

COST Action CA22129

InsectAI

Using Image-based AI for Insect Monitoring & Conservation

Call for proposals for

Short-Term Scientific Missions (STSM)

First Open Call - 2024

(First Grant Period)

1. Short-Term Scientific Missions (STSMs) under InsectAI

The main objective of InsectAI¹ is to elucidate how image-based and AI-assisted tools should be developed and applied to support insect monitoring and conservation at the national and continental scale to understand and counteract widespread insect declines. The Action has set specific Research Coordination and Capacity Building oriented objectives to:

- Identify pressing challenges for image-based insect AI early on and shape the research agenda over its 4 years to address existing bottlenecks;
- Create opportunities for the side-by-side assessment of image collection technologies, AI models, and training datasets;
- Bring together the key stakeholders in the image-based insect AI community, to build agreed data standards for image-based insect AI technologies;
- Deliver a toolbox of analytical methods updated throughout the action including combined analysis of image-based data and traditionally collected data, and integration with other technologies, such as acoustics, radar, and molecular methods;
- Produce good practice guides to support the sustainable uptake of image-based insect AI technologies by the key stakeholders and the scientific community;
- Bring together stakeholders (from national government to local community groups) and technologists to ensure societies' needs are at the centre of the research agenda, promoting a co-creation practice;
- Build a programme of knowledge exchange supporting innovation and capacity building around image-based insect AI technologies.

¹ To learn more about aims and the key questions of COST Action InsectAI, please look at the Memorandum of Understanding (MoU) here: <https://www.cost.eu/actions/CA22129/>

The Short-term Scientific Missions (STSMs) Grants have a pivotal role in the achievement of the Action objectives. They will provide opportunities for collaboration across the entire network and at all career stages, however, we will take steps to ensure inclusivity. The Action will **prioritise** applications from **young researchers and innovators** (YRIs, below 40 years old), and work to a **50:50 gender representation** across STSMs. Additionally, the action will favour applications from researchers in **Inclusiveness Target Countries** (ITCs) countries seeking to spend their mission at centres of expertise elsewhere in Europe, promoting collaborative activities and mentoring support where needed.

Short-Term Scientific Missions:

- Support capacity building and transfer of knowledge through bilateral/multilateral collaborations;
- Support specific/general topic that can help achieving the Action Memorandum of Understanding (MoU) objectives and deliverables (research coordination);
- Are very flexible and inclusive networking activities crucial to establish new collaborations or reinforce existing collaborations across disciplines and different sectors (e.g., academia and industry/small and medium enterprises) with possible impact on career development;
- Typical outcomes are spin-off publications and (funded) projects that contribute to the visibility and impact of the COST Actions, encouraging other researchers to join.

There are four working groups (WGs)² in InsectAI focusing on:

- I. **Societal Needs:** WG1 aims to engage stakeholders and better understand their perception on research needs, opportunities, and challenges in insect conservation. As novel technologies become readily available, we focus on ensuring such developments are collaboratively designed, relevant and taken up by society. We welcome STSMs exploring the stakeholder community, key issues in insect conservation and innovative ways of using image-based AI technologies to address them.
- II. **Image Collection:** Innovative approaches are being developed to record insects in a variety of settings and with diverse hardware, but it is not clear what solution works best in what situation. In this WG we aim to collate information on available systems (open source or commercially available), and identify the interactions between technical advantages & limitations with experimental sampling design. We welcome STSMs with a focus on these aspects, both experimental (e.g. comparing camera trap models performance) and exploring available knowledge (e.g. surveying sampling design literature).
- III. **Image Processing:** WG3 works on robust AI solutions for processing insect images, define common AI pipelines with standardized metadata for model parameters, algorithm configurations and model outputs to enable easy algorithm sharing and

² Details on the WGs can be found in the Action MoU at: <https://www.cost.eu/actions/CA22129>

reproducible research. STSMs should cover the following directions: a) exploring innovative ways of using AI technologies and solutions related to annotating and processing insect images and b) exploring the use of standardized metadata for describing annotated images, training datasets, AI models, and algorithms. We welcome STSMs for collecting information on standardized metadata that support the definition of metadata guidelines as well as STSMs that focus on algorithm development for insect monitoring datasets. Hence, if you are an ecologist and want a computer vision group to focus on developing AI algorithms for your dataset or you are a computer scientist who wants to apply latest AI models for insect monitoring tasks at an ecological institute, STSMs within WG3 objectives are for you!

- IV. **Data Analysis and Integration:** The focus of this WG is to better understand how monitoring data from Computer Vision (CV) sources can be integrated both with similar datasets and with those from traditional or other novel monitoring techniques. At this stage, we welcome STSMs based on understanding the opportunities and limitations of this integration as well as those exploring ways forward. This could be a comparison of datasets, an exercise addressing required standards of data, or an exploration of how differences in datasets can impact resulting inference.

2. Specific information concerning STSMs

Short Term Scientific Missions consist of a visit at a host organization located in a different country than the country of affiliation by a Researcher or Innovator for the specific work to be carried out and for a determined period of time. The STSM grant provides a contribution for travelling, accommodation and subsistence expenses, implementation of the project, delivery of the report to the COST Action Management Committee and overall effort. The Grantee can perform the mission anywhere in the world. The financial support is a contribution to the overall expenses incurred during the STSM and may not necessarily cover all of the associated outgoings. It is not expected that the STSM grant will be used for purchases of materials (e.g. camera systems or IT). Participant grants are non-commercial transactions, therefore, claims as such are not subject to V.A.T deduction. Taxes normally due or applicable with respect to the payment of the grant are not to be deducted from amounts payable to participants. It is the responsibility of each participant to ensure that all amounts that they receive from COST funding are compliant with their national tax rules and obligations.

In this first STSM call for proposals, a **maximum of EUR 4000** in total can be awarded to each successful STSM applicant. We hope to fund **six STSMs** during the first year of InsectAI.

STSMs must respect the following criteria:

- The Applicant and the Host institution are in different countries;
- The minimum duration is 5 days (including travel);

- There is no maximum duration, but STSM must be carried out entirely by **30th September 2024** and the duration has to be justified based on proposed activities ([see Criteria of Evaluation HERE](#));
- The applicant needs to demonstrate how the STSM will result in a specific deliverable that will contribute to the dissemination and visibility of the COST Action (working paper, blog post, presentation, social media contribution, etc.)
- The applicants are advised to get in touch with the leader of the WG which their work will be related to, prior to their application.

3. Deadline for Applications

For this first STSM Call we will evaluate all proposal applications submitted **until 20th of May**.

Proposals applications for an STSM grant can be made throughout the year at the e-COST platform and new Calls will be launched regularly for as long as financing is available in the running year. The selection procedure will however be carried out at specific periods indicated in each STSM Call, for greater flexibility in the organization of evaluations, voting and travel reservations. In each Call selection procedure, we will consider all received applications in the e-Cost platform up to the announced deadline.

4. Who can apply

STSM applicants must be engaged in a research program as a postgraduate student or postdoctoral fellow or be officially affiliated to a public or private institution (Home institution). Participation of Young Researchers / Innovators (<40 year old) in STSM is encouraged.

5. How to apply

The calls for proposals for the Short-Term Scientific Missions applications are open all year (see specifications in point 3) and published on InsectAI social media and website. In response to a call, applications are submitted on the e-COST website:

<https://e-services.cost.eu/activity/grants>

The list of supporting documents to be submitted includes:

- **Letter of invitation** from the Host Institution confirming that they can undertake the STSM on the given dates should their application be approved.
- **Letter of support** from the Home Institution.
- The **submitted STSM application form**.
- An overview of the **proposed activities** to be carried out, a **workplan** for the visit, **justification** for the choice of the Host Institution, benefits to the InsectAI Action, benefits to the Applicant (maximum 2 standard pages).
- A **full CV** (including a list of academic publications – if applicable).

Applicants are informed that their application can be accessed by the holders of leadership positions and any evaluation Committees in InsectAI COST Action (e.g. WGs leads, Core Group Members) for evaluation purposes.

6. Evaluation criteria

The applications will be reviewed and evaluated by the InsectAI **Grant Awarding Committee** and will be approved based on the Criteria for STSM Grant Award Selection approved by the Management Committee.

Very Important! The selected researchers should wait for the official invitation from the Grant Holder before booking any travel arrangements and paying fees.

7. What is required after completing the STSM

The STSM Grantee has 30 calendar days from the end date of the mission to submit a scientific report to the e-COST website. Grants are paid by the Grant Holder after the completion of the activity and approval of all required report/documentation, which includes confirmation by the Host institution of the successful execution of the STSM and short (3 page-max) description of:

- Purpose of the visit/activity (statement of the project aim(s) and objectives).
- Description of the work carried out.
- Description of the main results obtained.
- Future collaboration with host institution. Describe any likely follow-on work with the host institution arising from the visit- if applicable.
- Projected publications/articles resulting or to result from the STSM. Mention any publications that may arise from the visit - if applicable.
- Confirmation by the host of the successful execution of the mission (Provide a brief affirmation by the Host researcher -with their signature- that the STSM was carried out successfully. It can be included in the report or as a separate accompanying document.
- Other comments (if any).

Very Important! The scientific report will also require the approval of the Core Group. Subsequently, the payment of the Grant will be made.

Publications resulting from STSM activities should acknowledge COST Action CA22129 (InsectAI) support. A short text and photo describing the activity for the Action's website and social media should be also provided after the completion of the STSM.

Successful applicants will be asked to submit a brief of the STSM outputs for the Action's website describing in summary the scientific report which will also be made available online. InsectAI encourages STSMs awardees to participate in the Action's events with a poster to

present STSMs results when applicable or when requested by the Grant Awarding Coordinator.

Outputs, including blogs and posters, from the STSMs will be available from the Action website. The Action will provide support to STSM applicants through feedback on proposals and reports.

The Action will also run initiatives at its annual conferences to promote STSMs to (e.g. an 'STSM marketplace'), where potential hosts of STSMs will give lightning talks or be available to discuss about what they can offer, and potential STSM applicants will be free to ask questions and develop ideas with hosts.

For any questions regarding the STSM you can contact:

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