



International Collaboratory for Emerging Technologies (CoLab)

Year 1 Report (March – August 2007)
and
Year 2 Plans (September 2007 – August 2008)

Submitted to
The Portuguese Science and Technology Foundation (FCT)

by

The University of Texas at Austin
and
Collaborating Portuguese Institutions

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Section 1

International Collaboratory for Emerging Technologies (CoLab)

This section contains an overview of the International Collaboratory for Emerging Technologies (CoLab) followed by a summary of Year 1 activities (March-August 2007) and plans for Year 2 (September 2007-August 2008).

1.1 Overview

The UT Austin-Portugal CoLab was created on March 22nd, 2006, as part of a strategy to promote Portuguese scientific and technological capacity and to reinforce 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.

The CoLab is a long-term collaborative project that aims to increase research and post-graduate studies in emerging technologies, with particular emphasis on media and digital content, advanced computing, and mathematics, as well as the area of science and technology commercialization.

Between March and December 2006 several teams of scholars and researchers from UT Austin and Portuguese universities and R&D (research and development) centers conducted a number of evaluation exercises for the program. These resulted in a report given to the Portuguese Government and made public in February 2007.

Since March 2007, CoLab personnel have been focused on the structure of the program and the implementation of the academic and research institutions' involvement, as well as that of public and private companies. The main goal is to ensure the success and sustainability of an ambitious ensemble of research and academic programs.

The CoLab program, led by the Portuguese Science and Technology Foundation (FCT) and The University of Texas at Austin (UT Austin), consists of three academic programs and one science and technology (S&T) commercialization program:

- Academic programs
 - Digital Media, initially including two Portuguese universities
 - Mathematics, initially including four Portuguese universities
 - Advanced Computing, initially including three Portuguese universities and one laboratory
- Science and technology commercialization program
 - University Technology Enterprise Network (UTEN), initially including thirteen Portuguese universities, four technology parks, and select research organizations

CoLab is a five-year program. In the first year (March-August 2007), the program focused on awareness, networking, and relationship building (1) across universities and other entities of each CoLab program within Portugal and at UT Austin, and (2) between CoLab programs in Portugal and CoLab programs at UT Austin. The objective was to

establish meaningful working relationships among participating institutions through faculty and student visits, workshops, and short courses.

During the six months which made up Year 1, each CoLab program evolved differently based on different operating budgets, the number of participating institutions, pre-existing relationships among participants, and initial challenges and opportunities. The Digital Media and UTEN programs benefited from a year-long assessment process before the March 2007 launch. The Advanced Computing and Mathematics programs received modest Year 1 budgets largely to get launched and to plan for Year 2 activities and programs. For these reasons, CoLab program areas differ in the number and type of Year 1 activities. The activities reported are commensurate with Year 1 budget allocations.

A common CoLab goal for the three academic programs is the establishment of joint degree PhD programs in Digital Media, Mathematics, and Advanced Computing among participating universities in Portugal leading to dual degree programs with The University of Texas at Austin. The intention is to strengthen collaborative research and advanced education in the short term as well as to institutionalize this collaboration so it survives past the planned five years of CoLab.

CoLab Participating Institutions

Digital Media

- **The New University of Lisbon:** Faculty of Science and Technology (FCT), Faculty of Social Sciences and Humanities (FCSH), and Faculty of Economics.
- **The University of Porto:** Faculty of Engineering, Faculty of Fine Arts, Faculty of Humanities, Faculty of Economics and INESC Porto
- **UT Austin:** College of Communication, Department of Radio, Television and Film, School of Journalism, Department of Advertising, College of Fine Arts, Department of Computer Sciences, and the Digital Media Collaboratory.

Mathematics

- **The Technical University of Lisbon:** Department of Mathematics of the Instituto Superior Técnico (IST/UTL)
- **The University of Lisbon:** Department of Mathematics of the Faculty of Sciences (FCUL)
- **The New University of Lisbon:** Department of Mathematics of the Faculty of Science and Technology (FCT/UNL)
- **The University of Coimbra:** Department of Mathematics of the Faculty of Sciences and Technology (FCT/UC)
- **UT Austin:** Department of Mathematics and the Institute for Computational Engineering and Sciences (ICES)

Advanced Computing

- **New University of Lisbon**
 - Department of Computer Science of the Faculty of Science and Technology (CS-FCT-UNL)
- **University of Coimbra**
 - Dependable Systems Group of the Department of Computer Science (DSG-CS-UC)
 - Centre for Computational Physics (CFC-UC)

- **University of Minho**
 - Department of Computer Science (CS-UM)
- **Laboratory for Particle Physics** in Lisbon (LIP)
- **UT Austin:** Department of Computer Sciences (CS), Department of Electrical and Computer Engineering (ECE), Institute for Computational Engineering and Sciences (ICES), and the Texas Advanced Computing Center (TACC), Distributed and Advanced Computing Group.

University Technology Enterprise Network (UTEN)

- UTEN's main participants include 13 Portuguese Universities, four technology parks, select Portuguese research organizations (See UTEN Annex A), The University of Texas at Austin, IC² Institute, and the Austin Technology Incubator in Austin, Texas.

CoLab Board of Directors

Portugal

- João Sentieiro, Chair, President of the Portuguese Science and Technology foundation (FCT)
- Luis Magalhães, President of the Portuguese Knowledge Agency (UMIC)
- António Câmara, Faculty of Science and Technology, New University of Lisbon
- José Cardoso e Cunha, Faculty of Science and Technology, New University of Lisbon

Austin

- Juan Sanchez, VP for Research, The University of Texas at Austin
- Robert Peterson, Associate VP for Research, The University of Texas at Austin
- David Gibson, Director, CoLab and Associate Director, IC² Institute

Directorate of the Board of Directors

- António Câmara and José Cardoso e Cunha, both at Faculty of Science and Technology, New University of Lisbon
- David Gibson, Associate Director, IC² Institute

1.2 CoLab Year 1 Activities (March-August 2007)

Advisory Board Meetings

- **March 2** – FCT-UT Austin Collaboration Agreement signed and first CoLab Advisory Board meeting held at New University of Lisbon
- **July 11** – Second CoLab Advisory Board meeting held at New University of Lisbon

CoLab Offices Opened

Portugal

- Offices at New University of Lisbon (UNL)
- Staff
 1. António Câmara, CoLab Director and Professor of Environmental Science and Engineering
 2. José Cardoso e Cunha, CoLab Director and Professor of Informatics

3. Nuno Correia, Digital Media Co-Director and Assistant Professor of Computer Science
4. Pedro Medeiros, Advanced Computing Co-Director and Associate Professor of Informatics
5. Sofia Santos, CoLab Press Officer
6. Luíza Oliveira, CoLab administrative duties

UT Austin

- Offices at IC² Institute
- Staff
 1. Robert Peterson, Principal Investigator for CoLab and Associate VP for Research, UT Austin
 2. David Gibson, CoLab Director and Associate Director of IC² Institute
 3. Prentiss Riddle, CoLab UT Austin coordinator and webmaster
 4. Steve Molloy, CoLab Finances

Industrial Affiliates

During this first period the CoLab has also attracted a number of important companies as industrial affiliates. These companies represent a wide range of activities, which multiplies the future economic and social impact that the CoLab may achieve. The current list of affiliates is:

- Brandia Central
- Bycom
- Casa da Música
- Critical Software
- Duvideo
- Fundação de Serralves
- Innovagency
- Inteli
- Media Capital Editora Multimédia
- Mog Solutions
- Porto Editora
- Público
- YDreams

1.3 Year 2 Plans (September 2007 – August 2008)

Dual PhD Degree Programs

The CoLab Portuguese universities are currently forming joint (single) degree programs for Digital Media (two Portuguese universities); Mathematics (four Portuguese universities); and Advanced Computing (two Portuguese universities), leading to dual degrees with UT Austin.

The general schedule needed for establishing dual degrees with UT Austin is as follows:

Preliminary Activities Fall 2007 and Year 2 to August 2008.

- Portuguese students are currently attending classes at CoLab participating Portuguese universities. During academic year 2007-2008 select Portuguese PhD students will enroll in agreed-upon core/basic courses at the Portuguese universities involved in each of the CoLab programs.
- During Fall 2007, competitively selected Portuguese students will apply for admission to the UT Austin Graduate School and to participating UT Austin schools/departments (e.g., Computer Sciences, Mathematics, Journalism, or Radio-Television-Film). These completed applications need to be received by UT Austin **by December 15, 2007** in order for the students to be formally admitted to UT and to be able to attend classes in September 2008.

Years 2-3

- Admitted Portuguese students spend two years at UT Austin enrolled in courses, take candidacy exams and begin dissertations.

Year 4

- Students return to Portugal to complete their dissertations
- Students defend dissertations at UT Austin and at their home Portuguese universities.

See Annex 1.4 for more detailed information about the admission requirements and timelines of UT Austin PhD programs.

National competition

A competition for students applying to the dual PhD programs with UT Austin as well as current PhDs wishing to apply for postdoctoral positions at UT Austin was held in Portugal during the period of July 23rd to September 24th, 2007. There were a total of 73 preliminary applications, of which 36 applicants completed the process. A jury made up of faculty members from Portuguese universities and UT Austin is to be selected for each program area, which will evaluate the applications and nominate individuals to enter UT Austin's own application process.

The number of completed applications for each program area is as follows.

	Advanced Computing	Mathematics	Digital Media	Total
PhD applicants	7	3	19	29
Postdoctoral applicants	1	5	1	7
Totals	8	8	20	36

CoLab Communication and Coordination

For CoLab programs to work at maximum effectiveness in Year 2, new strategies need to be developed to encourage regular and effective communication across the participating universities and other entities within Portugal, and between Portuguese and UT Austin participants. Elements of these strategies include:

- Sufficient travel to allow for needed face-to-face working meetings of key personnel
- Using Skype as a standard for CoLab personnel to facilitate voice communication.

CoLab website development and maintenance

In Year 1, CoLab staff in Portugal and the contractor NewGen created the primary CoLab website <http://www.utaustinportugal.org/>, which serves an important role in promoting CoLab and in representing the official position of the FCT and UT Austin concerning CoLab activities and governance. However, this web site was not designed as a collaborative tool to support the research, education and technology commercialization functions of CoLab participants. To fill this gap, CoLab programs have created or planned supplementary sites including the following:

- A Digital Media site hosted at UT Austin to provide timely information about program activities.
- A Digital Media wiki for planning and project management at <https://webapp.utexas.edu/wikis/ut-portugal/doku.php> (Requires a “UT EID,” which is freely available to all collaborators on request.)
- Course sites using Moodle, an open-source courseware application commonly used in Portuguese universities and at UT Austin. Two examples are the Summer courses for Digital Media, which can be found at <http://moodle.communication.utexas.edu/onlinelearning/moodle-1.6/english/>
- A UTEN Google Group for better information sharing and networking of Portuguese technology commercialization and intellectual property staff
- An archive of student work from Karen Kocher’s summer short course in Interactive Documentary.
- A website for a UT Austin gaming class, <http://rtf.utexas.edu/rtf343/>
- A Flickr photo pool at <http://www.flickr.com/groups/464710@N22/>
- Collaborative spaces in the virtual world Second Life, including an island owned by U Porto (<http://slurl.com/secondlife/Universidade%20do%20Porto/99/103/51>) and another owned by a group founded at UT Austin, the Educators Coop (<http://www.educatorscoop.org/>).

In order to support and coordinate the continued development of these decentralized efforts, CoLab web staff in Austin and Portugal have agreed to the following:

1. The official <http://www.utaustinportugal.org> site is to continue to serve as the primary public face of CoLab, hosted in Portugal and maintained by CoLab staff at FCT/UNL and their contractors.
2. CoLab staff at UT Austin will create a second site, projects.utaustinportugal.org, to support project sub-sites for CoLab participants who do not have their own hosting resources. Examples of services that might be hosted include project blogs or wikis and archives of student work.
3. Creators of the main CoLab site and other CoLab sites will be encouraged to maintain extensive links to invite participation and give the public an awareness of the ongoing activities of the CoLab.
4. CoLab web staff at UT Austin and in Portugal will work together to coordinate their efforts and to produce a specific set of technical and architectural recommendations to aid in the usability and navigability of the entire web system. Example recommendations include:
 - An appropriate place in the navigation of each CoLab program on the main site for links to collaborative tools.
 - Stable URLs.

- Reusable “chunks” of content, e.g., participant bios that can be linked to in a predictable way throughout the system.
- Where possible, use of web standards and other “Web 2.0” tools to allow syndication and reuse (e.g., RSS feeds, or interoperability with popular web services such as Flickr and Upcoming).
- Unified Google site search across as many components of the system as possible.
- The avoidance of redundancy: where sites overlap the best solution is greater editorial collaboration.

Additional Year 2 CoLab initiatives include

- Formation of a CoLab UT Austin Board of Advisors.
- Design and distribution of CoLab public relations/promotional material, including a CoLab poster and brochure.
- Research on CoLab program metrics for Digital Media, Mathematics, Advanced Computing, and UTEN. One idea under discussion is a CoLab-sponsored workshop in Portugal on research methods for assessing academic and technology commercialization programs, to include the participation of non-CoLab researchers as well as CoLab participants Jim Jarrett and Fábio Ferreira of UT Austin, Rui Baptista of IST/UTL, and Aurora Teixeira of U Porto.
- Exploration of the possibility of new CoLab academic program areas such as:
 - **Nanotechnology.** The UT Austin Center for Nano- and Molecular Science and Technology (CNM) is a multidisciplinary research center bringing together 95 research faculty from nine academic departments. In July, 2007, CNM faculty prepared a proposal to create a CoLab program in Nano and Molecular Science. Proposed activities included helping to design a nano facility in Portugal based on the experience of the CNM. The report identified five areas of strategic interest: alternative energies; nanoelectronics; medicine and biotechnology; novel nanomaterials; environment; and nano-machines and nanomanipulation.
Contacts: Professor Paul F. Barbara, Chemistry & Biochemistry, and Assistant Professor Paulo Ferreira, Mechanical Engineering.
 - **Robotics.** The Robotics Research Group (RRG) in the Mechanical Engineering Department of The University of Texas at Austin is dedicated to the advancement of open architecture intelligent machine technology. Formed in 1985, the RRG occupies more than 16,000 sq. ft. of office and laboratory space in the Microelectronics Research Building on UT’s J.J. Pickle Research Campus. The aim of the RRG is to conduct basic and applied research in the area of open architecture mechanical systems including three major research threads in the development of: (1) high performance modular actuators, (2) high dexterity and precision robotic manipulators and their associated software (OSCAR), and (3) integrated workcells and software architectures for workcell integration and operation. The RRG is supported by funding from government agencies and industry,

including THRC, DOE, ONR, DARPA, THECB, and NASA. Primary application areas for RRG research have been Decommissioning and Dismantlement, Glovebox Automation, Space Robotics, All Electric Ship, Aircraft Carrier Elevators, and Aircraft Actuators. For more information, see: <http://www.robotics.utexas.edu>

Contact: Professor Delbert Tesar, Mechanical Engineering.

1.4 Annex: Requirements of UT Austin PhD Programs

This section compares the admission requirements and timelines of four PhD programs at The University of Texas at Austin that are participants in the three academic areas of the CoLab:

- Advanced Computing: Department of Computer Sciences
- Mathematics: Department of Mathematics
- Digital Media: School of Journalism and Department of Radio, Television and Film (RTF)

This information is provided for CoLab planning purposes only; prospective students should contact the programs directly for authoritative information.

Graduate application requirements for UT Austin CoLab PhD programs

	Advanced Computing Computer Sciences	Mathematics	Digital Media Journalism RTF	
M.A. prerequisite?	no	no	yes	yes
Application deadline for Fall 2008	January 2, 2008	January 15, 2008	January 15, 2008	December 21, 2007
GRE exam	Average: 644 verbal 787 quantitative 5.0 analytical	Average: 600 verbal 772 quantitative 4.2 analytical	Minimum: 1,000 combined verbal and quantitative	No minimum
TOEFL exam	Average: 651 paper exam 280 computer exam	Minimum: 630 paper exam 267 computer exam 109 Internet exam	Minimum: 600 paper exam 250 computer exam	Minimum: 600 paper exam 250 computer exam
Other exams	AGRE CS Subject Test (optional): 823			
Grade Point Average (4.0 scale)	Average: 3.9	Average: 3.7	Minimum: 3.0 undergraduate 3.5 graduate	Minimum: 3.0

Note: Applicants must meet requirements of an individual PhD program **and** the Graduate School.

Sources

Graduate School	http://www.utexas.edu/student/admissions/gradintl/
CS	http://www.cs.utexas.edu/academics/graduate/admissions/
Math	http://www.ma.utexas.edu/dev/math/Graduate/Brochure.html
Journalism	http://journalism.utexas.edu/graduate/applying/
RTF	http://rtf.utexas.edu/graduate/admissions/phd.html

Timeline for UT Austin CoLab PhD programs

	Advanced Computing	Mathematics	Digital Media	
	Computer Sciences		Journalism	RTF
M.A. prereq?	no	no	yes	yes
Total hours	NA	NA	69+ (23 courses) Some master's course hours may be applied toward PhD requirement	48+ (16 courses)
Year 1	<ul style="list-style-type: none"> - Coursework: begin diversity program (5 courses) - Begin identifying research area 	<ul style="list-style-type: none"> - Preliminary coursework 	<ul style="list-style-type: none"> - Core coursework - First-year qualifying exams 	<ul style="list-style-type: none"> - Coursework
Year 2	<ul style="list-style-type: none"> - Coursework: complete diversity program, begin depth program (3 courses) - Identify research area and advisors - Research Preparation Exam - Submit Research Qualification 	<ul style="list-style-type: none"> - Preliminary coursework - Preliminary exams - Identify research area and advisor 	<ul style="list-style-type: none"> - Doctoral Program of Work (third semester) - Coursework 	<ul style="list-style-type: none"> - Coursework
Year 3	<ul style="list-style-type: none"> - Complete coursework - Dissertation proposal - Pass proposal exam, advance to candidacy - Begin dissertation research 	<ul style="list-style-type: none"> - Topics coursework - Candidacy exam - Advance to candidacy - Begin dissertation research 	<ul style="list-style-type: none"> - Complete coursework - Comprehensive exams - Advance to candidacy - Dissertation prospectus meeting 	<ul style="list-style-type: none"> - Complete coursework - PhD Comprehensive Exam (possibly in year 2) - Dissertation proposal
Year 4+	<ul style="list-style-type: none"> - Dissertation and defense 	<ul style="list-style-type: none"> - Dissertation and defense 	<ul style="list-style-type: none"> - Dissertation and defense 	<ul style="list-style-type: none"> - Dissertation and defense

Note: These are optimistic estimates - many students may take longer.

Sources

CS http://www.cs.utexas.edu/academics/graduate/phd_program/advising/
 Math <http://www.ma.utexas.edu/dev/math/Graduate/Brochure.html#PhD>
 Journalism <http://journalism.utexas.edu/graduate/doctoral/>
 RTF <http://rtf.utexas.edu/graduate/program/studies/degrees/overview.html>

1.5 Annex: Personnel Counts

Personnel Counts, Year 1										
Number of Individuals Involved in CoLab UTAustin										
Estimates are projections in contract, March 2007										
Personnel Category	Digital Media		Computing		Mathematics		UTEN		TOTAL	
	Actual	(Est.)	Actual	(Est.)	Actual	(Est.)	Actual	(Est.)	Actual	(Est.)
UT Faculty	8	(4)	4	(4)	6	(4)	3	(2)	21	(14)
UT PhD Students	3	(2)	0	(2)	0	(2)	0	(1)	3	(7)
UT Masters Students	0	(2)	0	(2)	0	(2)	1	(0)	1	(6)
UT Post-docs	0	(0)	0	(1)	0	(1)	0	(0)	0	(2)
UT Admin & Research Staff	1	(0)	0	(2)	2	(2)	6	(0)	9	(4)
Visiting Portuguese Faculty	5	(12)	5	(10)	0	(2)	0	(0)	10	(24)
Visiting Portuguese PhD Students (New)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Visiting Portuguese MSc Students	0	(0)	0	(0)	0	(0)	2	(1)	2	(1)
Visiting Portuguese Entrepreneurs	0	(0)	0	(0)	0	(0)	5	(0)	5	(0)
Visiting Portuguese Tech. Transfer Officers	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Other Visiting Portuguese	3	(0)	0	(0)	0	(0)	0	(0)	3	(0)
Totals	20	(20)	9	(21)	8	(13)	17	(4)	54	(58)

Personnel Counts, Years 2-5					
Estimated number of Individuals Involved in CoLab UTAustin					
Estimates are projections in contract, March 2007, and do not include faculty members teaching courses in PhD programs.					
Personnel Category	Digital Media	Computing	Mathematics	UTEN	TOTAL
UT Faculty	4	4	4	2	14
UT PhD Students	3	3	3	2	11
UT Masters Students	3	3	3	0	9
UT Post-docs	2	2	2	0	6
UT Admin & Research Staff	0	3	3	6	12
Visiting Portuguese Faculty	8	6	2	0	16
Visiting Portuguese PhD Students (New)	5	3	4 (after Y3)	0	8-12
Visiting Portuguese MSc Students	7	0	0	2	9
Visiting Portuguese Entrepreneurs	0	0	0	5	5
Visiting Portuguese Tech. Transfer Officers	0	0	0	5	5
Totals	32	24	21	22	93

Section 2

Digital Media

This section contains an overview of the Digital Media Program with a summary of Year 1 activities (March-August 2007) and plans for Year 2 (August 2007-September 2008).

2.1 Overview

In year 1 the Digital Media program launched a series of initiatives with partners in Portugal. The objectives during the first year were:

- to develop a curriculum in digital media available to all universities;
- to offer short courses in various areas;
- to develop working relationships with partners at other institutions (academic and professional) through a series of faculty visits between Portugal and Austin;
- to craft a research agenda for the program and to encourage individual and group research projects; and
- to identify collaboration opportunities.

Participating institutions

- **The New University of Lisbon (UNL)**
 - Faculty of Science and Technology (FCT/UNL)
 - Faculty of Social Sciences and Humanities (FCSH/UNL)
 - Faculty of Economics (FE/UNL)
- **The University of Porto (UP)**
 - Faculty of Engineering
 - Faculty of Fine Arts
 - Faculty of Humanities
 - Licenciatura in Journalism and Sciences of Communication
 - Faculty of Economics
 - INESC Porto
- **The University of Texas at Austin (UT Austin)**
 - College of Communication
 - Department of Radio, Television and Film (RTF)
 - School of Journalism
 - Department of Advertising
 - College of Fine Arts
 - Department of Computer Sciences
 - Digital Media Collaboratory

Key Personnel

- **Portugal**
 - António Câmara, Director; Professor, Faculty of Science and Technology, New University of Lisbon
 - Artur Pimenta Alves, Co-Director; Professor, Department of Electrical and Computer Engineering, University of Porto
 - Nuno Correia, Co-Director; Assistant Professor of Computer Science, Faculty of Science and Technology, New University of Lisbon
- **UT Austin**

- Sharon Strover, Director; Chair, Department of Radio-Television-Film
- Ana Boa-Ventura, Associate Director

2.2 Year 1 Activities (March-August 2007)

Curriculum Planning and Short courses

Curriculum planning meetings were held in Austin and in Lisbon on several occasions. This is ongoing.

The interdisciplinary Digital Media Program at UT Austin involves faculty from several departments in the College of Communication (e.g., Radio Television Film (RTF), Journalism, and Advertising) as well as other colleges (e.g., Fine Arts). It needs to be determined which graduate courses are formally part of the Digital Media Concentration and what constitutes a PhD degree plan for selected Portuguese students. CoLab DM Director Sharon Strover has suggested forming a "Digital Media Concentration Committee" made up of involved faculty from the College of Communication and other academic units at UT Austin. This committee would review Portuguese PhD student applicants to UT Austin and decide what home department and/or college would best suit the students' graduate study needs. The committee would also advise on the formation of the student's dissertation committee in collaboration with Portuguese Digital Media faculty.

July 2 - 7

Two short courses were conducted in Portugal by UT Austin staff: "Introduction to Animation" taught at FCT/UNL by Geoff Marslett, and "Interactive Documentary" taught at UP by Karen Kocher. The courses had respectively 24 and 16 students. Both courses were taught on site and there was an online component developed in a MOODLE environment and hosted at UT Austin. The course in Porto involved the collaboration of an industry affiliate, the Fundação de Serralves. Both courses involved faculty members and graduate students of several Portuguese universities (beyond those directly involved in the program) and professionals from several industry affiliates. Course evaluations demonstrate that the courses were well received.

Industry affiliates

Symposium on Online Journalism in Austin

Three Portuguese journalists traveled to Austin to attend the Symposium on Online Journalism held on March 30-31 and organized by Professor Rosental Alves (School of Journalism, College of Communication). They were:

- Fernando Zamith (Lusa Agency, UP)
- Alexandre Martins (Público)
- Miguel Martins (Expresso)

Two had their trip sponsored by CoLab DM; the visit of Miguel Martins was sponsored by his own company. In the case of Zamith, who is also a faculty member at the University of Porto, the trip was also an opportunity for him to reconnect with Professor Alves and discuss the possibility of dissertation supervision.

Internships in Austin

Several businesses have been identified which are interested in working with Portuguese interns in the context of the UT-Portugal program. These contacts stem from the Greater Austin Chamber of Commerce as well as companies with which the College of Communication has collaborated in the past. Others have grown from meetings that were initiated for Dr. Aurora Teixeira (UPorto) in the context of her interest in local creative industries. In early September, the College of Communication held a luncheon with representatives of potential industrial partners in Austin from the fields of computer gaming and web/graphic design, with the aim of developing additional digital media internships.

Workshop in Portugal

The July 9-10 DM research workshop in Portugal is discussed elsewhere in this document. Pertinent for the connection with industry affiliates is that a discussion on scope and format of professional MAs was launched during the workshop. Several industrial affiliates attended the July 2007 Workshop, and several people working at affiliate companies attended short courses in the summer.

Developing Working Relationships: Faculty visits

Visitors To Portugal

February 24 - March 1

Dr. Sharon Strover and Ana Boa-Ventura traveled to Lisbon and Porto for meetings in the area of Digital Media, as well as for the first Board of Directors meeting.

In Lisbon, the DM meetings included several representatives of UP, FCSH/UNL and FCT/UNL, and one representative of UMIC.

In Porto, the DM meeting included the representatives of INESC Porto, the Faculties of Economy and Journalism, and of UP's Office of Technology Transfer.

The DM visit to Porto also included the Fundação de Serralves and meetings with General Director Odete Patrício, Museum Director João Fernandes and Museum Associate Director Ulrich Look, among others. A visit to the facilities of the Casa da Música took place as well but no staff contacts were initiated at this time. Later in April, Nuno Correia and Artur Pimenta Alves visited Casa da Música and discussed possibilities of collaboration.

July 9-10 (Research workshop)

Faculty and graduate students visiting: Sharon Strover, Kathleen Tyner, Karen Kocher, Geoff Marslett, Joe Straubhaar, Bruce Pennycook, Arie Stavchansky, Ana Boa-Ventura and Carly Kocurek.

Graduate Students visits to Portugal

Wei Yeh (Project Aurora, graduate student at UT) visited UP and UNL where he showed his work and met with graduate students in both institutions. He also met with Dr. Isabel Valverde, who has worked in the area of Dance & Technology and has collaborated in the past with Professor Yacov Sharir who is UT Austin collaborating faculty. This has led to another invitation for Wei Yeh to present his work in November 2007 in Portugal at Technology Expanded Dance (<http://www.tedance.com/>) in Lisbon.

Visitors To Austin*June 8 - 16*

Faculty visiting Austin: Artur Pimenta Alves (INESC Porto, UP), Heitor Alvelos (Faculty of Fine Arts, UP), and Nuno Correia (FCT/UNL)

Purposes of visit: to meet UT Austin faculty working in the digital media area, and to become acquainted with some of the UT facilities that can be used in the context of the program.

List of faculty and schools visited:

Dr. Tom Schatz	Radio-TV-Film Topic: University of Texas Film Institute (UTFI)
Dr. Yacov Sharir and Wei Yeh	Dept. of Theater & Dance and Project Aurora Topic: Wearable computers
Karen Kocher	Radio-TV-Film Topic: Preparation of short course in Interactive Documentary in Portugal
Geoff Marslett	Radio-TV-Film Topic: Preparation of short course in animation in Portugal
Dr. Joe Straubhaar	Radio-TV-Film Topic: Research on the digital divide (Prospective instructor for courses in Portugal – research methods).

Dr. Rosental Alves	Journalism Topics: - The annual symposium in online Journalism; - Professional MAs – the experience of The Knight Center for Journalism in the Americas. - (Prospective instructor for courses in Portugal - online journalism)
Dean Graber	Journalism Topic: Moodle courses of the Knight Center for Journalism in the Americas
Dr. David Gibson	IC ² Institute Topic: UTEN and the commercialization component of DM
Gary Chapman	School of Public Affairs Topic: the 21 st Century Project (Prospective instructor for courses in Portugal)
Isaac Barchas	Austin Technology Incubator (ATI) Topic: Overview of the incubation process at ATI
Chris Hempel	Pickle Research Center Topic: GRID computing infra-structure at UT Austin
Dr. Patricia Galloway	School of Information & Kilgarlin Center Topic: Archiving and preservation of digital assets at UT Austin
Dr. Ellen Cunningham-Kruppa	School of Information & Kilgarlin Center Topic: Kilgarlin Center and Blanton Museum; Archiving and preservation at UT
Jo Wozniak	VizLab (ACES) Topic: Overview of VizLab; UT projects created for the VizLab
Dr. Terry Daugherty	Department of Advertising (Prospective instructor for courses in Portugal)
Dr. Matt Eastin	Department of Advertising
Dr. Caroline Frick	Radio-TV-Film (Prospective instructor for courses in Portugal) Topic: Film archiving
Dr. Kay Lewis	Accessibility Institute, UT

Contacts also made – but visits did not materialize at this stage – with:

- Brad Armosky Texas Advanced Computing Center, GirlStart project
- Larry Johnson – New Media Consortium, CEO

August 5 -11

Faculty visiting Austin: Aurora Teixeira (Faculty of Economics, UP)

Purposes of visit: to meet UT Austin faculty members, representatives of the City of Austin and local businesses for an overview of creative industries in Austin.

List of individuals and entities visited:

Jim Butler	Creative Industries Development Manager, City of Austin Topics: - Overview of creative industries in Austin - The Creative Industries Loan (CIL) Guarantee Program
Pete Collins	Chief Information Officer, City of Austin Topic: The IT Division at the City of Austin
Rodney Gibbs	Amaze Entertainment, Executive Studio Director Topic: Overview of the local game design industry
Kyla Kanz	Olive Design, Director Topic: Overview of the local web/graphic design industry
Jon Lebkowsky	Polycot, CEO Topic: Creative industries in Austin Bijoy Goswami's Bootstrap Austin as an alternative grassroots model for business building.
Dr. Jim Jarrett and Flávio Ferreira	IC ² Institute Topic: UTEN baseline study, or baseline study of technology transfer, commercialization and incubation in Portugal
Dr. David Gibson	IC ² Institute Topic: Creative industries
Gary Chapman	(Prospective instructor for courses in Portugal) School of Public Affairs Topic: The 21 st Century Project
Dr. Michael Oden	School of Architecture, Urban Planning Topic: Urban development and the creative class
Bart Bohn	Austin Technology Incubator Topic: The incubation process at ATI

August 13 – 28

At the close of the 2006-2007 project year, Dr. António Câmara visited Austin. The main purpose of his visit was to launch a YDreams office in the city. As CoLab Portugal director he also met with representatives of the four CoLab program areas (Advanced Computing, Mathematics, UTEN and Digital Media) to assess the results of the first year and discuss preliminary ideas about year two.

Internal Meetings

The University of Porto held an all-day workshop entitled “Interdisciplinary Research in New Media in the University of Porto/INESC Porto” to present and discuss faculty research projects that are in line with the goals of this collaboration. The schools participating were FBA, FEP, FEUP, FL, and also INESC Porto. The objectives of the meeting were:

“...to build a common understanding of the objectives of the Work in New Media in collaboration with the UNL and the University of Texas – Austin, to give a general view of existing capacities, projects, resources and interest for further work in all scientific areas involved;
to discuss possible cooperative projects that can be set up;
to discuss the objectives of a close collaboration with UTEN (promotion of an entrepreneurial attitude among participants contributing to the acceleration of the Information Society in Portugal).”

A total of 58 proposals were presented at the meeting either as posters or as oral presentations, in the areas of content production; design culture and communication; economics, business and marketing; e-Inclusion and e-Learning; and tools and platforms.

Several meetings and luncheons have been held at The University of Texas at Austin for the same purposes among UT faculty members.

Developing Research Agendas

Working meeting July 9-10

On July 9 and 10, faculty, graduate students, and professionals from the industry affiliates in the UT Austin-Portugal program met at the FCT/UNL campus, Monte Caparica, for a first presentation and discussion of research agendas in Digital Media. The intentions of this trip were to meet with several faculty members and graduate students of both Portuguese universities and identify common research interests that may translate into joint research projects. This trip also initiated the development of a narrower connection with the industry affiliates in Portugal. The presentations covered topics from ongoing research in electronic music to comparative investigations of the digital divide. The representatives of the industry affiliates also presented overviews of their companies and their professional research interests and projects, and they expressed their thoughts regarding programs for professional MAs.

Visit to Fundação Serralves

Following up on the prior visits by UT Austin faculty members, including Karen Kocher, who conducted her short course there, Dr. Kathleen Tyner traveled to Porto to meet several representatives of the Fundação. The purpose of her visit was to assess the Foundation's needs as far as archiving digital content and making it available on the web.

Online collaboration

During Year 1 work began on joint research and presentation opportunities, leading to a discussion of online collaboration. The UT Austin team has looked into different solutions, both free and proprietary, that may foster mutual collaboration among all three institutions involved.

Wiki

UT Austin has deployed a wiki for collaboration at the higher level. So far, it has not proved ideal for collaboration but it has been a good tool for capturing program developments, serving as a pool of information from which items may be migrated to feed the official utaustinportugal.org website. One inconvenience is the UT firewall, which requires a UT EID account to log into the wiki. Some faculty members in Portugal have created their UT EIDs but effective collaboration has yet to happen.

GCalendar, GDocs and other free tools

UT Austin has been using GCalendar on a regular basis and inviting Portuguese partners to use it to coordinate their schedules in Austin. As far as GDocs is concerned, concrete collective documents may be necessary to make this tool more effective. These tools require Gmail accounts, which may not be as common in Portugal as they are in the US.

Site at the College of Communication

Space was created in the server of the College of Communication for student work, classes and general information: <http://utportugal.communication.utexas.edu>

Official website for the program

The official site is being administered on by CoLab staff in Portugal. UT Austin has been contributing content for this site. UT Austin DM staff have suggested changes and additions that imply a deeper redesign.

Other issues

Servers

At this point information concerning the program is spread across several servers, namely:

- The official website: www.utaustinportugal.org
- The Radio-TV-Film Department servers support the deployment of future Moodle courseware and make information about the program available to UT.

The UT Austin regulations concerning security (the disclosure of the access to departmental servers) make it complicated to send large files - namely videos - over the Internet. Alternative solutions are under investigation, including free services available online to exchange these files, as well as other proprietary solutions.

Organization of the MAPA digital media festival

During CoLab Year 1, the DM program contributed to the planning of the MAPA digital media festival, scheduled for November, 2007 at the University of Porto.

In response to a call for submissions from MAPA, 39 entries were submitted from across Portugal. Ana Boa-Ventura represented UT Austin on a jury alongside representatives from UP, U Aveiro and U Católica to select 12 to be part of the festival. The Foundation for Science and Technology (FCT) is sponsoring an award ("Ciência e Vida") for the best entry, to be chosen by an international jury that will include UT Austin faculty member Bruce Pennycook.

UT Austin is co-sponsoring with UP two workshops for this festival: one on GPS Drawing by Hugh Pryor and Jeremy Wood (UK), and one titled "Music and Sound for Film, Video and Games" by Bruce Pennycook (RTF and School of Music). The DM area at UT Austin has also offered to help with the setup of the festival on site and is helping with the setup of the workshops, as well as with the communication with the European bookstore chain FNAC, which is organizing an exhibition of works by Pryor/Wood and a talk by the artists in the context of the festival.

Discussion of the 2008 festival has begun, including contacts with several artists who may facilitate a workshop.

2.3 Year 2 Plans (September 2007 – August 2008)

Upcoming activities as of September 2007.

- October-December: Portuguese graduate students submit applications to the UT Austin Graduate School and either the Department of Radio, Television and Film (RTF) or the School of Journalism.
- Luncheon with representatives of potential industrial partners in Austin, namely from the fields of game and web/graphic design, September 21.
- Ana Boa-Ventura was invited to be part of the keynote address officially launching the MA in Multimedia at UP, the first under the new Bologna format. Her participation took place as a videoconference between the Global Classroom at the IC² Institute and the videoconference auditorium at the Faculty of Engineering, UP.
- Visit of João Sàágua, Francisco Rui Cádima, and João Grilo to UT Austin.
 - This will be the first time faculty members from the Faculty of Social and Human Sciences (New University of Lisbon) visit UT Austin in the context of the program. The aim of this visit is to understand mutual synergies and common research interests between these scholars, as well as to

understand the research agenda of the FCSH/UNL and to look for common threads for collaboration.

- Jorge Rosa, faculty member from the Faculty of Social and Human Sciences (New University of Lisbon) has presented an idea for a US-Portugal comparative study of the use of online tools by scholars in their academic work. This may be the subject of a proposal for an FCT grant.
- Carly Kocurek prepared a newsletter summarizing the main outcomes of the UTA-Portugal partnership's first year.
- The Digital Media team introduced Marta Vieira, who is in Austin to launch the YDreams office, to the Austin Digital Media Consortium (DMC).
- Sharon Stover and Ana Boa-Ventura are working on a McArthur Foundation grant proposal. The proposal is for a "Digital Media Learning" competition – the "Knowledge-Networking" award. If this proposal materializes, Portuguese partners will be invited to participate.
- Sharon Stover will present a paper on Technologies for Social Inclusion at a conference in Lisbon, October 29-30.
- Continued preparation for the MAPA Digital Media Festival in early November in Porto.
- Professors Rosental Alves and Joe Straubhaar of the College of Communication participated in the SOPC Conference in Minho, Portugal.
- CoLab Portugal will be looking for other funding sources - namely European programs - as ways to support students through scholarships, subsidized lodging, or other possibilities.
- It is likely that students will be interested in dual degrees awarded by UT Austin and the Portuguese universities. Much work will be needed to set these in place.
- Assessment of forms of collaboration of interest to faculty members.
 - All collaborating UT faculty members were requested to state their preferences for participating in the program; suggestions focused on:
 - Conducting a short course of 2 weeks in duration
 - Giving a scholarly lecture either in Lisbon or in Porto
 - Visiting a Portuguese university for a semester
 - Participating in a scholarly meeting or workshop in Portugal
 - Making seats available in a UT Austin class for (remote) Portuguese graduate students
 - Making seats available in a UT Austin class for Portuguese graduate students who come to Austin
 - Undertaking a research or creative project with professors from collaborating Portuguese institutions
 - Undertaking a research or creative project with graduate students from collaborating Portuguese institutions

- Hosting a visiting Portuguese professor (i.e., arranging some meetings, some lectures, social time, etc.)

Section 3

Mathematics

This section contains an overview of the Mathematics Program with a summary of Year 1 activities (March-August 2007) and plans for Year 2 (August 2007-September 2008). As noted in the CoLab Overview (Section I), the Mathematics Program was basically launched in Year 1 and the activities reported below are commensurate with the allocated budget for Year 1.

3.1 Overview

The core goal of the Mathematics program is to establish a joint training program for graduate students and postdoctoral associates involving senior faculty.

Participating Institutions

- **The Technical University of Lisbon**
 - Department of Mathematics, Instituto Superior Técnico (IST/UTL)
- **The University of Lisbon**
 - Department of Mathematics, Faculty of Sciences (FCUL)
- **The New University of Lisbon**
 - Department of Mathematics, Faculty of Science and Technology (FCT/UNL)
- **The University of Coimbra**
 - Department of Mathematics, Faculty of Sciences and Technology UC (FCT/UC)
- **The University of Texas at Austin**
 - Department of Mathematics
 - Institute for Computational Engineering and Sciences (ICES)

The Institute for Computational Engineering and Sciences (ICES) provides the infrastructure and intellectual leadership for developing outstanding interdisciplinary programs in research and graduate study in computational sciences and engineering and in information technology. ICES reports to the Vice President for Research and draws faculty from seventeen participating academic departments and four schools and colleges (<http://www.ices.utexas.edu>).

Key Personnel

- **Portugal**
 - Diogo Gomes, Director; Associate Professor of Mathematics, Instituto Superior Técnico (IST/UTL)
 - Luís Nunes Vicente, Co-Director; Associate Professor of Mathematics, Faculty of Sciences and Technology UC (FCT/UC)
- **UT Austin**
 - Luis Caffarelli, Director; Professor, Department of Mathematics
 - Irene M. Gamba, Co-Director; Professor, Department of Mathematics
 - Bill Beckner, Chair, Department of Mathematics

3.2 Year 1 Activities (March-August 2007)

July 2007

UT Austin Postdoctoral Fellow Aram Karakhanyan, Department of Mathematics, visited José Francisco Rodrigues, University of Lisbon Department of Mathematics, and Diogo Gomes, Instituto Superior Técnico Department of Mathematics.

UT Austin Professor Luis Caffarelli presented "Topics in Nonlinear PDEs" at the CIM/UC Summer School in Coimbra, Portugal, July 22-27, 2007.

<http://www.cim.pt/pdes07/program.htm>

- Organizers: Professors José Francisco Rodrigues (CMUC and U. Lisbon), José Miguel Urbano (CMUC and U. Coimbra)
- Also from UT Austin: Aram Karakhanyan, Postdoctoral Fellow in Mathematics; and Ricardo Alonso, graduate student in the Computing and Applied Mathematics Program in ICES.

3.3 Planned Year 2 Activities (September 2007-August 2008)

October 2007

MAMOS Workshop (Mathematics: Analysis, Modeling, Optimization and Simulation). This CoLab Mathematics Workshop will be held at UT Austin ICES October 15-26, 2007. Its goal is to bring together senior/junior scientists and prospective graduate students to learn about this new exchange program. The workshop has two parts:

Part I: "Numerical Simulation and Optimization" organized by Prof. Luis Nunes Vicente, FCT/UC and Prof. Omar Ghattas, ICES.

Part II: "Dynamics, Patterns and Structures" organized by Prof. Rafael de la Llave, UT Austin Department of Mathematics and Prof. Diogo Gomes, IST/UTL.

Three faculty members from Carnegie Mellon University, Irene Fonseca, David Kinderlehrer, and Robert Pego, will attend the workshop. CoLab personnel will use this opportunity to discuss cooperation with CMU.

October-December

Portuguese graduate students submit applications to the UT Austin Graduate School and the Department of Mathematics. The grant application period for the program opened in late July and closed September 24. Selection of fellowship candidates should start soon.

Spring 2008

Three Visiting Research Fellows from Portugal to visit Austin for the Spring semester: Asst. Prof. Juha Videman (IST/UTL), Asst. Prof. Sílvia Barbeiro (UC), and Eugénio Rocha (U. Aveiro).

UT Austin graduate student(s) to visit Portuguese universities

Visits to Portugal by UT Austin Profs. Luis Caffarelli, Irene Gamba, P.E. Souganidis and Bill Beckner, Chairman, Department of Mathematics.

Summer 2008

Summer School in Lisbon (IST): Topic "Applied Dynamical Systems."
Organized by Prof. Diogo Aguiar Gomes (IST/UTL) and Prof. Rafael de la Llave (UT Austin). Prof. Bjorn Engquist (UT Austin) will participate. Support will be available for PhD Students to attend (UT Austin students in particular).

3.4 Proposed Year 3, 4, and 5 ActivitiesFall 2008

First Portuguese students arrive at UT Austin, entering second year of PhD program. Students will continue to arrive through Years 4 and 5.

October Workshop UT Austin: Geometry, Topology and Mathematical Physics. Rui Loja Fernandes (IST/UTL) and Jean-Claude Zambrini (FCUL) will co-organize the event.

Spring 2009/10

Visiting Postdocs: Potential Candidates for the Spring 2009 semester Pedro Lopes (IST/UTL) and Daniel Abreu (UC).

Summer 2009 (tentative)

Summer School at the University of Coimbra:

Part I: Mathematics: Analysis, Modeling, Optimization and Simulation (MAMOS).
Organizers: Omar Ghattas (ICES, UT Austin) and Luís Nunes Vicente (UC).

Part II: Nonequilibrium Collisional Kinetics.
Organizers: Irene M. Gamba (ICES/Mathematics, UT Austin) and Maria Carvalho (Rutgers University and University of Lisbon). Part II is to be coordinated with the CMU/Portugal program.

Fall 2009

October Workshop at UT Austin. Topics to be announced.

Summer 2010 (tentative)

Summer School at U. Lisbon:

Part I: Stochastic Optimal Control

Organizers: P.E. Souganidis (Mathematics, UT Austin); Ana Bela Cruzeiro and Diogo Gomes (IST/UTL); and Claude Zambini (UL).

Part II: Geometry, Topology and Mathematical Physics.

Organizers: Cameron Gordon (Mathematics, UT Austin) and Rui Loja Fernandes (IST/UTL).

Fall 2010

October Workshop at UT Austin. Topics to be announced.

Summer 2011 (tentative)

Summer School at New University of Lisbon.

3.5 Other Ongoing Activities

Portuguese students and postdocs from CoLab Mathematics will be encouraged to take advantage of the following activities at UT Austin.

- UT Austin Summer Schools: As part of a Research Training Grant (RTG) from the National Science Foundation, the Nonlinear Analysis and Applied Mathematics Group will organize intensive, three-week summer schools in Austin for the next five years.
 - 2008 Engquist: Multi scale modeling
 - 2009 Zariphopoulou: Math finance
 - 2010 Souganidis: Stochastics and applications
 - 2011-12 Gamba and Caffarelli: Topic TBA
- Traditionally P-L Lions (College de France) has visited UT Austin for a month in the spring semester and delivered a series of lectures in the Department of Mathematics and ICES. Portuguese participation is welcomed.

3.6 Annex: MAMOS Workshop (Mathematics: Analysis, Modeling, Optimization and Simulation)

This CoLab Mathematics Workshop will be held at UT Austin in ICES from October 15-26, 2007. Its aim is to bring together senior/junior scientists and prospective graduate students to learn about this new exchange program.

Topics:

- Part I: "Numerical Simulation and Optimization" organized by Prof. Luís Vicente, FCT/UC and Prof. Omar Ghattas, ICES.
Speakers will include Wolfgang Bangerth, Matthias Heinkenschloss, Ronald Hoppe, and Bill Symes plus Portuguese TBA.
- Part II: "Dynamics, Patterns and Structures" organized by Prof. Rafael de la Llave, UT Department of Mathematics.
Speakers will include Jim Meiss, Konstantin Mischaikow, and Chongchun Zeng plus Portuguese TBA.

Invited participants:

University of Coimbra (FCT/UC)

Daniel Abreu *
Sílvia Barbeiro
José Augusto Ferreira
Isabel Narra de Figueiredo
Manuel Portilheiro *
José Miguel Urbano
Luís Nunes Vicente

Instituto Superior Técnico of Lisbon (IST/UTL)

Margarida Baia
Rui Loja Fernandes *
Pedro Girão *
Diogo Gomes
Maria Alexandra Gomes
Mahendra Panthee
Carlos Rocha
Hélder Rodrigues
Juha Videman

University of Lisbon (FCUL)

Cristian Barbarosie
João Pedro Boto
Jorge Buescu
Manuel Marques

Miguel Ramos *
José Francisco Rodrigues
Luís Sanchez
Anca-Maria Toader
Luís Trabucho *
Jean Claude Zambrini *

New University of Lisbon (FCT/UNL)

Paula Amaral *
Nadir Arada *
Fábio Chalub
Ana Luísa Custódio
Rogério Martins
Luisa Mascarenhas *
Filipe Oliveira

Carnegie Mellon University

Irene Fonseca
David Kinderlehrer
Robert Pego

University of Texas at Austin

Luis Caffarelli
Clint Dawson
Leszek F. Demkowicz
Irene Gamba
Oscar Gonzalez
Hector Klie
J. Tinsley Oden
Takis Souganidis
Richard Tsai
Mikhail M Vishik
Felipe Voloch
Mary Wheeler
Lexing Ying
Thaleia Zariphopoulou

* *Unable to attend.*

Section 4

Advanced Computing

This section contains an overview of the CoLab Advanced Computing Program with a summary of Year 1 activities (March-August 2007) and plans for Year 2 (August 2007-September 2008). As noted in the CoLab Overview (Section I), the Advanced Computing Program was basically launched in Year 1 and the activities reported below are commensurate with the allocated budget for Year 1.

4.1 Overview

Participating institutions

- **The New University of Lisbon (UNL)**
 - Department of Computer Science, Faculty of Science and Technology (CS-FCT)
- **The Technical University of Lisbon**
 - Instituto Superior Técnico (IST/UTL)
- **The University of Aveiro**
 - Research units IT and IEETA
 - Department of Electronics, Telecommunications and Informatics (DETI)
- **The University of Coimbra (UC)**
 - Dependable Systems Group of the Department of Computer Science (DSG-CS)
 - Centre for Computational Physics (CFC)
- **The University of Minho (UM)**
 - Department of Computer Science (CS)
- **The University of Porto**
- **Associate laboratories**
 - Laboratory for Energy, Transports and Aeronautics (LAETA)
 - Laboratory for Particle Physics in Lisbon (LIP)
- **The University of Texas at Austin (UT Austin)**
 - Department of Computer Sciences (CS)
 - Department of Electric and Computer Engineering (ECE)
 - Institute for Computational Engineering and Sciences (ICES)
 - Texas Advanced Computing Center (TACC), Distributed & Advanced Computing Group

Key Personnel

- **Portugal**
 - José Cardoso e Cunha, Director; Professor of Informatics, Faculty of Science and Technology, New University of Lisbon
 - Pedro Medeiros, Co-Director; Associate Professor of Informatics, Faculty of Science and Technology, New University of Lisbon
 - Luís Silva, Co-Director; Associate Professor of Informatics Engineering, Faculty of Science and Technology, University of Coimbra
 - Pedro Ferreira, UMIC (Portuguese Knowledge Society Agency)
- **UT Austin**

- Keshav Pingali, Director; Professor, Chair of Advanced and Distributed Computing, Department of Computer Sciences
- Warren Smith, Co-Director; Manager, Distributed and Grid Computing Group, TACC

The Texas Advanced Computing Center (TACC) offers a number of unique resources for researchers in advanced computing, including the 500-teraflop Sun HPC system known as "Ranger," scheduled to go online in December, 2007. TACC is especially interested in providing research opportunities for visiting Portuguese faculty and graduate students interested in high-performance computing, grid computing, and visualization and data analysis (<http://www.tacc.utexas.edu>).

The Institute for Computational Engineering and Sciences (ICES) provides the infrastructure and intellectual leadership for developing outstanding interdisciplinary programs in research and graduate study in computational sciences and engineering and in information technology. ICES reports to the Vice President for Research and draws faculty from seventeen participating academic departments and four schools and colleges (<http://www.ices.utexas.edu>).

4.2 Year 1 Activities (March-August 2007)

Faculty visits

March 1-3, 2007

Professor Keshav Pingali (UT Austin Computer Sciences) visited the New University of Lisbon (FCT/UNL) to participate in the UT Austin-Portugal Collaboration Signing Ceremony and to discuss faculty and student visits between Portugal and UT Austin, the structure of a "year at UT Austin" for students from Portugal, and evaluation procedures for research proposals in advanced computing.

July 18-20, 2007

Five faculty and staff members from the Computer Science Department of the University of Minho visited Keshav Pingali at UT Austin. They were Alberto José Proença, António Pina, João Sobral, Luis Santos, and Albano Serrano. They also met with Jay Boisseau and Warren Smith at TACC and Robert Peterson of the IC² Institute. Discussion focused on ideas for collaboration between the Minho team and UT Austin Professors Pingali, Browne, and Batory. Ideas for the dual degree program between UT and Portuguese universities were also discussed.

While in Austin the visitors from Minho also gave a number of presentations:

- Alberto José Proença: "Higher Education in Europe and Portugal"
- António Pina: "UMinho Grid Infrastructures for Research and Education"
- João Sobral: "Portable Parallel Computing"
- Luis Santos: "High Fidelity Physically Based Interactive Rendering"

4.3 Planned Year 2 Activities (September 2007-August 2008)

October 2007

- Prof. Chandrajit Bajaj of UT Austin will visit IST to deliver a lecture titled "Towards Finite Element Modeling from 3D Imaging" on October 15th.
- Two professors from IST/UTL, Maria Alexandra Gomes and Hélder Rodrigues, will attend the MAMOS Workshop organized by the CoLab Mathematics Program October 15-17 at UT Austin.

November 2007

- Four professors, João Martins, José Carlos Pereira, Adelia Sequeira, and Luis Silva, will visit UT Austin for one week in November to discuss joint research projects, collaborative PhD theses and joint mini-symposia.

December 2007

- Graduate students selected by competition in Portugal submit applications to the UT Austin Graduate School and Department of Computer Sciences in order to be eligible for the dual PhD program beginning in September 2008.

January 2008

- Workshop in Portugal on multicore processor programming to be held at the University of Minho in Braga. Organized jointly by UT Austin and Portuguese Advanced Computing institutions.

Spring 2008

- Professor Luis Santos is planning to come to UT Austin for an extended visit in Spring 2008 to work with Professors Pingali, Browne, and Batory on using skeletons for parallel programming.
- One professor and two postdoctoral fellows from Portugal are to stay at UT Austin for six months, January to June.

Ongoing

- **Mini-symposia organized by UT Austin and IST.**
One three-day mini-symposium will be organized each year and will involve four professors from UT Austin. Planning for the first will take place during the November, 2007 visit to UT Austin on a topic to be selected from among the following:
 - Computational geometry and image processing
 - Multiscale modeling
 - Hemodynamics and cardiovascular mechanics
 - Biomechanics

- **Joint research projects.**

Details are to be decided during the visit to UT Austin in November 2007.

Tentative proposed topics are:

- Application of advanced and grid computing to in direct and large eddy simulation of turbulent flows.
- Optimize models and simulations using the advantages offered by advanced and grid computing technology (in fields such as biomedical, flooding and forest fires).
- Parallel processing for concurrent structural and material optimization.
- Human motion bio GRID.
- Grid computing strategy for multidisciplinary design optimization.

Potential partners at UT Austin are the professors T.J.R. Hughes, J.T. Oden, M. Wheeler, Omar Gattas, and Keshav Pingali. Potential partners in Portugal are professors C. A. Mota Soares, João Martins, Hélder Rodrigues, Adélia Sequeira, J. Carlos Pereira, and Luis Silva.

- Exchange visits between Professor Jason Baldrige's group in Linguistics at UT Austin and Professor António Branco's group at the University of Lisbon to conduct research on Portuguese named entity recognition (tentative).

Section 5

University Technology Enterprise Network (UTEN)

This section contains an overview of the UTEN Program with a summary of Year 1 activities (March-August 2007) and plans for Year 2 (August 2007-September 2008).

5.1 Overview

UTEN's main participants include 13 Portuguese universities, four technology parks, and select research organizations (See Annex A) and The University of Texas at Austin, IC² Institute, and the Austin Technology Incubator in Austin, Texas.

Key Personnel

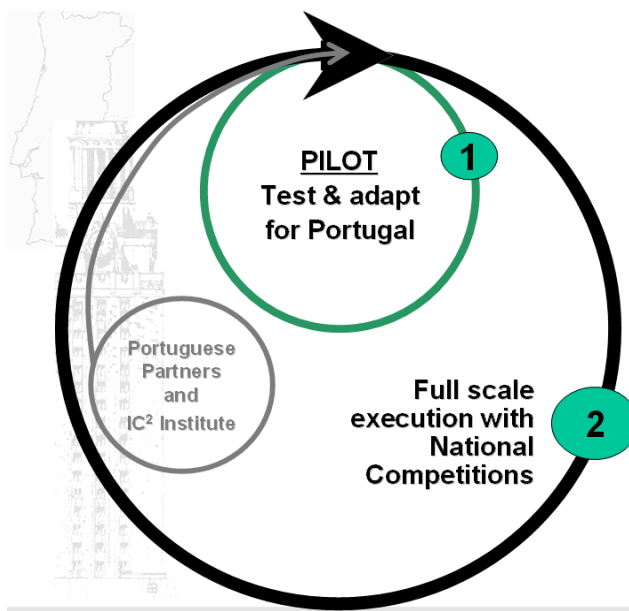
- **Portugal**
 - Dr. José Mendonça, Director; Professor of Electrical and Computer Engineering, U. Porto, and Director, INESC Porto
 - Dr. Teresa Mendes, Co-Director; Professor of Informatics Engineering, U. Coimbra
 - Jorge Liz, Adl Lisbon
 - Maria Santos, Adl Lisbon
 - Deolinda Silva, Adl Porto
- **UT Austin**
 - Dr. David Gibson, Director; Associate Director, IC² Institute
 - Isaac Barchas, Co-Director; Director, Austin Technology Incubator
 - Cliff Zintgraff, IC² Institute (technology assessments and market making)
 - Prentiss Riddle, IC² Institute (internships and coordination and communication)

5.2 UTEN Report for Year 1 (March-August 2007)

Year 1 (six months: March-August 2007) UTEN objectives and activities were to:

1. Build awareness of the UTEN program in Portugal and in Austin and to identify key UTEN assets, challenges, and opportunities
2. Establish "pilot programs" to assess, learn, and adapt initial UTEN activities concerning internships, training, and gaining US market access for Portuguese science and technology (S&T) companies and small and medium enterprises (SMEs)
3. Identify potential cooperative research projects on UTEN activities, processes, and metrics
4. Use Year 1 "learning-by-doing" to plan Year 2 activities and objectives

In summary, UTEN applied a "think, do, and evaluate" approach in Year 1, executing pilot programs that simultaneously provided valuable learning opportunities and results while also providing substantive feedback for future planning and execution of the UTEN program.



I. Pilot Program: Building Awareness and Cooperation

Initial UTEN activities focused on visits and network building throughout Portugal by UTEN UT Austin leadership and staff and hosted by UTEN Portugal directors, staff, and supporters. Portuguese hosts included José Mendonça, UTEN Director; Teresa Mendes, UTEN Co-Director and from Jorge Liz, Maria Santos, and Deolinda Silva (AdI). UTEN UT Austin visitors included David Gibson, UTEN Director; Robert Meyer; Cliff Zintgraff; Jim Brazell; Prentiss Riddle; William N. Hulsey III; and Darius Mahdjoubi. CoLab UT Austin members Juan Sanchez and Robert Peterson and UTEN Co-Director Isaac Barchas also participated in UTEN activities during Year 1.

The UTEN UT Austin team visited with staff of over fifty Portuguese organizations, including universities, technology transfer offices (OTICs), intellectual property offices (GAPIs), institutes, science parks, companies and unincorporated ventures (see Annexes B and C). Visited Portuguese organizations included AdI Lisbon, AdI Porto, INESC Porto, INOVISA, IPN, ISR, Tagus Park, SPIN VALOR, University of Alto Douro, University of Lisbon, University of New Lisbon, IST and VectorE, and University of Porto and MIETE. Following is an overview of Year 1 **UTEN-UT Austin visits to Portugal**:

- **March 2** – FCT-UT Austin Collaboration Agreement is signed and first CoLab Advisory Board Meeting held
- **March 3-6** – David Gibson and Robert Meyer – Initial UTEN visits to Porto, Aveiro, Evora, and Lisbon
- **March 26** – Creative Cities Conference in Lisbon attended by Jim Butler, Manager Creative Activities, City of Austin
- **March 26-April 14** – Robert Meyer visited almost all UTEN Portugal participating institutions and key representatives, and coached GAPI and OTIC staff members
- **May 17-18** – William N. Hulsey III, Austin intellectual property attorney, conducted IP workshops and discussions in Lisbon and Porto

- **May 21-23** – David Gibson, Cliff Zintgraff and Jim Brazell visited Lisbon, Porto, and Coimbra for discussions with UTEN Portugal: José Mendonça, Teresa Mendes, and Adl
- **May 24** – Cliff Zintgraff presented “Culture Shift for Active Commercialization” at the GAPI Conference in Lisbon
- **May 21-29** – Cliff Zintgraff and Jim Brazell conduct technology and entrepreneurial assessments in Lisbon with Adl, Coimbra with IPN, and Porto with INSECH and UPIN. 42 initial and promising technologies were identified.
- **June 18** – Second IP workshop in Lisbon, University of Lisbon, by William Hulse
- **July 11** – Second CoLab Advisory Board Meeting
- **July 12-15** Cliff Zintgraff interviewed Helena Vieira (Bioalvo), Nuno Almeida (HIV-2 diagnostic technology) and Nuno Correia (Critical Software) at Adl Lisbon
- **July 25-29** – Dr. Darius Mahdjoubi presented “Action Business Planning” lecture to classes at IST, VectorE and U of Porto, MIETE

These awareness-building, networking and initial training and mentoring activities provided useful feedback for developing UTEN’s Year 2 training and internship programs and the planned national competition for US S&T commercialization and market-making activities. In particular with regards to internships and training, feedback was provided on the need for training of staff from Portuguese GAPIs (intellectual property offices) and OTICs (technology transfer offices) on intellectual property issues and on US market realities and perspectives

II. Pilot Program: Internships

Due to the lack of competitive selections within Portugal there were no UTEN internships in Austin in Year 1. Candidate Portuguese interns were identified for select Internship opportunities in Austin, but it was determined that these internship opportunities could not be realized unless the Portuguese interns were competitively selected.

UTEN UT Austin has developed Internship opportunities for GAPI and OTIC staff members and entrepreneurs as follows:

1. In Austin with a focus on IT, Wireless, Clean Energy, Digital Media at UT Austin, in IC² Institute and the Austin Technology Incubator (ATI), and select professional firms (e.g., intellectual property attorneys) and businesses (e.g., entrepreneurial companies at ATI and in Austin)
2. In San Antonio with a focus on IT, healthcare, biotechnology at UT San Antonio’s Management of Technology (MOT) program, at the University of Texas Health Science Center, the Center for Innovation and Technology Entrepreneurship (CITE), Texas Research Park, and InCell and TEKSA Innovations
3. Additional Internship positions have also been identified in other Texas regions and nationally and internationally with established IC² Institute partners

MS Program in Science and Technology Commercialization (MSSTC) at IC² Institute, UT Austin

As a Pilot initiative in March 2007, four Portuguese entrepreneurs (two from Coimbra and two from Lisbon) applied to and were accepted by UT Austin’s Graduate School into the IC² Institute’s Master of Science in Science and Technology Commercialization (MSSTC) degree program. As a comparative assessment, two Coimbra students from WITSoftware were to take the MSSTC Program on the Internet and two entrepreneurs

from Lisbon (representing the companies TimeBI and FlatPak) were to take the MSSTC classes in Austin. However, it was determined that since this selection was not the result of a national competition the use of “Public Funds” for MSSTC tuition of \$46,000 was not acceptable. It was agreed that the two student entrepreneurs from WITSoftware would continue in the MSSTC Program as certificate students at reduced tuition. Through their MSSTC studies, these two entrepreneurs are gaining a deep understanding of launching successful entrepreneurial ventures in the US and are discovering commercialization opportunities for WITSoftware as well as building networks with other US MSSTC students and US technology companies. The two MSSTC students from the Lisbon area decided not to pursue a certificate program.

Year 2 Goals: To competitively select MSSTC candidates for the next MSSTC class that begins in April 2008 so they can pursue an MS degree from UT Austin at a reduced tuition rate. An effort will also be made to build MSSTC links to existing and relevant masters programs in Portugal, including MIETE at the University of Porto and VectorE at IST.

III. Pilot Program: Technology Assessment

UTEN UT Austin evaluated 42 technologies during the pilot program of Portuguese technology assessments. These initial targeted technologies were selected by AdI and other supporting Portuguese organizations. UTEN UT Austin used a three-step “funnel” process that includes a “readiness assessment,” “RapidScreen” and “MarketLook.” A key objective was to determine the usefulness of these established assessment processes for UTEN activities and, if needed, to adapt them to Portuguese realities. The “readiness assessment” involved Portuguese entrepreneurs in a UTEN UT Austin-guided self-analysis exercise of their company to determine its readiness for the US market.

Based on these 42 readiness assessments with Portuguese entrepreneurs, 12 technologies were chosen by the UTEN UT Austin Team for 6-8 hour RapidScreens during August and September 2007. RapidScreen is an IC² Institute commercialization analysis tool that uses a collaboration platform for capturing key assessment information. Six of the selected technologies represent established companies, products, and services; two are early stage companies; and four are university IP for license or venture formations. The industry breakout is: One energy company, one bio, two medical, three microelectronics, one nano, one packaging, two software and one telecom.



Of the twelve selected companies, ten provided the needed communication, information, and cooperation for Rapid Screen market analyses. In September, these ten ventures received feedback on the initial US market analysis included in the RapidScreen. Six of these firms received useful US business development contacts.

Acacia Semiconductor -- ADC conversion for communications, consumer and sensors products	ADI	Henriques, Bernardo	Microelectronics
BIOALVO SA -- Robotics technology for drug testing	Bioalvo	Vieira, Helena	Bioscience, Drug Discovery, Mechatronics
BioFilms -- Measure/ID biofilms & deposits using vibrations	University of Porto	Magalhaes Mendez, Joaquim	Microelectronics, Bioscience
EdgeBox -- Multi-function Business Gateway	Critical Links, SA	Carreira, Joao	Microelectronics, Telecommunications, Software
ELISA-HIV2 -- Kit for HIV-2 Diagnosis and monitorization of Disease Progression.	: Instituto de Medicina Molecular, Faculdade de Medicina de Lisboa	Taveira, Nuno	Bioscience, Medical Diagnostics
FiberSensing -- assessment of signals generated by a sensing network	ADI	Alves, Pedro	Microelectronics, Sensors, Fiber Optics
Flatpak	ADI	Vargas, Luis	Packaging
Fluidinova -- NETmix	ADI	Lopes, Jose	Nanotechnology, Chemical Compounds, Ceramics
PET Mammography	PETSYS - Medical Pet Imaging Services, S.A.	Varela, João	Medical, Diagnostics, Hardware, Software
SRE Fuel Cells -- Small Power Fuel Cell	ADI	Rodrigues, Jose	Energy, Fuel Cell and Hybrid
TIMEBI -- mobile software for finding friends and the time to get to them	ADI	Sousa, Maria	Software, Telecommunications, Wireless, GIS
WIT Software	Instituto Pedro Nunes	Silva, Luis	Software, Telecommunications

Technologies chosen for RapidScreens

Based on the RapidScan Process, three ventures were chosen for 40-hour MarketLooks: *FluidInova*, *Bioalvo* and *edgeBox*. The IC² Institute-developed MarketLook process emphasizes interviews with potential customers, end users, and potential partners in the US market.

Generating early success for UTEN

An important UTEN objective is to establish early success in terms of the following: useful IP assistance, location of development partners, creation of R&D collaborations; direct and channel sales assistance; and overall assistance in creating a US corporate presence.

Initial Portuguese SME/entrepreneurial visits to Austin and San Antonio, TX

1. Nuno Almeida of Critical Software visited Austin on July 25, 2007 and met with Isaac Barchas, Director, ATI and York Duncan, President of the Texas Research Park Foundation in San Antonio to explore possible business development activities. With York Duncan, Almeida provided a corporate overview and discussed in more detail Critical's edgeBOX (Critical Links spinout) and xLuna products. Potential connections to Southwest Research Institute were initiated.
2. Two WITSoftware employees attended MSSTC classes on June 15 and 16, 2007 and visited with Isaac Barchas, Director, ATI, to explore the possibility of being a tenant company in ATI.
3. During August 14-September 1, 2007 YDreams CEO António Câmara and Marketing Manager Marta Vieira opened their US office in IC² Institute and developed initial business contacts and opportunities with established (e.g., AMD and Dell) and emerging technology companies in Austin and San Antonio. One contact made for YDreams was with Gary Foreman of Native Sun Productions

regarding potential museum projects in San Antonio and throughout Texas. Other YDreams personnel continue to visit Austin, including COO Tiago Fonseca and R&D Director Ivan Franco during October 3-11.

IV. Pilot Program: UTEN Communication and Coordination

In an effort to increase awareness and communication within Portugal among UTEN's 13 Portuguese universities, four technology parks, and other participants including GAPI and OTIC staff and entrepreneurs and between UTEN Portugal and UTEN Austin, UTEN implemented several collaboration tools. These tools included:

- **Google Internet discussion groups** for OTICs and GAPIs, incubators, and science parks staff as a “discussion board” to share information and concerns with each other and UTEN Austin. This effort was not very effective in that active and continual participation was lacking.
- **Google Maps file** listing all participating UTEN organizations with key information, created by Adl. It is intended that in the future the Google Maps layout will be a useful tool for UTEN.
- **The RapidScreen Technology Assessment** platform was used to capture key information on 10 Portuguese entrepreneurial firms to enable the technology assessments. Adl's Jorge Liz, Maria Santos, and Deolinda Silva used RapidScreen to provide inventor contact and technology background information for the assessments, an important step to make sure needed information is readily available. This information and the results of the RapidScreen assessments are now archived and available for follow-up work by UTEN Austin and Portuguese staff members.

V. Pilot Program: Cooperative Research Projects

Baseline Data Collection and Metrics: The primary purpose of this research is to provide baseline data for key metrics on UTEN programs and activities as they relate to the performance of government programs, universities, and technology parks. In the Year 1 pilot program, national and EU comparative data were compiled from published research articles as well as various studies and reports of the European statistical and economic agencies.¹ It is clear that additional data at the level of specific universities, incubators, and research parks will need to be collected in cooperation with these Portuguese organizations. During August 6-10, 2007 Dr. Aurora Teixeira, University of Porto, visited UT Austin and IC² Institute to discuss research collaboration possibilities including the UTEN baseline study.

5.3 UTEN Plan for Year 2: September 2007 – August 2008

Mission Statement: To build globally competitive and sustainable S&T and SME commercialization programs and processes within Portugal

¹ This initial research report, “Select Baseline National Metrics Affecting Technology Commercialization in Portugal” by Dr. James Jarrett and Fábio Ferreira, contains data from the European Innovation Scorecard, OECD S&T and Industry Scorecard, and World Bank Indicators.

Main Objectives:

1. Provide value-added US internships and training for competitively selected (1) technology transfer (OTIC) and intellectual property (GAPI) staff, and (2) entrepreneurial talent
2. Competitively select the best Portuguese entrepreneurial talent, SMEs, and Science and Technology for US business development and market making activities

As an overview the following sections will focus on internships and training, national Portuguese competition for selecting firms and S&T for US markets, research and education opportunities, communication and coordination, and industry affiliates.

I. Internships and Training

Objective: To provide value-added US internships and training for competitively selected (1) technology transfer (OTIC) and intellectual property (GAPI) staff, and (2) entrepreneurial talent.

Key Challenges: Portuguese entrepreneurs that are successful in the Portuguese market and perhaps EU markets face significant challenges in coming to US markets to grow their firm to increase jobs and wealth creation within Portugal.

Many Portuguese universities and R&D institutions have large patent portfolios that are too expensive to maintain or explore in terms of US or global patents and markets. OTICs and GAPIs and the institutions they represent need to get value from these patent portfolios and they do not know how to do this, especially in terms of US market access. University staff need assistance in selecting the best patents for gaining value either to license or to market in the US. In short, Portuguese universities and institutions need a viable technology transfer and commercialization and patent strategy for US and global market access.

Year 2 Goal: To competitively select Portuguese Interns and to successfully match them to Austin, San Antonio, and other US internship and perhaps international internship opportunities. This includes designating the relevant technology sectors and internship logistics (e.g., length of stay, funding, etc.)

1. UTEN Internship and Training Programs in Austin and Texas

Either or both of the following options could be pursued.

Option #1: With Option #1, a relatively small number of Portuguese GAPI and OTIC staff and entrepreneurs, say ten, are competitively selected by UTEN Portugal and Adl – perhaps they are selected by GAPIs and OTICs themselves. These competitively selected Portuguese will submit their resumes and internship requests (e.g., industry sector, length of time of internship) to UTEN UT Austin for matching with a suitable position and mentoring program. Based on matching processes of these internship candidates with available internship positions, a select few will receive internships.

- The initial location of these Internships will be in Austin and San Antonio, Texas.
- Visa: Interns will receive IC² Institute Visiting Scholar Status.

- Train the trainers – UTEN-trained OTIC and GAPI staff members would be expected to train and mentor their colleagues after they returned to Portugal - leading to enhanced S&T commercialization effectiveness and sustainability in Portugal.
- Entrepreneurship interns will receive valuable US technology and market sector learning-by-doing experience.
- This internship program could be offered on an on-going basis throughout Year 2 as qualified candidates and internship opportunities are selected.
- The initial group of interns is expected to participate in the refinement of the internship program by providing valuable input from the Portuguese perspective.

Option #2: A number of competitively selected Portuguese Interns – perhaps 15 to 20 – travel to Austin for a one-to-two week training program that focuses on GAPI, OTIC, and entrepreneur needs with visits to select technology transfer, IP, and entrepreneurial businesses, organizations, and institutions. The Portuguese will bring with them Portuguese S&T to use during class business development, market making exercises, and company visits with the assistance of UTEN UT Austin Mentors (learning-by-doing).

- A significant benefit of this option is the facilitation of team building among the GAPI and OTIC interns and entrepreneurs coming from geographically dispersed locations in Portugal, while focusing on real-life commercialization projects involving Portuguese technologies.
- Select Interns, with the assistance of UTEN UT Austin, will be encouraged to obtain invitations from the visited organizations and institutions and to return to Texas for internship opportunities. This process has the advantage of face-to-face introductions to facilitate follow-up commitments for internships
- Depending on interest and resource availability, this program could be offered two to three times per year.

Key Outcomes

For OTIC/GAPI Interns

- Enhance S&T commercialization skills and capability of OTIC and GAPI staff, especially in terms of access to US markets
- Enhance capabilities to successfully commercialize Portuguese-developed intellectual property through licensing, alliances, start-ups, and other means
- Promote OTIC and GAPI collaboration across Portuguese Universities through increased team building in the Austin-based training and internship programs
- Train the trainers – UTEN-trained OTIC and GAPI personnel would be expected to train/mentor additional colleagues after they returned to Portugal – leading to enhanced S&T commercialization effectiveness and sustainability in Portugal

For Entrepreneurship Interns

- Personally get to know US market commercialization issues such as how to present themselves and their companies
- Gain first-hand US technology and market assessments
- Accelerate US market making capabilities and network building
- Promote joint business ventures between Portuguese companies/entrepreneurs and US-based companies/entrepreneurs
- Enable collaboration and business engagements between Portuguese and US based companies for global presence and impact

B. Training Programs in Portugal

To increase the number of trained Portuguese OTIC and GAPI staff and entrepreneurs (small firms) and intrapreneurs (from larger firms) UTEN UT Austin proposes to conduct training in Portugal in collaboration with UTEN Portugal

- This training will include such topics as: IP issues in US markets, commercializing S&T in the US, venture development, action business planning, financing new ventures, marketing technological innovation, competitive technology-based strategy
- These training programs will focus on and use, when possible, actual Portuguese S&T

Outcomes:

- Increase the number of OTIC and GAPI staff and entrepreneurs that are trained – especially those who are unable to travel to Austin for Internships or training
- Increase awareness of US market-specific issues
- Better prepare Portuguese candidates for regional and national UTEN-sponsored S&T business competitions
- Build ties/links between Austin talent and Portuguese talent

C. MS Degree in Science and Technology Commercialization (MSSTC):

Competitively select qualified Portuguese to apply to UT Austin's Graduate School by March 2008. The MSSTC Program begins in April 2008. Admitted Portuguese students can attend classes in Austin or take classes on the Internet. When possible, Portuguese technologies will be used in the MSSTC class team building and business development exercises.

Outcomes

- Enhanced US and global teaming for S&T commercialization
- Enhanced network building with US entrepreneurs and technology companies
- It is intended that Portuguese companies will be launched in US markets by MSSTC graduation in May 2009.

II. National competitions

Objective: To use national competition(s) to competitively select the best Portuguese small and medium-sized enterprises (SMEs) and science and technology (S&T) for US business development and market-making activities.

Year 2 Goals: Hold at least one national competition in Portugal to competitively select the best Portuguese S&T and entrepreneurs to successfully come to the US market. Use the Year 1 pilot program S&T and technology review process as a platform, make appropriate revisions to the process based on lessons learned, and build on this platform for the national competition to select the best Portuguese S&T and entrepreneurs. Identify other needed support and mentoring processes including pre-competition coaching, a market-focused judging format, and delivery of services to those companies/entrepreneurs that win the competition.

As a direct result of experience with the pilot program (March-August 2007), and building on the substantial experience of Adl in the execution of S&T and entrepreneurship

competitions, a national competition for coming to the US market is being planned for **Fall 2007**. Following is a list of tasks and activities for holding such a competition:

- Promotion and invitations to Portuguese small and mid-sized businesses, and faculty, students, technology transfer officers, and research centers to participate in regional and national S&T business competitions
- Leverage existing Portuguese regional S&T business competitions
- Use Technology and SME Assessment Processes and results developed in the UTEN UT Austin Pilot assessments of Year 1
- Perform pre-competition coaching to prepare presenters: For select companies provide entrepreneurial coaching and mentoring conducted at designated locations in Portugal by UTEN UT Austin and Portuguese personnel ("learning by doing")
- Competition judges would include US business experts with finance, commercialization, and industry sector experience

Possible Outcomes of a national competition

- For all candidates participating in the UTEN national competition, provide business mentoring and development support as well as improvement of presentation skills
- All winning companies would receive focused commercialization, business development, and US market-making assistance by UTEN UT Austin
- Depending on business development possibilities select winning companies could:
 - Receive funded visits to Austin and other locations for market-making, business development, and network building
 - Receive support to apply to additional US and other international business plan competitions such as UT Austin's Moot Corp and Idea-2-Market competitions and other US/international competitions
 - Apply to the Austin Technology Incubator (ATI) or other US or international incubators with UTEN assistance

III. UTEN Research and Education

A. Benchmarking Research to evaluate and measure UTEN programs and activities

- Establish baseline S&T commercialization metrics of GAPIs, OTICs, Portuguese universities, incubators, etc.
- Establish metrics and collect data on UTEN activities and programs
- Research challenges to and facilitators of UTEN programs and tasks on such topics as technology valuation, technology transfer, international market access, inter-institutional collaboration and knowledge sharing, etc.
- Design methodology and collect data on UTEN metrics for select Portuguese universities, incubators, and Research Parks
- CoLab Innovation Systems – Research specific innovation systems at the country, regional, city, academic and industry levels

Outcomes:

- Important benchmark data
 - Assessing impacts of UTEN training, S&T commercialization, US market access, and job and wealth creation within Portugal

- Establishing best processes and metrics on science and technology commercialization
- Recommend actions to improve UTEN processes so they provide desired outcomes
- Diffusion of lessons learned and best practices through publications and workshops
- Collaborative research experience for faculty and students on UTEN-relevant topics
- Promote UTEN activities and accomplishments

B. Research on UTEN Collaboration Challenges and Facilitators

IT frameworks for collaboration: As it relates to knowledge transfer and commercialization in global and multidisciplinary environments, how can UTEN build a 21st century portal that improves regional and national collaboration within Portugal among the 13 UTEN universities and four technology parks and between Portugal and UTEN Austin and International Partners for accelerated S&T commercialization?

- CoLab programs on Digital Media, Mathematics, and Advanced Computing have also expressed a desire to research and develop better collaboration tools.

C. Provide advice on the development of a Portuguese Interdisciplinary PhD Program on “Innovation and Entrepreneurship” contributing to UTEN sustainability

UTEN UT Austin will work with Portuguese faculty on developing an interdisciplinary curriculum to educate and train needed talent to contribute to and sustain UTEN activities in Portuguese universities, incubators, and research parks. The University of Porto has expressed interest in working on this initiative.

IV. Communication and Coordination

Year 2 Goal: Increased information sharing and coordination across all Portuguese UTEN Institutions and between UTEN Portugal and UTEN UT Austin.

Based on Year 1 experience it is clear that more and better communications is needed (1) among UTEN participating institutions and staff (e.g., GAPI and OTIC staff) in Portugal, and (2) between UTEN Portugal and UTEN UT Austin.

In this regard, two initiatives for Year 2 are (1) more visits by Portuguese UTEN staff members to UT Austin, (2) increased use of available communication technologies such as Skype and videoconferencing, and (3) development of a useful web portal.

In an effort to facilitate awareness building and information sharing, CoLab UT Austin has hired a webmaster to design and implement UTEN IT support. In addition UTEN plans to

- Invite UTEN Portugal Staff to visit UT Austin on a regular basis
- Continue UTEN UT Austin visits to Portugal
- Establish regular times of UTEN Portugal-UT Austin voice communication using Skype and other means

V. Industry Affiliates and Support Networks

As UTEN accepts and places interns in Austin and Texas businesses, it will build a UTEN US Industrial Affiliates Program (IAP). UTEN is currently forming Advisory Boards in Portugal and Texas/US composed of businesses and professionals to help:

- Build know-how networks
- Evaluate and support Portuguese companies and entrepreneurs
- Leverage experienced entrepreneurs, venture capitalists, and business angels as well as technical experts concerning technology assessments and business development

Initial representation for the US UTEN Advisory Board includes:

Austin:

1. Jim Butler, City of Austin
2. Larry Graham, Professor emeritus Portugal/Brazilian studies
3. William N. Hulse III, intellectual property attorney
4. António Lopes, former AMD Executive
5. Isaac Barchas, Director, Austin Technology Incubator
6. Erin Defosse, Director, Wireless Incubator
7. Joel Serface, Director, Clean Energy Incubator

San Antonio:

1. University of Texas Health Science Center at San Antonio
2. UT San Antonio Center for Innovation and Technology Entrepreneurship (CITE)
3. UT San Antonio Management of Technology program
4. Texas Research Park
5. InCell and TEKSA Innovations

Dallas

1. University of Texas at Dallas entrepreneurship programs (beginning discussions)

5.4 Annex A: UTEN-Portugal Participating Institutions

Institution	Main centers involved
Universidade da Beira Interior	UBIACTIVA (Oficina de Transf. de Tecnologia e de Conhecimento da UBI) ¹
Universidade da Madeira	TECMU (Transf. de Tecnologia e Conhecimento Madeira/Universidade) ¹
	GAPI at Madeira Tecnopolo ²
Universidade de Aveiro	Uatec (Unidade de Transf. de Tec. da Universidade de Aveiro) ¹
	GAPI at grupUNAVE ²
Universidade de Coimbra	IPN (Instituto Pedro Nunes), including GAPI
	OTIC UC (Oficina de Transferência de Tecnologia e de Conhecimento) ¹
Universidade de Évora	OTIC-UNE (Oficina de Transf. de Tecnologia e de Conhecimento da Universidade de Évora) ¹
	GAPI at Universidade de Évora (Fundação Luís de Molina) ²
Universidade de Lisboa	TTC@UL (Oficina de Transf. de Tecnologia e de Conhecimento da Universidade de Lisboa) ¹
	ICAT (Instituto de Ciência Aplicada e Tecnologia)
	IMM (Instituto de Medicina Molecular)*
Universidade de Trás-os-montes e Alto Douro	OTIC-UTAD (Oficina de Transf. de Inovação e Conhecimento da UTAD) ¹
Universidade do Algarve	Algarve TransferTECH (Oficina de Transf. de Tecnologia e de Conhecimento da Universidade do Algarve) ¹
	GAPI at Universidade do Algarve ²
Universidade do Minho	TecMinho (includes OTIC-Minho ¹ and GAPI ²)
	Spin-Valor (Consultoria em Gestão Empresarial e Desenv. Científico)
Universidade do Porto	INESC Porto (Instituto de Eng. de Sistemas e Computadores do Porto)*
	OTIC@UP (Oficina de Transf. de Tecnologia e de Conhecimento da Universidade do Porto) ¹
	GAPI at UP (Fundação Gomes Teixeira) ²
Universidade dos Açores	INOVA (Instituto de Inovação Tecnológica dos Açores)
	GAPI Universidade dos Açores ²
Universidade Nova de Lisboa	GAPI at MadanParque ²
	OTIC UNL (Oficina de Transferência de Tecnologia e de Conhecimento da UNL - Centro de Inovação e Criação de Valor) ¹
Universidade Técnica de Lisboa	INOVISA (Assoc. para Inov. e Desenv. Empresarial – Inst. Sup.Agronomia)
	IN+ (Centro de Estudos em Inovação, Tecnologia e Pol. de Desenvolv.)*
	GALTEC (GAPI at Instituto Superior Técnico) ²
	CPIN-BIC (Centro Promotor de Inovação e Negócios)
	OTIC UTL (Oficina de Transf. de Tecnologia e de Conhecimento da UTL) ¹
ISCTE (Instituto Superior de Ciências do Trabalho e da Empresa)	INDEG/Audax (Empreendedorismo e Empresas Familiares)

Universidade Católica Portuguesa (Escola Superior de Biotecnologia)	TRANSMED (Valorização de Tecnologias e Conhecimentos Biomédicos) ¹
Avepark	Avepark (Parque de Ciência e Tecnologia, SA)
	Spinpark (Incubadora de Base Tecnológica)
Madan Parque	Parque de Ciência e Tecnologia Almada/Setúbal
Taguspark	Taguspark (Parque de Ciência e Tecnologia), including GAPI ²
AdI, Innovation agency (national secretariat)	

1 OTIC (Oficina de Transferência de Tecnologia e de Conhecimento)

2 GAPI (Gabinete de Apoio à Promoção da Propriedade Industrial)

* Laboratório Associado (Associated Lab)

5.5 Annex B: Year 1 list of Portuguese educators and entrepreneurs who met with representatives of UT Austin UTEN

Almeida	Nuno	Critical Software, S.A.
Alves	Pedro	Fibersensing, SA
Barron	Wayne	Consolidated Container Company
Borges	Fernanda	University of Porto, UPIN
Carreira	João	Critical Links, SA
Claro	João	University of Porto
Cordeiro da Silva	Anabela	University of Porto
Costa	Diamantino	Critical Software, S.A.
Cruz	José	University of Alto Douro
Dimas	Paulo	TIMEBI, Lda
Dimas Almeida	Paulo	TIMEBI, Lda
Encarnação	Phillip	INOVISA
Espada	Ana	MoveVolumes - Embalagens Lda (FLATPACK)
Feen	Stuart	Plastic Bottle Corporation
Ferreira da Silva	Paula	Instituto de Biologia Molecular Celular
Fevereiro	Pedro	University of Lisbon, ICAT
Fontes	Carlos	Technical University of Lisbon
Henriques	Bernardo	Acacia
Lopes	José	Fluidinova, Engenharia de Fluidos, S.A.
Lopes	Ricardo	Micoplant
Machado	Jorge	University of Alto Douro
Magalhães Mendez	Joaquim	University of Porto
Maia	Alberto	Fibersensing, SA
Mata	Teresa	University of Porto, UPIN
Melo	Luis	University of Porto
Mendonça	José	INESC Porto
Mira	Luis	INOVISA
Moreira	Joana	University of Lisbon, ICAT
Moreira	Rui	WIT Software, Consultoria e Software para a Internet Móvel, Lda
Oliveira	Helena	Bioalvo
Oliveira	Maria	University of Porto, UPIN
Oliveira	Rui	WIT Software, Consultoria e Software para a Internet Móvel, Lda
Pais	Salomé	University of Lisbon, ICAT
Patrício	Ricardo	ActiveSpace
Peixe	Luisa	University of Porto
Pelizzari	Andrea	Critical Software, S.A.
Pinto	Avelino	SPIN VALOR
Ramalho	Fátima	University of Porto, UPIN
Rebelo	Irene	University of Porto
Reis	Arsenio	University of Alto Douro
Restivo	Teresa	University of Porto
Rodrigues	João	INESC Porto
Rodrigues	José	SRE - Soluções Racionais de Energia, S.A.
Rosado	Leonardo	Technical University of Lisbon

Santos	Maria	AdI
Santos	Paulo	Tomorrow Options
Silva	Deolinda	AdI
Silva	Luis	WIT Software, Consultoria e Software para a Internet Móvel, Lda
Simões	Nuno	INOVISA
Sorasio	Gianfranco	WS-ENERGIA
Sousa	Maria	TIMEBI, Lda
Taveira	Nuno	AdI
Tyndale	Peter	Critical Links, SA
Valle	Francisco	University of Lisbon, ICAT
Varela	João	PETSYS - Medical Pet Imaging Services, S.A.
Varela	Vasco	Tagus Park
Vargas	Luis	ISR - Instituto de Sistemas e Robótica
Vieira	Helena	Bioalvo
Wemans	João	WS-ENERGIA

5.6 Annex C: Complete List of Portuguese Technologies Identified During the Year 1 Pilot Program

Name	Inventor or Entrepreneur	Industries
Acacia Semiconductor -- ADC conversion for communications, consumer and sensors products	Henriques, Bernardo	Microelectronics Software, Mechatronics
ActiveSpace BIOALVO SA -- Robotics technology for drug testing	Patrício, Ricardo Vieira, Helena	Control Systems Bioscience, Drug Discovery, Mechatronics Medical, Software, Image Analysis
Biodevices -- endoscopic capsules	Meireles, Luis	
BioFilms -- Measure/ID biofilms & deposits using vibrations	Magalhães Mendez, Joaquim	Microelectronics, Bioscience
Cluster Media Continuous Pelletizer and Spheronizer Cromones Derivatives - Probiotics for animals	Soares, Vítor Pinto, João	Software Bioscience
Displacement transducer DoubleSun -- WS-ENERGIA	Magalhães Mendez, Joaquim Sorasio, Gianfranco	Microelectronics Energy, Solar Energy Microelectronics, Telecommunications, Software
EdgeBox -- Multi-function Business Gateway ELISA-HIV2 -- Kit for HIV-2 Diagnosis and monitorization of Disease Progression. Enzyme for dairy market Enzymes for Biofuels and more	Carreira, João Taveira, Nuno Pais, Salomé Fontes, Carlos	Bioscience, Medical Diagnostics Bioscience Bioscience, Energy Medical, Medical Diagnostics, Hardware, Software
EXAMPLE -- PET Mammography FiberSensing -- assessment of signals generated by a sensing network Flatpak	Varela, João Alves, Pedro Vargas, Luis	Microelectronics, Sensors, Fiber Optics Packaging Nanotechnology, Chemical Compounds, Ceramics
Fluidinova -- NETmix Fluidinova -- RIMcop -- Reaction Injection Molding control, operation and pulsation Forest fire command and control system Independent Software Verification and Validation	Lopes, José Lopes, José	Manufacturing, Injection Molding Software, Homeland Security / Emergency Mgmt Software, Software Development
Instrument for pipe flow pulsation Linux platform for onboard software development MicoPlant Microdevice to determine body	Santos, Ricardo Lopes, Ricardo Restivo, Teresa	Microelectronics Software, Machine to Machine, Mechatronics Food and Agriculture Microelectronics, Machine

mass		to Machine Software, Media, Broadcast Video
MOG Solutions	Texeira, Vitor	
New derivatives of the bisnafta limidopropil	Cordeiro da Silva, Anabela	Bioscience
New drug for therapy of neurodegenerative diseases	Rodrigues, Cecilia	Medical, Diagnostics, Hardware, Software Bioscience
PET Mammography	Varela, João	
Phospholipids detection method	Rebelo, Irene	Energy, Solar Energy
Photovoltaics from Tagus Park -- need information		
Platform for producing recombinant proteins in plants	Fevereiro, Pedro	
Protozoan strains of attenuated virulence	Cordeiro da Silva, Anabela	Bioscience
Retina imaging analysis		Software, Medical
Salicylate antidote for paraquat	Carvalho, Felix	Bioscience
Silicon ribbons to lower cost of solar cells	Serra, João	Energy, Solar Energy
SRE Fuel Cells -- Small Power Fuel Cell	Rodrigues, José	Energy, Fuel Cell and Hybrid
Temperature Monitoring -- Record/Monitor Temp. of Food During Distribution	Barbosa, Jorge	Microelectronics, Machine to Machine
Ten new compounds for antioxidants and preservatives		Bioscience
TIMEBI -- mobile software for finding friends and the time to get to them	Sousa, Maria	Software, Telecommunications, Wireless, GIS
tomorrow options -- foot disease prevention for diabetes	Santos, Ricardo	Medical, Microelectronics, Software, Mechatronics
UAV technology for agriculture	Simões, Nuno	Aerospace
Vaccine against dental virulence	Tavares Gomes, Delfina	Bioscience, Vaccines
WIT Software	Silva, Luis	Software, Telecommunications
Wood Particles	Claro, João	Forestry and Lumber Software, Media, Advertising
Xarevision -- digital signage		