The projects are generally in the area of systems (CS), and they are conducive to being accomplished in reasonable time. The projects seem timely with respect to the current state of research in Portugal, in two critical aspects. The research within Portugal in the areas of the projects is very strong. The review committee was very impressed by the strength of the Portuguese researchers in the projects that were reviewed. Indeed, the strength of the Portuguese teams has ensured that the projects have been genuinely collaborative.

There is clear evidence of genuine collaboration across projects. Most projects have very regular audio-conference meetings, which speaks to the strength of the collaboration.”


Carnegie Mellon is generally world-class in the areas covered by the projects, and so they allow Portuguese researchers to experience best practices in systems development as it is done at Carnegie Mellon University. In particular, due to the strengths across both sides of the Atlantic, the projects are ripe for collaboration that is sensitively tuned to the subtleties that distinguish world-class research. There is indeed strong evidence of collaboration between Portuguese institutions and Carnegie Mellon. In many projects, the Portuguese teams have access to Portuguese data (hospital data, employment tables, datasets of mobile operators) of the sort that is not easily available elsewhere. This data is tailored to Portuguese conditions and it is therefore expected that the ensuing results of the research will be ultimately most beneficial to Portugal. The availability of such data is also an attraction to Carnegie Mellon researchers.
Researchers and Companies Work Together to Improve Competitiveness

In June 14, 2010, the Carnegie Mellon Portugal Program, supported by the Fundação para a Ciência e a Tecnologia, organized its Second Annual Conference entitled “Smart Tech for Real People.” The conference focused on the strong ties among companies, universities, and the high-impact research that is carried out within the scope of this partnership.

This year’s conference used the innovative style of Ted Talks, and was divided into six thematic sessions: A View from the Industry, Future Internet, Security and Critical Infrastructures, Interactive Media, From Networks to Innovation and Entrepreneurship, and Emerging Innovation Networks. Researchers, dual degree Ph.D. and Professional Master students, alumni, and CEOs all gave talks on their respective research, e.g., a T-shirt that saves lives, smart policy for better telecommunication networks, interactive services that save energy, and cars that exchange information. These were some of the new technologies that aim to improve the daily lives of citizens and organizations.

Mariano Gago, Portuguese Minister for Science, Technology and Higher Education, praised the solidity of the partnership among universities, companies, and the Carnegie Mellon Portugal Program. The Program has grown from three partner companies to more than 55 that participate actively in the research and education activities.

Industry leaders reviewed the ongoing collaboration that is occurring with universities within the scope of the Carnegie Mellon Portugal Program. Rui Assunção, from NDrive, spoke about the importance of the DRIVE In project. The target of technology transfer envisioned in the DRIVE In is the exploration of vehicle-to-vehicle communication and in an NDrive navigator.

Paulo Rosado, CEO of the software house Outsystmes, talked about the valuable connection with the INTERFACES project and the benefits that will occur at the end of this project. “This project will help us to solve problems related to enterprise security by putting together map roles, users, security and different modules and functionalities,” said Rosado. “The critical success factor of this partnership is the fact that the research team that is leading this project understands our main goal, and it is always worried if we are getting the needed value.”

Paulo Luz, from the business and technology service company Logica, spoke about the role of his company in the SINAIS project, which explores service design for the utilities sector. This company works closely with the Universidade da Madeira and has already recruited Carnegie Mellon Portugal Program MHCI graduates.

Manuel Beja, from Novabase, spoke about the three motivating factors that led Novabase to join the Carnegie Mellon Portugal program: Education, Fostering Innovation, and Corporate Responsibility. According to Beja, Novabase leadership sees the professional master programs as an important career step for their employees. After finishing their Masters, Novabase employees return to the company, spending roughly 80 per cent of their time in consulting work with new tasks (and improved salary), and 20 per cent of their time spreading their knowledge in the software engineering
“This program is really for universities and industry.”
- José M.F. Moura, director of the Program at Carnegie Mellon University.

Since the beginning of the Program, Nova has been working closely with Paulo Marques, from Universidade de Coimbra, and with Nuno Nunes, from Universidade da Madeira, in several research projects in areas like service design, human computer interfaces, e.g. for an electric car project, software engineering, and others. “Our clients receive the results of these projects and they feel that they have a real impact on their clients,” said Manuel Beja. “There is a final point that is about change. We have been in the program for three years and the change inside the company is significant. The most visible are the people who were in the MSE program. Because of this, we are funding a first Ph.D. student.” At the end of his presentation, Manuel Beja said “We are quite happy with the results, and we wish the program a very long life.”

Manuel Garcia, from Portugal Telecom (PT), gave a presentation entitled “Carnegie Mellon Portugal for People with Fiber: the PT Vision.” As a main sponsor, PT looks to this partnership as a strategic way to obtain competitive advantages within the telecommunications sector.

“For PT this program is a key element that helps us to have the best people working with us,” said Manuel Garcia. “Real people are our customers, but also our employees and our research partners that help to win in the market.”

Currently, PT has 26 students enrolled in the Program, two of whom are working towards their Ph.D. Additionally, there are 31 alumni who are employed with Portugal Telecom. “In order to optimize this knowledge and to gain synergies, PT has decided to organize these resources, talents and skills in a structure with a single and transversal orientation in terms of different subsidiaries and market segments – PT Security Lab,” said Garcia.

“This concept also aims to support our market offering in terms of Cyber-security products and services, to provide the company with a unique centre of excellence and to leverage technical and scientific cooperation with CyLab and therefore positioning PT as a major reference in this area,” explained Manuel Garcia during his presentation.

Luís Meireles, from BioDevices, talked about the connection between this company and the benefits of participating in the Vital Responder project. The goal of this collaboration is to develop a garment that can help frontline professionals in emergency situations.

The closing sessions of the Conference were dedicated to the four innovation networks launched in February 2010: NET-SCIP (Security and Protection of Critical Infrastructure), NET-FIT (Internet Technologies and Services of the Future), NET-SCIP (Software Engineering). The goal of these networks is to generate debates among all the persons that are engaged in these different areas of ICT.

Several Ph.D. students presented a poster about the work they are developing, and the principal researchers of each of the ten innovative research projects presented a demo. More than a hundred people attended the conference, and elaborated on the research being conducted and the strong engagement between universities and companies within the Program.

João Barros, national director of the Carnegie Mellon Portugal Program, stated at the end of conference: “This event disseminated the results and the impact of the program in Portugal which is visible both in the increasing number of students, researchers and involved companies, and also in the quality of research projects and the potential for creating new products, services and business opportunities. We want more innovative industry and world-class research teams to create knowledge and to collaborate with domestic firms in creating value and employment.”

Doctoral Consortium Promotes Interdisciplinary Environment

On June 15, 2010, more than 20 dual degree Ph.D. students in the Carnegie Mellon Portugal Program attended the Second Doctoral Consortium. The goal of this event was twofold: first, to provide students with feedback and general advice on developing their research and preparing for their future careers; secondly, to create a forum where Ph.D. students can learn about the large scope of the partnership.

João Sentieiro, president of FCT, gave the welcome speech. Sentieiro praised the importance of this initiative, imparting a message of support and confidence to all the Ph.D. students that embraced this innovative partnership among Portuguese universities and Carnegie Mellon University. During the day, ten dual degree Ph.D. students presented their work and discussed their research methodology.

Ana Venâncio, a Ph.D. student in Technology Change and Entrepreneurship (TCE), talked about her last paper entitled “Does Red Tape Hold Back Entrepreneurs? Evidence from Portugal.” In her paper, Venâncio concludes that the Portuguese “On the Spot” firm program increases the number of start-ups because it simplifies the registration procedures. “However, the number of firms created is not terribly large,” Venâncio said, “nor are these firms particularly vibrant.” Other presentations included “P2P on Campus: Who, What and How Much,” given by Alexandre M. Mateus, a Ph.D. student in Engineering and Public Policy (EPP); and “Aliasing control with view-based typestate,” given by Filipe Militão, a Ph.D. student in Computer Science (CS). “Tracking the state of an object (in the sense of how a file can be in an Open or Closed state) is difficult not just because of the problem of managing state transitions but also due to the complexity introduced by aliasing,” Militão said, “in
On the Calendar: Upcoming Events

September

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September 7, 2010
Orientation Day in Pittsburgh

September 18, 2010
Orientation Day in Portugal

October 14-15, 2010
ERC Meeting

The question dealt with the restriction of cell-phone usage and the technological and legislative issues surrounding it. For example, high-security facilities, ER rooms, airplanes, or even restaurants or movie theaters might all want to restrict cell-phone usage within their premises. Various technologies can ensure this restriction, but this raises questions of personal freedoms, emergencies in which a cell-phone would be necessary, and even whether such restrictions would affect the business of cell-phone operators. Such technology might even require everyone to have a new type of cell-phone, a problem of money and logistics. “It’s a really interesting experience,” said Mateus.

While completing his degree, Mateus wrote two research papers and is expecting to write a third before graduating. Of his previous papers, both have been submitted to journals and one is in the advanced stages of review. The final obstacle between Mateus and his Ph.D. is to write and defend his thesis.

“We [my advisors and I] are still putting things together,” said Mateus, “but it will certainly have to do with online distribution of content.”

One example of this is peer to peer systems, which put a lot of pressure on networks because users send more information than the network is designed to support. Mateus’s interest in this problem is twofold. On one hand, there are technological approaches to decreasing traffic and increasing efficiency that are deserving of exploration. On the other hand, there are myriad legislative questions that surround the problem, dealing with issues of illegal technologies and their counter-measures.

During the thesis process, students give a presentation to their advisors and select faculty members that outlines their plans. This thesis proposal is a tool to garner constructive feedback and usually occurs in person, with all faculty members present. Mateus, however, will be completing his thesis proposal over video and telephone conference because his advisors will be truly all over the world: Portugal, London, Washington, D.C., Pittsburgh, and Berkeley.

“I think it’s a sign of the times,” he said. Also, perhaps, a sign of strengthening international ties within the Program, which is built on a precedent of a mutually beneficial partnership between Carnegie Mellon and its Portuguese affiliates. Mateus said that he thinks “it is a good initiative to bring some change to Portuguese universities,” which tend are traditionally hierarchi-

cal and focused on excellence in a single discipline. He said that the Program brings together people with different ideas of how a university should work and how collaboration can occur.

“Your work will always be mixed with something else,” Mateus said, “and produce something that’s more than the sum of individual contributions.”

Alexandre Mateus Completes Dual-Degree in December as Program’s First Ph.D. Graduate

In December 2010, Alexandre Mateus will be the first Ph.D. student to graduate from the Carnegie Mellon Portugal Dual-degree Ph.D. Program. He began work on his doctorate, which is in Engineering and Public Policy, in 2006, the same year the Carnegie Mellon Portugal Program was established.

Qualifiers are a milestone in any Ph.D. candidate’s career. One and a half years into the program, EPP students go through a two part exam: one part is producing and defending a paper, and the other is a six day test during which time the student must come up with a solution to a relevant Engineering and Public Policy (EPP) problem. Students are given all of the pertinent information to solve the problem, but must analyze technological, social, legal, and economic aspects on their own.

“The research I do is global,” said Mateus, “and going back to Portugal allowed me to open my horizons and develop a lot of contacts there.”

- Alexandre Mateus.

Alexandre Mateus considers IST his base, saying, “That’s where I have a desk.”

“Mine was actually kind of easy,” he said. “You relate to some problems more than others.”

The Program in the News and Media

August, Exame Informática
One Car, One Traffic Sign
Michel Ferreira, researcher of the Drive In project, gave an interview about the importance of the Drive In project. [Read article]

July, Diário de Notícias
Science Internationalization is a Sign of Maturity
The partnerships that Portugal has established with foreign universities such as the Massachusetts Institute of Technology, the Carnegie Mellon University or the University of Texas in Austin. [Read article]

July, I Online
First Carnegie Mellon Portugal Startup: FeedZai Won European Prize
FeedZai, the first company created within the Carnegie Mellon Portugal program, won the “European Prize for Intelligent Companies”. [Read article]
New Master in Entertainment Technologies is unique in the European Context

The Universidade da Madeira, the Entertainment Technology Center (ETC) at Carnegie Mellon University, Madeira ITI, and Madeira Tecnopólo launched, on July 19, the dual degree Professional Master program in Entertainment Technology (MET), running under the Carnegie Mellon Portugal program, it is partly funded by the FCT. This two year program will start next month with 6 students at the Universidade da Madeira.

“This is not a Master of Science nor a Master of Arts or Fine Arts degree – rather a unique, specialized degree program in the interdisciplinary field of entertainment technology,” said Nuno Nunes, president of the Madeira Interactive Technologies Institute.

The Carnegie Mellon Portugal Professional Master of Entertainment Technology runs over a 2-year full time schedule, incorporating a three month summer break in which students are encouraged to complete internships. Starting in Madeira in September, all students will spend their first semester at Madeira ITI, the second at the ETC, in Pittsburgh, and then they will return to Madeira for the remaining two semesters.

Students in the ETC at CMU take courses ranging from computer programming to designing virtual worlds to improvisational acting, but the emphasis is on project courses. Each project course brings together interdisciplinary students teams that must produce working artifacts; in the tradition of Carnegie Mellon, the emphasis is on making real things that work.

A key aspect of the program is to ensure that students have the opportunity to work with a large, diverse set of collaborators with different skills and sensibilities. A typical project covers an entire semester and it is built around four or five students, a faculty supervisor and a client representative.

Don Marinelli, executive director of the ETC, believes in the importance of mixing computer science and arts. This innovative professional master, said Marinelli, is focused entirely on delivery to client. This, he said, is one of the big differences between methods taught at European universities and at American universities.

The session, held on July 19, 2010, in Madeira, was attended by Don Marinelli, executive director of the ETC at Carnegie Mellon University, Manuel Heitor, Portuguese Secretary of State for Science, Technology, and Higher Education, João Cunha e Silva, vice-president of the Madeira Regional Government, Castanheira da Costa, rector of the Universidade da Madeira, João Barros, national director of the Carnegie Mellon Portugal Program, and Raul Caires, president of the Madeira Tecnopolo.