Faculty Exchange Program – Final Report

This report briefly summarizes the activities related with my participation in the Faculty Exchange Program, carried out during my stay at CMU from August 18th to December 15th, 2011.

Concerning the teaching activities, I joined the teaching team of the graduate level course Applied Stochastic Processes (18751), instructed by my host at CMU, Prof. Ozan Tonguz. This experience gave me the opportunity to be closer to the teaching practices adopted by the Department of Electrical and Computer Engineering, namely in terms of the organization of the course and the involvement of the teaching assistants in the different teaching activities. At the same time, I highlight the vast amount of different topics covered during the semester.

During the semester I also attended two other courses offered by different departments, Engineering Optimization (24785) - Department of Mechanical Engineering and Methods of Optimization (21690) - Department of Mathematical Sciences, to experience the teaching methods employed in some of the most difficult courses offered at the undergraduate level.

During my stay at CMU I had several meetings with Ozan Tonguz to discuss open research points in VANETs, particularly the need of novel MAC protocols to support both safety and infotainment applications. These meetings were very motivational and I am already using some of the discussed points, such as specific system requirements, in my actual research. During the last two months of my stay in Pittsburgh I started new readings related with existing biological models that can inspire the design of new algorithms to address decentralized control policies in mobile wireless networks. I studied the specific application of cell pattern formation in mobile wireless networks, and I evaluate several algorithms through simulation. I plan to develop this topic in the next months.

 The weekly based research group meetings were always challenging and good to identify new research directions in different topics previously investigated by the group members. In this context, I presented an outline of my previous research work related with specific MAC protocols for distributed wireless networks. I had regular meetings with other visiting scholars, namely with Yi-Sheng Su, and we planned future research cooperation. I also had interesting discussions with Jilles Vreeken, a Dutch post-doc researcher in computer science, which motivate the writing of a joint research project proposal in the area of intelligent public transportation.

My participation in the program was an enriching and encouraging experience. I experienced a new culture, new organizational practices and the extremely dynamic and stimulating environment at CMU. Finally, I would like to thank to all the ICTI staff for all the support related with the details of this visit.

Pittsburgh, December 15th, 2011.
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