

Carnegie Mellon | Portugal

Undergraduate Internships Program Report

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This report summarises my work and activities carried out during my visit to Carnegie Mellon University from February 7th until March 5th, 2015, under the supervision of Professor Anthony Rowe (ECE).

Right from the start I was included in Professor Anthony's Research group which is composed of six Phd students, all in different stages of their studies and with specific set of skills. The group worked on a set of projects in parallel, in a set of smaller groups. Students would enter and leave each group whenever their specific set of skills were required. Every Thursday, the group would have a meeting discussing the progress on each of the projects, brainstormings on new ideas and projects and would usually end the meeting with a presentation from one of the students about a paper, experiment results or ideas to explore.

Through out the Internship, I worked on some of the projects, focusing on the software and hardware dealing with embedded systems. One of my first assignments was to develop a Python API for the Mortar.io platform that would enable other developers to easily and quickly integrate of their IoT devices on our platform. This was not an easy task for the same reason we decided to create the Python library. It's because the main applications are developed in the C computer language and it takes some time for newcomers to develop code given the dimension of the existing codebase.

My second task was to develop an energy efficient networking protocol in order to enhance the lifetime of battery powered embedded systems. This was a new field for me, which required a little extra work and cooperation from members of the group, especially related with hardware issues and testing. Besides these main tasks, I had many minor roles in some of the group's other projects including the design of 3D printed parts and cases for some prototypes.

I also took the chance to attend 8 different seminars/presentations related to my field of study. CMU has an intense seminar programme which enabled me to be exposed to the most current state of the art in my field of study.

This internship inspired and motivated me to continue my studies as a Phd student in a double degree program. A special thanks goes out to Ricardo Lopes Pereira, all CMU Portugal students and all the members of professor Anthony's group which all are remarkable people.

In conclusion, all the aspects of this internship can be summarised as a great experience from the educational, social, cultural and personal points of view. Life in Pittsburgh is culturally very diverse and active, on and off-campus.

Finally, I would like to thank the Carnegie Mellon University (CMU), the Portuguese Foundation for Science and Technology (FCT), the Carnegie Mellon Portugal program and all of their members for the opportunity and support through this internship.

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