (more than 90% of them are SMEs) in different sectors.

The department hosting the candidate will be Data Intelligence for Energy, Industry and the Environment: The Department is focused on providing knowledge and technology for data driven optimization and improvement of environmental, energy and industrial processes.

Interested applicants will contribute to ongoing research lines focused on edge-AI model deployment and optimization, and MLOPS for satellite imagery analysis.

Name: University of Glasgow (UGLAS)

Location: Glasgow, Scotland, United Kingdom

Description: The Glasgow Intelligent Computing Laboratory (gicLAB) at UGLAS is a research group within the School of Computing Science, where we focus on research at the intersection of Computing Systems and Machine Learning. More specifically, our research interests are in the broad areas of Computer Architecture, Computer Systems, Compilers, Machine Learning and Security.

Our current research is mainly focused on Hardware/Software co-design approaches to efficiently deploy AI/ML applications on mobile/embedded edge devices (e.g. IoT boards, phones, drones, mobile robots, satellites).

In the past, we have participated in several related European projects such as Bonseyes and BonsAPPs, and the UK project MAISE.

Name: Inria

Location: Université Côte d'Azur, Nice, France

Description: Inria is the French national institute for research in digital science and technology, and since January 2024 has been responsible for the Agence de programmes dans le numérique (Digital Programs Agency), designed to strengthen the collective dynamics of higher education and research.

Interested applicants will have the opportunity to work in one of the following areas, with researchers from COATI and NEO teams at the Inria center of Université Côte d'Azur:

- federated learning
- privacy in distributed machine learning
- online learning
- collaborative inference
- model compression/distillation

daiedge.eu