

Call for Research Proposals on Digital Media, Advanced Computing, Mathematics, and Nanotechnology

Background

The Portuguese Foundation of Science and Technology (FCT) sponsors the Collaboratory for Emerging Technologies (CoLab) initiative as part of the UT Austin|Portugal Program to enhance academic programs and research in emerging technologies across the nation of Portugal. This cross-disciplinary effort is coordinated by the Office of the Vice President for Research at The University of Texas at Austin in cooperation with the IC² Institute at the University.

CoLab seeks to enhance Portuguese scientific and technological capacity and to extend international research collaborations of leading Portuguese universities and scientific institutions. These long-term international collaborations are executed in conjunction with The University of Texas at Austin (UT Austin) in four academic areas:

- Digital Media.
- Mathematics.
- Advanced Computing.
- Emerging Technologies.

The UT Austin|Portugal Program anticipates providing financial support for five to seven research projects in calendar year 2014 in an ongoing effort to foster research by professors across all disciplines investigating key topics of interest to CoLab.

Research Topics

A list of illustrative research topics is presented below, but researchers may propose related topics that represent strong collaborative potential between faculty members at UT Austin and Portuguese universities.

1. DIGITAL MEDIA

1.1. Video game development

- 1.1.1. Serious games; topics could include various business training applications; conflict resolution.
- 1.1.2. Gamification in specific content domains.
- 1.1.3. Games for dedicated outcomes such as digital literacy, autism treatment, etc.
- 1.1.4. Games for learning.

1.2. Health Communications

- 1.2.1. Health communications applications designed for the elderly – wellness behaviors; chronic disease interventions.

- 1.2.2. Assistive technologies targeting collective interactions and social environments using sensors and new materials.
- 1.3. *Advanced Television*
 - 1.3.1. Immersive television experiences, including locative media applications.
 - 1.3.2. Interactive installations incorporating the Internet of Things: monitoring and aggregation data analysis for environmental purposes.
 - 1.3.3. Interactive installations incorporating the Internet of Things: monitoring and aggregation data analysis for community knowledge and community building using mapping and urban environments.
 - 1.3.4. Second screen potentials for content domains – for example, sports programming; integrating second screen potentials with existing or new media industries – data potentials; mapping the industry potential and systems integration.
 - 1.3.5. Advertising and new technologies – developing metadata tags and synchronization potential across platforms; analyzing related market trends and consumer behavior; policy implications of new advertising potentials.
- 1.4. *Media Markets, Lusophone market*
 - 1.4.1. Analyzing sources of integration with the Brazilian media market.
 - 1.4.2. Assessing the entrepreneurship potential for new media in Portugal: a comparative Austin-Lisbon study.
 - 1.4.3. Analyzing hacker spaces and cultures of creativity: cultivating entrepreneurs.
 - 1.4.4. Broadband deployment status in Portugal, options for improvement; analysis of cloud-based potential in Portugal.
- 2. ADVANCED COMPUTING**
 - 2.1. *GPU core computing.*
 - 2.2. *Cloud computing.*
 - 2.3. *Big data-enabled computational science and engineering.*
- 3. MATHEMATICS**
 - 3.1. *Variational methods used in image restoration.*
 - 3.2. *Epidemiology and game theory modeling.*
 - 3.3. *Evolutionary dynamics and kinetic modeling.*
 - 3.4. *Non-linear dynamics modeling in Bio-Social Sciences.*
 - 3.5. *Phase transitions and free boundary value problems.*
 - 3.6. *Transport modeling in nano materials and collisional theory.*
 - 3.7. *Mathematical and numerical models in medicine and biology.*
 - 3.8. *Mathematics in Neuroscience.*
- 4. EMERGING TECHNOLOGIES**
 - 4.1. *Nanotechnology.*
 - 4.2. *Nanomaterials science & engineering.*
 - 4.3. *Nanomedicine.*

Application Procedure

Researchers interested in applying for financial support for a research project should start by reviewing the UT Austin|Portugal website (<http://utaustinportugal.org/>) to learn more about the CoLab initiative or by contacting the Program Director, Marco Bravo (bravo@ic2.utexas.edu). Funding is limited to, and intended for, collaborative research between faculty members and researchers at UT Austin and Portuguese universities.

Proposals should be no longer than 5 pages (double-spaced) and should include enough detail for a group of domain experts to evaluate the nature of the work and the likely success of the project. Please include sections addressing (1) the significance of the project, (2) a very brief literature review, (3) an implementation plan, (4) a timeline, and (5) a budget. Budgets should include a 26% overhead rate.

Applicants should discuss how data obtained from their project could be used to support applications for future funding from other agencies to continue the research as well as specify target journals for disseminating research results.

Proposals should be submitted electronically in pdf format to Ms. Coral Franke (coral@ic2.utexas.edu) with the subject "CoLab RFP Project Submission 2014_*first and last name of the PI*".

Financial support

The present call will be funded through the budget allocated to UT Austin under the CoLab initiative. Between \$50,000 and \$100,000 will be awarded per accepted proposal for data collection, research assistance, graduate student support, and miscellaneous expenditures. Up to 1 (one) month faculty or research scientist salary support may be requested.

All funded research projects must be completed within 2 (two) years of award acceptance.

Students funded through these projects should expect to spend time at UT Austin (space will be provided) working with UT-Austin researchers and staff.

Selections

A committee of recognized experts in the fields of this call will evaluate all submitted proposals. The committee may contact applicants for more information about their proposals.

Proposals must include researchers from UT Austin acting as co-Principal Investigators (coPIs) and from Portuguese universities and/or research laboratories.

Applications will be accepted from June 3 to July 4, 2014. Proposal evaluations will be completed in July, and applicants will be notified regarding the outcome of the evaluation process.

Projects should start immediately upon being accepted. The co-PI will be responsible for executing the research and reporting the findings. It is expected that co-PIs will communicate with CoLab regarding conference and publication outcomes related to this research, as well as submitting a brief final report.