

CMU-Portugal Faculty Exchange Program Final Report

Participant: Pedro Miguel Alves Brandão

Host: Anthony Rowe, Electrical and Computer Engineering Department

Period: June 30 - September 2, 2012

This report summarizes the activities I undertook while at CMU under the faculty exchange sponsored by the CMU-Portugal Program.

My host was Prof Anthony Rowe, who works in systems research, ranging from real time embedded systems to light-weight computer vision. Our point of common interest is sensor networks and embedded systems. I was introduced to the Sensor Andrew project and team, which Prof Anthony is co-leading. During my stay I attended the group's meetings which enabled me to interact with the PhD students and faculty involved. Namely, I meet and discuss with Prof Mario Bergés from Civil and Environmental Engineering that co-leads the project. This allowed me to experience how the group's organization, objectives' discussion and goal setting fostered development and achievements.

The interaction with the Sensor Andrew group led to a better understanding of the platform in its current form. This spawned some opportunities for collaboration. A proposal for abstracting information and routing these abstraction messages within the framework was discussed and is to be developed in a PhD co-oriented.

I also took the opportunity to contact researchers in my field while at CMU. I had a good talk with Prof. Daniel Siewiorek regarding his work on the Quality of Life Laboratory, namely on the virtual coach projects and the health kiosk. This provided a valuable input on approaches for information correlation and usability problems particular groups of users.

The Body Track project from the CREATE Lab was another relevant project that provide insight into data aggregation and user needs, namely the quantified self vision. Anne Wright, the project's director of operations, was very helpful and gave me a thorough explanation on the projects objectives and future directions. Future collaborations were discussed, namely the possibility of using the system to connect different devices and to use the hosted information in different ways.

Prof Ndubuisi Ekekwe is part of the CMU faculty in Rwanda, under the CMU in Rwanda program. His entrepreneurial strive and electronics background has led him to pursue telemedicine projects to deploy in Africa. In our discussion he described his ideas on the subject and we discussed a possible cooperation to provide part of the infrastructure for the project.

I also had the opportunity to talk with Prof Nicholas Christin within the scope of his security work (economics, usability and modelling) and his experience with the INI program. An opportunity for collaboration with regards to security in medical devices was also discussed.

Prof José Moura also indulged me in a discussion of my research which led me to reflect on some of its aspects and possibilities.

Regarding the teaching component of the exchange, some gain was also possible, although the short visit fell in the summer months. It was not possible to attend the summer courses due to schedule issues. Nonetheless, the visit's time frame allowed for the opening of classes in the Fall semester. This enabled me to attend some classes to understand the approaches used (from Prof Virgil Gligor, Prof Adrian Perrig and Prof Anthony Rowe). Prof Anthony Rowe was responsible, in this semester, for 18-648 Embedded Real-Time Systems. This allowed discussions on the course structure and organization and also participation on a students' initial pre-assessment small test. Prof Anthony Rowe is also responsible for 15-213 Introduction to Computer Systems on which he also provided information regarding the content, structure, lab assignments and their automatic evaluation.

Overall the experience was very rewarding as it allowed me to interact and get to know other approaches and methodologies for teaching and research. The possibility of future cooperation is definitively another positive gain of this visit.

I want to thank Prof Anthony Rowe for hosting me and the CMU-Portugal program and its operational infrastructure for providing me the opportunity and support.

Pedro Brandão