

CMU|Portugal Faculty Exchange Report

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Period of 2.5 months between 18th October 2010 and 15th April 2011

In this short report I describe the work performed and the experience in CMU.

My faculty exchange was different from previous ones, as it was performed in several visits (5 in the total), each one of 2 weeks.

In terms of Teaching, I have been involved in the Course Instructed by Professor Peter Steenkiste 18-345: Introduction to Telecommunication Networks, which is an optional undergraduate course. The experience in a CMU course, with all involvement of Teaching Assistants, the overall coordination of homeworks, projects, quizzes and exams, was very valuable, as I was exposed to completely new practices and approaches in CMU.

In terms of Research, I worked both with Professor Peter Steenkiste and Professor Ozan Tonguz. The area being pursued in this cooperation is the vehicular networks, which we are jointly exploring also in the framework of the CMU|Portugal DRIVE-In Project.

My work with Peter was centered on the study of congestion control in vehicular ad-hoc networks, addressing and evaluating different paradigms of congestion control in these environments. This work was performed with our Dual Degree PhD Student André Cardote.

We also performed several brainstorming sessions to plan the work of new PhD Students, such as the case of João Nogueira, a Dual Degree PhD Student just admitted in the CMU|Portugal PhD Program. We are now pursuing the work in vehicular communications addressing the inter-modal aspects of these environments, including several transportation means, pedestrians, and the integration of a wireless backbone.

My work with Ozan addressed the study of the impact of road side units in the performance of vehicular communications in sparse scenarios. This work was performed with our Dual Degree PhD Student André Reis. We have developed an analytical model and complemented this model with simulation results, and also experimental results taken from a set of tests in our vehicular testbed in Aveiro. During my stay in CMU we were able to write 2 papers: one paper submitted and accepted in IEEE 73rd Vehicular Technology Conference (VTC 2011-Spring), and another paper is ready to be submitted to IEEE Transactions on Vehicular Communications.

Also with Ozan, we performed several brainstorming sessions to plan the work of new PhD Students, such as the case of Romeu Monteiro, a Dual Degree PhD Student just admitted in the CMU|Portugal PhD Program. The plan established is in the area of self-management, applying fundamental self-organizing concepts, such as biology inspired concepts, in vehicular networks.

The cooperation was therefore very fruitful and, due to the number of joint Students involved, it will steadily continue and more visits to CMU, although shorter ones, are planned in the next year.

10th May 2011