TERMS OF REFERENCE FOR THE
CALL FOR RESEARCH AND DEVELOPMENT PROJECTS

UT Austin-Portugal Program

International Collaboratory for Emerging Technologies, CoLab

INTRODUCTION

The UT Austin|Portugal Program

Under The University of Texas at Austin|Portugal Program, the "Collaboratory for Emerging Technologies" (CoLab) was launched on March 22nd 2006 (www.utaustinportugal.org). The CoLab has been a long-term collaborative project that aims to increase research and postgraduate studies in emerging technologies, with particular emphasis on media and digital content, advanced computing, mathematics, as well as other emerging technologies.

CoLab's strategy relies on promoting Portuguese scientific and technological capacity and reinforcing the status of Portugal's scientific institutions at an international level. This program involves a partnership between The University of Texas at Austin and several national universities and laboratories in Portugal. Overall, the program involved about 80 Portuguese doctoral students by the summer 2010.

UT Austin|Portugal ››» Future

CoLab was established more than five years ago with The University of Texas at Austin to increase research and postgraduate studies in emerging technologies, with particular emphasis on media and digital content, advanced computing, and mathematics. During this time several achievements have been accomplished through the participation of hundreds of graduate students and faculty members from both sides of the Atlantic, as well as some entrepreneurial projects that remain ongoing as result of collaborative research activities. Much has been achieved, and it is now time to plan for the next five years of the program. This will allow both broader and deeper activities to take place and facilitate the development of entrepreneurial efforts through a close collaboration with UTEN, thus impacting Portugal for the long run. Third party funding sources have been identified for the research activities and will be pursued, namely through projects with industry and government agency support. In addition to Digital Media, Advanced Computing, and Mathematics, nanotechnology will emerge within the program, building on the installed capacity and strategy in Portugal.

1 – Project Areas

In the Framework of the "International Collaboratory for Emerging Technologies, CoLab", UT Austin|Portugal Program, the Foundation for Science and Technology (FCT) opens a call for the funding of Joint Research and Development Projects in the subject areas specified. The call is directed to integrated teams of specialists and researchers in areas related to Digital Media and/or Emerging Technologies, in collaboration with the Advanced Computing and Mathematics areas, and supports two types of projects: Exploratory and Scientific Research and Technological Development Projects (SR&DT). Researchers from the areas of advanced computing and mathematics with interests in the target areas are encouraged to prepare proposals with digital media and emerging technologies researchers.

In assembling a proposal for Exploratory projects the proposal should include at least one national institution and the University of Texas at Austin.

For SR&DT projects, applicants should note the need to include two or more Portuguese institutions, the University of Texas at Austin, and participation of companies.

We also encourage applicants to carefully develop their proposals in accordance with the outlines below.

Proposed research topics include (but are not limited to):

1.1. VIDEO GAMES:

- Video game design, development and evaluation;
- Advanced animation using high-performance algorithms on CPUs and/or GPUs;
- Gamification and storytelling;
- Serious games.

1.2. DIGITAL MEDIA CONTENT and TOOLS:

- Digital arts, including environmental music, generative music and art, interactive installations;
- Community detection and named entity identification applied to online journalism;
- Media production of television and film, transmedia, information architecture;
- Digital divide and social inclusion;
- Digital media tools for e-government and e-education;
- Strategic uses of digital media in social and/or cultural contexts;
- Spoken and written language based tools and media integration (applications to the Lusophone world);
- Science documentary;
- Design.

1.3. MEDIA PROCESSING AND RETRIEVAL

- Media data (text, images, audio, video, and music) processing and visualization, retrieval and recommendation (e.g., in social media, health, news contexts, music distribution);
- Real-time photorealistic rendering techniques and applications;
- Media archives searching, browsing, and reusing;
- Data processing (of text, numbers, images, audio, video, and music) for information extraction, interpretation and later presentation/reuse;
- Data visualization to better present digital data to social media, scientists/engineers, news/documentary contexts;
- Data archives: searching, browsing/mining, use/reuse;
- Languages and tools to aid the development of efficient and scalable software to run on many-core computing systems and its applications to media processing, retrieval and visualization.

1.4. E-HEALTH:

- Digital media in health and health communication;
- Assistive technologies and health monitoring, new materials and sensors;
- Big data for health care. Three new axis of information have recently risen to accompany hospital information systems, namely Personal Health Records (PHR), continuous sensing data, and genetic data;
- Biomedical systems, *including* molecular recognition, scaffolds, biomaterials, tissue engineering, nano medicines, intracellular trafficking, theranostics, modeling and computation.

1.5. EMERGING TECHNOLOGIES:

- Human-computer interfaces (software and hardware) and their outcomes for creating new knowledge, new models of research and analysis, and new forms of culture;
- New displays and new sensors in digital media systems; immersive and wearable devices and materials, especially when a pertinent to health;
- Nanoparticle systems, including nanoparticle assemblies, modeling and optimal design, in situ microscopy, stimuli responsive materials and surfaces, optical and/or magnetic tuning;
- Additive manufacturing, including multifunctional nano composites, devices with integrated multifunctionality, high throughput, complex (hierarchical) structures, customized (bio)reactors, biomaterials;
- Advanced modeling and simulation of nano materials, systems, devices and processes.

2. Types of projects

2.1. Type 1 - Exploratory R&D Projects in Interactive and Digital Media and Emerging Technologies

This call for Research and Development projects encourages the submission of high risk, exploratory research projects in interactive and Digital Media and Emerging Technologies, in collaboration with Advanced Computing and Mathematics, bringing together new research ideas and experts working in various related areas. These smaller projects are of more limited duration (see below), and the graduate student involvement should be valued. The research team should involve at least one research group in Portugal and collaboration with a research team at The University of Texas at Austin.

2.2. Type 2 - Scientific Research and Technological Development Projects in Interactive and Digital Media and Emerging Technologies

In this second category of SR&TD projects the submission of collaborative research work involving several institutions and targeting strategic areas of the program is recommended. In each area only the highest quality and most comprehensive project(s) will be approved. Projects must involve at least two distinct

research groups in Portugal, the participation of PhD students should be valued, and close collaboration with at least one other research group at The University of Texas at Austin and the participation of a company is mandatory, it being preferable to include a related industry operating in Portugal or in Austin, (and preferably an industry affiliate of the UT-Portugal program). All projects should address sustainability issues.

3. Award Information

3.1. Regulations governing access to funding are available at:

- http://www.fct.pt/apoios/projectos/regulamento.phtml.en
- http://www.fct.pt/apoios/projectos/normasexecucaofinanceira.phtml.en
- http://www.fct.pt/apoios/bolsas/normasbolsasemprojectosunidades.phtml.en

The announcement of the opening of this call is available at:

- http://www.fct.pt/apoios/projectos/concursos/index.phtml.en

The guidelines to writing and submitting proposals are available at:

- http://www.fct.pt/apoios/projectos/concursos/utaustin/2014/docs/GuidelinesProposal_UTA2014.pdf

The Guide for Peer Reviewers:

- http://www.fct.pt/apoios/projectos/concursos/utaustin/2014/docs/GuidePeerReviewers_UTA2014.pdf

3.2. Funding and duration of projects

- The maximum funding for each exploratory project is € 30.000, and a maximum of five projects are expected to be financed. For the SR&DT projects the maximum funding for each project is € 200.000, and a maximum of five projects are expected to be financed. Funding will cover human resources, missions, consultants, acquisition of goods and services and other current expenses, registration of patents, acquisition of scientific and technical instruments and overheads, with a total of maximum funding of €1,150,000 ;
- The call funding only covers the Portuguese Institutions and its research teams;
- The UT Austin research teams are not covered by this funding;
- The participating companies are not covered by this funding.

Exploratory Projects

The expected duration of each project should be 12 months and the budget for each project in Portugal should not exceed €30,000, for a maximum budget of five projects. Funding for The University of Texas at

Austin's faculty members will be provided through CoLab at The University of Texas at Austin and is primarily designed to fund graduate student assistance alongside some ancillary (e.g., travel) costs.

The maximum prorogation period for these projects is 6 months.

SR&DT Projects

The expected duration of each project should be between 24 and 36 months and the budget for each project in Portugal should not exceed € 200,000, for a maximum budget of five projects. Equipment costs cannot exceed 25% of the total funding. Funding for The University of Texas at Austin's faculty members will be provided through CoLab at The University of Texas at Austin.

The maximum prorogation period for these projects is 12 months.

3.3. Application deadline

The call will be open from 24th April until 5:00pm (Lisbon time), 24th June 2014.

Applications must be submitted online through the FCT website following the Announcement of the Call for Proposals, and must meet the following format requirements:

Completion of the on-line FCT form, available through the FCT platform (https://concursos.fct.mctes.pt/projectos), according to the UTAustin|Portugal Program - Guidelines for Proposal Writing.

Submission of a required Annex with the on-line FCT form, which fulfills the proposal requirements as specified below in 3.6 and in UTAustin|Portugal Program - Guidelines for Proposal Writing.

No other forms of submission will be accepted.

3.4. Review of applications

All teams will have their proposals screened by external evaluators, organised by FCT. The review panel will be responsible for evaluating the merit of each proposal.

The selection for funding is based on the criteria presented in section 5.

No applications will be accepted that are in a situation of unjustified fulfillment of the requirements with the FCT, regarding the presentation of the Report for the Project's execution and the return of unspent money.

3.5. Notification, start of activities

Applicants will be notified in accordance with article 11 of the Regulations Governing Access to Funding for Scientific Research and Technological Development Projects.

3.6 Annex to Application

For collaborative research grants, create and upload a single .pdf file with the following content:

- An overview of the proposed research emphasizing how the proposal meets the aims of the UT Austin|Portugal Call. Emphasize also the nature and expected outcomes of the collaborative work. State clearly the aims of the team as a whole and indicate the specific role played by each member in achieving those goals. Explain the advantages of conducting the proposed studies as a collaborative effort. (do not exceed three pages, Arial regular font, 11 point)

- A detailed outline of the proposed research, including preliminary results (do not exceed seven pages; Arial regular font, 11 point). The detailed presentation must delineate the specific contributions of each member of the team.

- Include the CV and publication list of the Principal Investigator and all the others Investigators (for each applicant, maximum of 2 pages, Arial regular font, 11 point, including a list of up to 10 of the most relevant papers)

- The **degree certificate for the PhD** of the Principal Investigator of the Portuguese team

Note that the .pdf file should be less than 5 Mbytes, so avoid including bitmaps or other large figure files.

4. Eligibility information

For Exploratory Projects:

- The Principal Investigator should hold a PhD degree and the proposed research should involve at least one research group in Portugal and collaboration with a research team(s) at The University of Texas at Austin. The proposed research project should include young researchers in Portugal, preferably with PhD students associated with the UT Austin-Portugal Program.

- Participation of researchers working across multiple disciplinary approaches is encouraged. Faculty members from The University of Texas at Austin must be involved in the development of research proposals.

For SR&DT Projects:

- Applications must come from projects with at least two research teams of public or private national institutions in Portugal, together with a research team from The University of Texas at Austin and must have the participation of PhD students.

- The participation of companies is mandatory, especially companies working in Portugal or/and in Austin, and preferably industrial affiliates of the UT Austin|Portugal Program.

- The Principal Investigator should hold a PhD degree.

- The proposed research project should include young researchers in Portugal, preferably PhD students associated with the UT Austin|Portugal Program.

- Faculty members from The University of Texas at Austin must be involved in the development of research proposals. All projects should have a sustainability plan proposal.

The Principal Investigator responsible for the proposal should have a PhD degree. The PI may only submit one candidacy in the quality of Principal Investigator and should have as a minimum a 35% time dedication to the project. All other members of the research team shall participate at no less than 15% dedication, according to their tasks.

Candidacies will not be accepted from Principal Investigators or Proposing Institutions that are on a situation of unjustified fault with FCT requirements regarding the delivery of the scientific and/or financial execution reports from previous financed projects.

5. – Evaluation and Selection

The evaluation and selection process is based on the following criteria:

- A- Scientific merit and innovative nature of the project from an international standpoint;
- B- Scientific merit of the research team;
- C- Feasibility of the plan of work and reasonableness of the budget;
- D- Contribution to the body of knowledge and competence of the National Science and Technology System;
- E- Potential economic value of the technology.

Special consideration will be given to the following aspects:

A. For criterion A:

i.) Relevance and originality of the project proposed (based on the state-of-the art in a given scientific area and previous work done by the proposing team);

ii.) Methodology adopted for carrying out the project;

iii.) Expected results and their contribution to scientific and technological knowledge;

iv.) Resulting publications and articles;

v.) Contribution towards promoting and disseminating science and technology;

vi.) Production of knowledge that can contribute to benefits to society or to the business sector.

B. For criterion B:

i.) Scientific productivity of the team evaluated according to criteria accepted internationally by the different scientific communities (ranging from references to publications and citations in published works as used by the basic and engineering sciences, to performance and artistic work in the arts, or monographs and books in the humanities and social sciences);

ii.) Abilities and skills to adequately execute the proposed project (team configuration, PI's qualifications);

iii.) Ability to involve undergraduate and graduate researchers in training;

iv.) Availability of the team and non-duplication of objectives in relation to other projects underway;

v.) Degree of internationalization of the team;

vi.) Degree of success in previous projects of the PI (in the case of young PIs, this requirement must be assessed based on the potential revealed by the PIs curriculum vitae in the absence of prior concrete accomplishments);

vii.) Level of commitment of any companies participating in the project, namely funding and participation from industrial partners (if applicable).

C. For criterion C:

i.) Organization of the project in terms of the proposed objectives and resources (duration, equipment, size of the team, institutional and management resources);

ii.) Institutional resources of the participating entities, in particular of the Principal Contractor (PC) (technical-scientific, organizational and managerial and, where appropriate, co-funding capacity on the part of companies).

D. For criterion D:

i.) Contribution to the body of knowledge and competence of the National Science and Technology System (expected effects and results); potential for economic return of the technology (where applicable).

E. For criterion E:

i.) Potential economic value of the technology, including but not limited to: i) Potential economic value of the technology namely in terms of its impact on the competitiveness of the national socio-economic system;

6. – Additional Information

The application forms and call regulations are available online, in https://concursos.fct.mctes.pt/projectos/ and http://www.fct.pt/apoios/projectos/concursos/

For more information on this call, please visit the Program's official website (www.utaustinportugal.org).
For inquires of a scientific nature, please contact the UT Austin|Portugal Program at utaustinportugal@fct.pt

For specific information related to application submission, please contact projetosUTA@fct.pt.

For information regarding questions related to the technical aspects of the website, please contact the webmaster by e-mail at webmaster@fct.pt.