

World-class Research and Graduate Education in Close Connection with the Portuguese Industry.

Three years of hard work and progress Research, Technology, and Graduate Education

In October 2006, the Portuguese government and Carnegie Mellon entered into an agreement identified as the Carnegie Mellon|Portugal Program. Some of the key goals include recruiting top students and faculty in the International stage, fostering strong ties among Portuguese Universities themselves and Portuguese Universities with corporate affiliates, and creating an environment that functions on the global stage. Since its inception, the Program has made significant strides in achieving these goals.

In the first academic year (2007/2008), 29 students were enrolled: 11 Ph.D., and 18 professional masters. In the second academic year (2008/2009), 72 additional students were enrolled: two post doctoral, 22 Ph.D., and 48 professional masters. In the third academic year (2009/2010), 67 new students were enrolled: 20 Ph.D. and 47 professional masters. This increased the total enrollment to 168 students.

In February 2010, the first and second cohort of 60 Professional Masters students who have completed their programs requirements will participate in a single diploma ceremony which will be hosted in Portugal.

The Program involves nine Portuguese Universities: Univ. de Aveiro; Faculdade de Ciências Económicas e Empresariais - Univ. Católica Portuguesa; Faculdade de Ciências e Tecnologia - Univ. de Coimbra; Univ. de Madeira; Escola de Engenharia - Univ. do Minho; Faculdade de Ciências e Tecnologia - Univ. Nova de Lisboa; Faculdade de Ciências - Univ. de Lisboa; Instituto Superior Técnico - Univ. Técnica de Lisboa; and Faculdade de Ciências and Faculdade de Engenharia - Univ. do Porto.

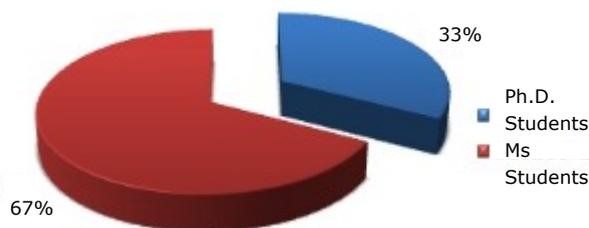
Partners:

Portugal Telecom, Nokia Siemens Network, and Novabase.

Affiliates:

Alert, Alfama, ANACOM, BANIF, Biodevices, Critical Software, EDISOFT, efacec, FiberSensing, Electricidade da Madeira, expedita, IMPRESA, InovaRia, Horários do Funchal, MacLaren, Metropolitano de Lisboa, Microsoft, NDrive, OutSystems, Petratex, Porto Editora, PT Sistemas de Informação, Priberam, Promosoft, sapo.pt, Telbit, Vodafone, WIPRO, wit software, ydreams, ZON Multimedia.

The Program has also strengthened the ties between Portuguese Universities and industry. Many corporate affiliates provide financial support to over 45 students in the Program, and many of these are now working with these companies after graduation. Currently, the Partnership has more than 39 industry partners. Their commitment to the Program includes: direct funding, human resources, logistical support and equipment for ten innovative research projects, which were selected by Open Calls.



Within the professional masters programs, international student enrollment increased to 21% in 2009/2010. A program that has been very successful in recruiting international students is the professional masters in human computer interaction, which now stands at 50% international enrollment. Currently, 13 different countries are represented in the Professional Masters programs: Australia, Brazil, Canada, China, Costa Rica, Germany, India, Portugal, São Tomé e Príncipe, Spain, UK, Ukraine, and USA. The professional master in software engineering has emphasized recruiting from industrial companies: in the 2008/09 class there were students supported by 3 companies, and in the 2009/10 class there are 9 companies involved. The programs in information networks and information security have been the choice of numerous staff members of Portugal Telecom. The Ph.D. programs have experienced similar international representation.

There are 15 countries represented in the Ph.D. programs: Bangladesh, Bosnia and Herzegovina, Chile, China, Croatia, Iran, Germany, Ghana, India, Italy, Netherlands, Portugal, Serbia, Thailand, and USA.

The mission of the Carnegie Mellon|Portugal Partnership is to create new knowledge in key focused areas of information and communications technologies by means of cutting-edge research, world-class graduate education, and a close connection with Portuguese Industry, thus placing Portugal at the forefront of Science and Innovation.

FCT Fundação para a Ciência e a Tecnologia

MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR

Student Profiles

Downsizing have made it harder than ever for managers to sort valuable data from information overload. It is not going to get any easier. But with ingenuity and perspective, and the help of some talented students from the Carnegie Mellon|Portugal Information and Communication Technologies Institute (ICTI), the world will soon learn how to survive information overload.



Mohammadreza Aghajani

Mohammadreza Aghajani of Mashhad, Iran, knows exactly what he wants to do for his career. A studious intellectual who spends his spare time reading ancient Persian literature, he is working to obtain a Ph.D. in electrical and computer engineering. His undergraduate degree is in electrical and computer engineering from Sharif University of Technology in Tehran.

His research interest is focused on control and estimation over communication networks. Recently, Network Control Systems (NCSs) have emerged in a wide variety of applications, as a confluence of extraordinary developments in both wireless and sensor technologies. Using shared communication networks to transfer data in these systems, new problems are introduced in estimation and control as a result of packet drops, delays and disorders in the network links. Basically, performance parameters and data transfer protocols used in the intermediate communication networks have a great impact on estimation accuracy and control strategies in NCSs.

"My research study focuses on these properties of NCSs and effects mentioned in the Wireless Sensor Networks area," said Aghajani.

Carla Costa

Carla Costa is an agent of change. She has spent one year at Universidade Católica Portuguesa in Portugal, and continues her graduate education at Carnegie Mellon in ICTI's technological change and entrepreneurship Program.

Costa is from Caldas da Rainha, a small town 60 miles north of Lisbon, and comes to the Carnegie Mellon|Portugal Program with a wealth of knowledge about government, consultancy, biotech business incubators, and university entrepreneurship offices. Her research interests focus on the intersection between innovation, entrepreneurship, and regional economic development.

Costa's goal is to contribute to a better understanding of the role played by universities in regional industry development, company and industry agglomeration mechanisms, and the role played by country-specific characteristics in those relationships. To this end, she is studying the roles played by university professors' and graduates' preferences, entrepreneurs' preferences and the role of universities in the creation of knowledge-based companies. "I would ultimately like to do some consulting and I may want to teach as my career matures," she says.



Costa praises the program, and is quick to add that the courses are challenging. She also comments on the cultural shock of first coming to the USA from Portugal.

"The pace is fast and often frenzied," she says.

But Costa says she is adapting. For example, lunch is a big meal in Portugal. But in the USA it is often skipped or lasts only a few minutes, according to Costa. Still, she praises Carnegie Mellon's multicultural environment for making her feel more at ease in a new culture. "It is an amazing environment and I want to continue to learn and grow, and the program affords me that opportunity," she says. Costa has already visited several USA cities including Seattle, New York City, Boston, San Francisco, and Washington, D.C.

Rita Ferreira



Rita Ferreira was quick to find balance between studies and sports. "At first, the program was a bit overwhelming, but I learned to adjust and now I'm learning so much," said Ferreira, who is enrolled in ICTI's applied mathematics program.

Rita's research areas are centered on continuum mechanics, the calculus of variations, asymptotic analysis and homogenization. The Lisbon native said she plans a career in academic teaching and research.

When she's not busy with school work, she is jogging through scenic Schenley Park, adjacent to Carnegie Mellon, or playing tennis and soccer via the university's extensive intramural sport program. Rita's research areas are centered on Continuum Mechanics, Calculus of Variations, Asymptotic Analysis and Homogenization. At the present moment I am working on homogenization problems, where we aim to derive the so called "homogenized models" that intend to describe the macroscopic behavior of a system which is microscopically heterogeneous. In other words, the heterogeneous material is replaced by a homogeneous fictitious one whose overall characteristics are a good approximation to the initial ones.

Best Student Paper in Distributed Systems Awarded

Henrique Moniz, a Ph.D. student in the Faculty of Sciences of the Universidade de Lisboa, won the "Best Student Paper" Award, published in the 23rd International Symposium on Distributed Computing - DISC 2009. This is one of the main international conferences in the area of theoretical distributed computing.

In developing the paper, "Randomization Can Be a Healer: Consensus with Dynamic Omission Failures," Moniz worked with senior faculty members of the Faculdade de Ciências da Universidade de Lisboa (FCUL) team: Nuno Neves, Miguel Correia, and Paulo Veríssimo. He says that "the paper solves the problem of consensus in environments such as wireless networks where communication failures are ubiquitous."

"Consensus is a fundamental problem in distributed computing because it allows the nodes that compose the system to agree on a common value," Moniz explains. "Basically, any kind of coordinated activity can be reduced to consensus."



"This contribution is important because it circumvents a 20-year old impossibility result," says Moniz.

For the team, this award "confirms previous acknowledgments of the high quality research that has been done for more than two decades, like the 2004 and 2007 IBM awards." To the student the award "represents recognition for the hard work involved in struggling with a problem during approximately a year and a confirmation that it is worth sticking to one's ideas." Until recently, Moniz was involved in the dual MSIT-IS professional master program as a Teaching Assistant.

Check the full paper at: <http://homepages.di.fc.ul.pt/%7Enuno/PAPERS/DISC09.pdf>

**Carnegie Mellon | Portugal Program
OPEN CALLS FOR RESEARCH PROPOSALS
2009**

<http://www.cmuportugal.org>

**Deadline submission for full proposals:
November 13th, 2009 (17h00 Lisbon time).**

Social Networks

<http://twitter.com/cmuportugal>
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**Admission Phase of the
Carnegie Mellon | Portugal
Dual Degree Ph.D. and Master programs**
<http://www.cmuportugal.org>

Carnegie Mellon|Portugal Program and Portugal Telecom Organize First Annual Forum on Cyber Security

On September 18th, 2009, in Lisbon, Portugal, the Carnegie Mellon|Portugal Program and the telecommunications company, Portugal Telecom (PT), held a forum to address "The Challenges of Cyber Security at the Turn of the Decade."

The goal of this event was to meet in one venue the major entities and companies responsible for national infrastructures and critical services in Portugal. They debated and checked the status of Critical National Cyber Security and shared their experiences and knowledge.

In attendance at the opening ceremony were: Carlos Alves Duarte, board member of PT Group, Pradeep Khosla, founding director of CyLab and the Dean of the College of Engineering at Carnegie Mellon University, and Manuel Heitor, Portugal State Secretary for Science, Technology and Higher Education.

The Forum was divided in three panels: "The Challenges of Cyber Security at a New Decade for Critical Infrastructures and Services", "Panorama of Cyber Security Research in Portugal," and "Building the CyLab Portugal Network with PT Security Lab." During the forum, researchers from Portuguese institutions and Carnegie Mellon University, managers from PT, and several entrepreneurs, discussed the ongoing research on Cyber Security.

The key lines of the PT Security Lab are: Secure mobile networks and systems; Secure computer platforms; Secure software engineering; Secure home networks and computing; Security of cyber-physical systems; Usability of security and privacy techniques; Advanced security event monitoring, correlation and viewing systems; Detection and prevention of internal attacks; Detection and prevention of external attacks; Security and risk metrics and models.

Portugal Telecom launches PT Security Lab

The center of expertise on cyber security, PT Security Lab, was created in collaboration with the Carnegie Mellon|Portugal Program, with Cylab, and with Portugal Telecom (PT). This center is a unique and cross-sectional framework for PT's cluster, concentrating know-how and resources. This center is being strengthened with the talent of the masters programs in the Carnegie Mellon|Portugal Program.

The PT Security Lab will leverage the capacity of innovation on cyber security, the development of new products and services adapted to the real problems of companies and public institutions, and will reveal Portugal Telecom like a major reference for cyber security in Portugal.

More information visit: www.ptsecuritylab.telecom.pt

Upcoming Event: Workshop "Experiencing Technology Transfer: Collaborating with Carnegie Mellon"

UTEN Portugal
University Technology Enterprise Network

November 8-10, 2009
Instituto Pedro Nunes, Coimbra, Portugal

This workshop is a collaborative effort between the University Technology Enterprise Network Portugal (UTEN Portugal), and the Carnegie Mellon|Portugal Program.

The goals of the workshop are to present the Carnegie Mellon University Model for Technology Transfer, focusing on licensing and patents, to the academic community, entrepreneurs, researchers, tech transfer officers, and graduate students.

The workshop participants include Tim McNulty, Associate Vice President of Government Relations at Carnegie Mellon University, Tara Branstad, Associate Director of the Center for Technology Transfer and Enterprise Creation ("CTTEC") at Carnegie Mellon University, and Mary Beth Shaw, Assistant General Counsel within the Office of General Counsel of Carnegie Mellon University, José Marcelino Pousa, director of Planning Control and Resources, and Isilda Braga da Costa, Legal adviser, both from PT Inovação.

Participants in the two-day's workshop will have the opportunity to discuss issues like Economic Development Strategy, Software Licensing Issues, Technology Transfer Office Models, Skill Requirements and Metrics to Measure Success, and License Provisions. In addition, they will have the opportunity to be involved in case-study presentations.

More information visit: www.cmuportugal.org

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