CMU Portugal

Exploring new research frontiers in ICT towards a global innovation ecosystem
CMU Portugal at a glance

Overview

The Carnegie Mellon Portugal Program (CMU Portugal) is a platform for education, research and innovation that brings together Carnegie Mellon University (CMU) and several Portuguese universities, research institutions and companies. This partnership was launched in 2006, and is split into two phases (phase I: 2006 – 2012; phase II: 2012 -2017). The third phase of the program started in 2018 and will convene through 2030.

Mission

The mission of the Carnegie Mellon Portugal Program is to place Portugal at the forefront of research and technological development in the area of ICT, by promoting an innovation ecosystem with a tight coupling between cutting-edge research, world-class graduate education, and highly innovative companies in the data-driven economy.
### CMU Portugal in Numbers (2006-2018)

<table>
<thead>
<tr>
<th><strong>Education</strong></th>
<th><strong>Research &amp; Innovation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>365</td>
<td>42</td>
</tr>
<tr>
<td>PhD and Masters students enrolled</td>
<td>Portuguese Institutions involved</td>
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<tr>
<td>118</td>
<td>19</td>
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<tr>
<td>PhD Students admitted</td>
<td>CMU Departments</td>
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<tr>
<td>247</td>
<td>50</td>
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<tr>
<td>Master students admitted</td>
<td>Collaborative Research projects</td>
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<tr>
<td>58</td>
<td>132</td>
</tr>
<tr>
<td>Dual Degree PhD graduates</td>
<td>Industry Partners</td>
</tr>
<tr>
<td>228</td>
<td>11</td>
</tr>
<tr>
<td>Dual Degree Master graduates</td>
<td>Startups created</td>
</tr>
<tr>
<td>41</td>
<td>118</td>
</tr>
<tr>
<td>Undergraduate Internships</td>
<td>Million $ of international investment by startups</td>
</tr>
<tr>
<td>68</td>
<td>400</td>
</tr>
<tr>
<td>Faculty Exchanges</td>
<td>Plus skilled jobs created by startups</td>
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</table>
CMU Portugal Governance

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CMU
Industrial Affiliates

Companies committed to actively contributing to the advanced education and research programs of the partnership, and also to increase their competitiveness by investing in R&D, in advanced training of human resources, and in building a highly skilled workforce dedicated to innovation activities.

* Pending legal confirmation
CMU Portugal 2006-2017
Phase 1 and Phase 2

A look into the past
Education and Research

**Dual Degree Ph.D.**  2006-2017

- Number of Admissions: 117
- Number of graduates: 50
- Electrical Computer Engineering: 16
- Engineering and Public Policy: 12
- Tech. Change Entrepreneurship: 10
- Language Technology: 5
- Computer Science: 4
- Applied Mathematics: 2
- Software Engineering: 1

**Undergraduate Internship Program**  Launched in 2014

- Total number of students involved: 41
- Computer Science Department: 14
- Electrical and Computer Engineering: 12
- Robotics Institute: 4
- Language Technology Institute: 3
- Other: 8

**Faculty Exchange**  Launched in 2007

- Total number of faculty involved: 68
- Electrical and Computer Engineering: 19
- Institute for Software Research: 13
- Computer Science Department: 9
- Human-Computer Interaction Institute: 6
- Other: 21

**Dual Degree Masters**  2006-2017

- Number of Admissions: 247
- Number of graduates: 228
- MHCI: 111
- MSE: 46
- MSIT-IS: 34
- MET: 19
- MSIN: 14
- MSIT-SE: 4

**Scientific Outputs**  2006-2017

- Journal papers: 250
- Conference papers: 550
- Conference presentations: 350
- Books or book chapters: 30
- Awards: 40
## Research projects

### 1st Phase

**2008 Call for Projects**
- 10 Projects funded
- Concluded in 2012-2013

**2009 Call for Projects**
- 15 Projects funded
- Concluded in 2013-2014

**2009 Joint Call for Projects with UT Austin**
- 3 Projects funded
- Partnership with UT Austin Portugal in Applied Mathematics
- Concluded in 2012-2013

### 2nd Phase

**2013 and 2014 Entrepreneurial Research Initiatives**
- 12 projects approved
- Integrated activities in research, innovation, advanced education
- with industry collaboration
- for real world impact
- approximately 11.5 million Euros
- four years

**2013 Early Bird Projects**
- 10 projects funded
- Jumpstart new high-impact initiatives
- emphasis on exploratory research
- approximately 300 thousand Euros
- one year
- two EBPs continued into ERIs in the second call

**2017 Call for Exploratory Research Projects**
- 8 projects approved
- Identify emerging key strategic areas for a potential third phase
- expected to finance 7-10 awards
- approximately 1.2 million Euros
- one year.
CMU Portugal 2018-2023
Phase 3

A look into the future
CMU Portugal Program – ICT focus areas

- Software Engineering
- Autonomy and Robotics
- Language Technologies
- Data science and engineering
- AI and Machine learning
- Design and engineering at large
3rd Phase Initiatives

**Education**
- Dual Degree PhD’s
- Executive Programs
- Visiting Faculty and Researchers Program
- Visiting Students Program

**Research**
- Collaborative R&D Projects
- Exploratory Research Projects (ERP)

**Strategic Areas**
Portuguese International Collaborative R&D Projects

Strengthen the implementation of entrepreneurship and R&D capabilities as key competences of Portuguese companies, mobilizing their collaboration with worldwide leading institutions to address global markets.

Promoted by FCT and ANI under the GoPortugal Initiative

GoPortugal (2018-2030)
Global Science and Technology Partnerships Portugal It aims to promote Portugal’s positioning in the World through entrepreneurial development and scientific and economic valorisation of the innovative agenda on "Atlantic Interactions" and attract human resources of recognised international merit to work in Portugal.
Portuguese International Collaborative R&D Projects

Objectives
Alignment with the national and regional Smart Specialization Research and Innovation Strategies
Foster industry-science relationships
Strengthen competitiveness and international integration

Funding and deadlines
Total Funding: 5 M€
Number: 2-4 projects
Maximum duration: 36 months
Call open in February 2019

Applications
Electronic submission in the Portal “Portugal 2020”
Project description in English.

Collaborative consortiums
Projects co-promoted by companies and other entities in the R&I System
Leadership by Portuguese company
At least two R&D centres in Portugal
At least one CMU research team

Research Topics
Information and Communication Technologies – addressing problems that are relevant to the industry, with particular emphasis:
Data science and Engineering
Artificial Intelligence and Machine Learning
Autonomy and Mobility
Design in a varsity of societal settings and applications
Exploratory Research Projects (ERP)

**Objectives**
- Bootstrap high-impact potential research activities
- High-risk/high-reward
- Significant future expansion

**Funding**
- Total Funding: 1 M€
- Number: up to 13 projects
- Duration: 12 months
- Call open early 2019

**Collaborative consortiums**
- At least one R&D centre in Portugal
- At least one CMU research team
- Industry partners is not mandatory but it is beneficial

**Research Topics**
- Information and Communication Technologies – ICT - with a focus on the opportunities provided by the data economy as a driver of growth and change.
PhD Programs

Objectives
Dual degree Ph.D. programs in selected cutting-edge areas of ICT
Graduates receive dual degrees conferred by Carnegie Mellon and by the affiliated Portuguese University

Research Topics
Computer Science
Electrical and Computer Engineering
Engineering and Public Policy
Language Technologies
Robotics
Software Engineering

Collaborative consortiums
Research in Portugal and at CMU
Co-advisors by CMU and Portuguese faculty

Format, deadlines and Funding
6 dual degrees scholarships for 2019/2020 academic year
3 years in Portugal + 2 years at CMU
Applications closed on December 31st 2018
Executive Programs

Objectives
Educating and qualifying active agents, aspirants or well established professionals, as well as researchers and academics to address the growing challenges resulting from the integration of technologies into different domains of our society

Research Topics
User Experience Design
Software Engineering
Machine Learning

Collaborative consortia
At least one University in Portugal
CMU
Industry partners

Formats
2 semesters
Short intensive course (e.g. 2 weeks)
Programs to start on Autumn
Draft proposal for discussion

Executive Program in User Experience Design

Preliminary participant institutions:
- Instituto Superior Técnico
- Carnegie Mellon University

Contact point in Pt:
Nuno Nunes; nunojnunes@tecnico.ulisboa.pt

Draft proposal for discussion

Executive Program in Software Engineering

Preliminary participant institutions:
- Universidade da Beira Interior
- Faculdade de Ciências da Universidade do Porto
- Universidade de Aveiro
- ISCTE-IUL
- Carnegie Mellon University

Contact point in Pt:
Nuno Pombo; ngpombo@di.ubi.pt

Draft proposal for discussion

Executive Program in Machine Learning

Preliminary participant institutions:
- Instituto Superior Técnico
- Carnegie Mellon University

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Visiting Faculty & Researchers

Portuguese Faculty at CMU University

Objectives
Immersion period of Portuguese faculty at Carnegie Mellon University to experience its culture and best practices in the field of research, education and innovation.

Funding
Number: 6 scholarships (€2,245.00/month)
Duration: up to 4 months
Call open from February 4th until March 3rd 2019

CMU Faculty at Portuguese Universities

A similar program is planned to be implemented for CMU Faculty members to be in residence at Portuguese Universities
Visiting Students

Objectives
Extend research opportunities to MSc and PhD students of Portuguese University to participate in research projects and be supervised by researchers at Carnegie Mellon University. This program aims to encourage and prepare graduate students to pursue research careers within the scientific areas of the dual degree doctoral programs offered by CMU Portugal.

Funding
Number: 8 scholarships (€1710,00/month)  
Duration: up to 6 months  
Call open from March 4th until April 5th 2019
AI Portugal 2030

An innovation and growth strategy to foster Artificial Intelligence in Portugal in the European context.

Promoted through the Coordination Office of the CoDe 2030 Initiative in close cooperation with the Portuguese Science and Technology Foundation (FCT), the Portuguese Innovation Agency (ANI), Ciencia Viva and the Portuguese Agency for Administrative Modernization (AMIA).

Draft, 31 January 2019