

Faculty Exchange Program Final Report

December 17, 2014

This report provides an overview of the activities carried out during my visit to Carnegie Mellon University (CMU) sponsored by the CMU-Portugal Program. The visit took place between September and December 2014 and was hosted by Professor Manuela Veloso of the Computer Science Department. My participation in the Faculty Exchange Program was mainly focused in research.

For this purpose, I integrated Professor Manuela Veloso's group, the CORAL research group, focused on the study of autonomous agents that Collaborate, Observe, Reason, Act, and Learn. I participated in the weekly group meetings, which were attended by all the members of CORAL group (~17) namely undergraduate, Master, and PhD students, and a postdoctoral fellow. There was an interesting research presentation of the work of one member of the group every week. I also presented some of my research.

We were able to address a concrete research project, and we developed a method to detect the approaching of a person to an autonomous mobile robot platform equipped with a depth camera, such as a Kinect. The detection algorithm and implementation was successfully tested on the CoBot robots (developed in the CORAL research group, www.cs.cmu.edu/~coral/cobot). The method, tested in different human approaches, enables the robot to initiate an interaction with an approaching human in the natural way, such as saying "Hello human."

I was also invited by Professor José Moura, of the Electrical and Computer Engineering Department, to participate in the weekly meeting of his research group. I also presented some of my recent research and interacted with some of graduate students. In both groups, I realized the key role of these periodic meetings and discussions in order to share ideas between all members of the group.

During this period, I also attended the weekly classes of the graduate course on Planning, Execution and Learning (15-887) where I updated my knowledge

about these important issues in the robotics field. I also attended many seminars hosted by the various departments of the School of Computer Science, in particular Machine Learning, Computer Science, Robotics Institute (RI) and Vision and Autonomous System Center (VASC) seminars.

All the mentioned items research, classes and seminars allowed me to capture a holistic view of a top university as Carnegie Mellon University.

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