ANITI 2.0
preliminary call for
Chair-Projects

ANITI is a research program funded from 2019 to 2023 as an "Interdisciplinary AI Institute". This is a call for five (5) types of chair-projects to make up the ANITI follow-up program, called provisionally here ANITI 2.0, which will run from 2024. These chair-projects will be for 4 years.

The submitted proposals will run through a two-stage evaluation process: (i) short list of projects selected by the "ANITI evaluation committee", which will be consolidated into a coherent program, and (ii) submission of the program to the "ANR evaluation procedure".

1. Objectives of the program

ANITI 2.0 is an interdisciplinary research program focused on safe and trusted AI and its scientific and technological interfaces. It extends the achievements and benefits of ANITI towards a broader community, beyond the topics and the teams currently involved in the program, with a particular emphasis for promoting young scientists (*Starting Chairs*), interdisciplinary and collaborative projects (*Synergy and Industrial Chairs*). It is based on a sharing model of its results for the benefit of all its members, academic and industrial, and society. Its strategic and scientific objectives are the following.

1.1 Strategic objectives

- Conduct a research program seeking to contribute to: *(i)* fundamental and interdisciplinary knowledge, *(ii)* R&D developments (low TRL), *(iii)* technology transfer, social and economic developments.
- Amplify the momentum effect of ANITI and extend it towards a broader community and young scientists, for the benefit of Toulouse, and possibly the Occitanie region, in the fields of computational sciences and technologies and their interfaces, in particular towards AI for engineering sciences, life sciences, earth and environmental sciences, as well as towards associated technologies, industries and services.
- Consolidate and strengthen ANITI's assets in AI education and training and its interfaces at all levels: training through research, leadership in EFELIA national program, ANITI Graduate School, initial training, continuing education, initiation and transmission of knowledge to high and middle school students, and the general public.
- Intensify efforts in R&D, dissemination of results, support for the development of demonstrators and specific applications, transfer, spin-off, and social and economic added value.
- Set its actions on all the preceding objectives within the framework of an ethical commitment to socially responsible research; pursue efforts to disseminate knowledge, animate and promote citizen deliberation in its fields.

1.2 Scientific perimeter

Chair-projects will benefit from an exceptional research environment linking industrial partners, academic researchers and engineers from applied research laboratories to make fundamental and high risk/high gain advances on the *foundations of trustworthy AI* and on ways to exploit trustworthy AI for *critical applications*, primarily in the domains of *intelligent mobility* and *industry 4.0*, and possibly also in *climate, health and food*. All proposals in this

general area are welcome. ANITI will be looking particularly for proposals that address issues such as
- Hybrid AI, frugality and guarantees for trustworthy AI systems, explicability, robustness, bias, anomalies;
- Foundational work on theories of learning and machine learning architectures and their implications in NLP, robotics, vision, but also planning, reasoning, simulations of complex scientific phenomena, and human centered AI.

2. Chair-projects

A chair-project is a collaborative team with one *principal investigator* (PI), and up to four PIs (called *co-PIs*) for Synergy and Industrial Chairs, as well as *associate* researchers, along with PhD students and Postdocs. The team may have multiple lab-affiliations, and external collaborators in, and possibly outside of, Toulouse. The team is focused on ambitious and precisely defined scientific objectives, coordinated in a coherent program within ANITI 2.0. Chair-projects are expected to actively contribute to the ANITI community synergies, and for that, to be based in its B612 facilities.

A chair-project will work in concert with industrial partners and the results emanating from the research will nourish industrial roadmaps on a variety of industrial concerns: embedded and autonomous systems, advanced engineering design and decision support methods, advanced cobots, multimodal fusion of data, etc.

ANITI encourages all qualified researchers to apply to one of the five forms of chair-projects defined below. It seeks gender balance among chair PIs and associates. It specially encourages junior researchers (within around 10 years of their PhD) to apply for *Starting Chairs*. It invites researchers to apply to *Synergy Chairs* for highly interdisciplinary projects involving up to four PIs, and to *Industrial Chairs* for projects involving up to four PIs dedicated to addressing a challenge pertinent to one or more industrial partners' research and development programs. Proposers with already foreseen complementary support and partners are very welcome.

Scientific excellence and feasibility, high risk/high gain and social impact are important criteria for the evaluation of the Chair's proposed project. Chair-projects should justify the choice of associates when relevant and their commitments. Chair PIs are expected to contribute at least 50% of their time to the chair-project.

Proposals will be evaluated through a two-stage procedure:
(i) A short list of projects will be selected by the "*ANITI evaluation committee*". This committee consists of international researchers along with ANITI leadership and academic and industrial representatives having no conflict of interest with any submission.
ANITI will consolidate the short-listed projects into a coherent program, which will be submitted jointly by the proposers of selected chair-projects and ANITI partners.
(ii) The consolidated coherent program will be submitted at the national level to the "*ANR evaluation procedure*" as an Interdisciplinary AI Institute (3IA).
Final acceptance and level of support are conditioned on the ANR evaluation. Funding figures conjectured here are not final.

2.1 Starting and Advanced Chairs (SC, AC)

The concept
- These Chair-Projects are intended to enable one Principal investigator to lead a ground-breaking and ambitious research project.
- The project may include industrial partnerships

The PIs
- All PIs must have excellent international research tracks.
- Starting Chairs are for PIs who are within their 10 years from their PhD (*).

(*) Applicants to the ANITI call for starting chairs should consider as the reference date towards the calculation of the eligibility period the certified date of the successful defence of the PhD, and 1 January 2023. In the case of several PhD diplomas, the first PhD will be considered for the calculation.

Extensions of eligibility are possible in several cases:
- *Maternity: 18 months extension for each child born before or after the date of the successful defence of their PhD degree.*
- *Paternity: extension by the documented time of paternity leave taken before the call deadline for each child born before or after the date of the successful defence of their PhD degree.*
- *Long-term illness of the PI or a close family member (child, spouse, parent or sibling) or national service: extension by the documented amount of leave taken by the Principal Investigator for a minimum of 90 days before the call deadline for each incident, which occurred after the date of the successful defence of their PhD degree.*
- *Clinical training: extension by the documented amount of clinical training received by the Principal Investigator after the reference date of the first eligible degree and before the call deadline, up to a maximum of 4 years.*
- *Natural disaster, that is to say large-scale geological or meteorological events that have the potential to cause the loss of life or property: extension by the documented time of a Principal Investigator's inability to work, for a minimum of 30 days, before the call deadline due to a natural disaster, which occurred after the date of the successful defence of their PhD degree.*
- *Seeking Asylum: extension by the documented time of the Principal Investigator's inability to work before the call deadline due to seeking asylum, which occurred after the date of the successful defence of their PhD degree. The possible period of extension runs from the start date of asylum/refugee application to the date of decision on the applicant Principal Investigator's refugee status and/or receipt of specific residence permit.*

The request for extension of eligibility must be properly documented.

2.2 Synergy Chairs (SynC)

The concept
- Synergy chair-projects are intended to enable a group of 2-4 Principal Investigators (co-PIs) and their teams to bring together complementary approaches, in order to jointly address fundamental bottlenecks and ambitious research problems.
- This is not a regular collaborative project within a focused discipline: complementarity and multi-disciplinarity should be reflected in the project and the organizational structure.

- Examples: (i) A SynC bringing together neuroscience, robotics and NLP (Linguistics and CS) together with explainability. (ii) A SynC on AI for the other sciences, bringing together CS, mathematics with physics, biology, neurology, chemistry, climate and environment sciences, or other disciplines for joint breakthrough in one of these fields and AI.

The PIs
- All participating PIs must have excellent international research track records.
- All career stage categories can participate. There is no official preference for a specific category. Synergy between career stages is possible.

2.3 International Attractivity Chairs (IAC)

The concept
- Attract exceptional, internationally recognized AI researchers to Toulouse.
- Promote research projects that contribute to the strategy of ANITI 2.0, reinforce and complement Toulouse talents.

The PIs
- The PIs must have excellent international research track records.
- The PI may be full time or part time in Toulouse.

2.4 Industrial Chairs (IC)

The concept
- IC chair-projects are intended to enable a potentially multi-PI team to lead a ground-breaking and ambitious research project developed in collaboration with one or more industrial partners around a topic dedicated to an application area with large socio-economic impact brought forward by the industrial partners.
- The team is managed as a high-level research and development project (milestones, deliverables, work packages, reviews).
- The project will benefit from the ANITI expertise, and is expected to interact with and to contribute to ANITI research and development.
- Example: DEEL provides multiple examples of IC. TUPLES is another example.

The PIs
- The PIs must have excellent international research track records, or have a strong engineering expertise on the project topic
- PIs can come from academic or industrial backgrounds. At least one PI must be from an academic background.

2.5 Foreseen funding and support (TBC)
- Up to 450 K€ for AC and IAC, 300 K€ for a SC (i.e., a funding for about 2 PhDs and 24 Postdoc-months for AC); funding commensurate with the group and project size for SynC and IC, in about the same range per PI as AC and SC.
- Support for current PI duties (such as part-time teaching relief for faculty members) to foster their involvement in ANITI 2.0 scientific and organizational program; negotiable salary for IAC PIs, possible bonuses for other PIs (depending on their employers).

2.6 Provisional calendar (TBC after the announcement of the pending 3IA decision)
- Deadline for submission: May 5, 2023
- Publication of the selection results: July 15, 2023
- Submission of the consolidated ANITI 2.0 program: Sept. 1st (TBC)

2.7 Submission outline
Proposals should contain the following:
- Cover page with:
    - Proposal title (and/or acronym),
    - Names and addresses of PIs and associates, with links to their bios,
    - Summary of the objectives of the proposal and how they will be achieved.
- Short proposal (up to 5 pages excluding references) underlying in particular the following:
    - Motivations and scientific objectives of the projects,
    - Technical approach, method and foreseen validation experiments, if any,
    - Integration context of the chair-project within the supporting labs and partners of project,
    - For IC: workplan, intended developments and demonstrators, if any,
    - Special funding that may be required for the feasibility of the project, if any.

Detailed guidelines are proposed on the website of ANITI (https://aniti.univ-toulouse.fr/).