

# Undergraduate Internship Program

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This document describes my work and activities carried out during my stay in Pittsburgh, in an internship at Carnegie Mellon University (CMU). The internship was on the Electrical and Computer Engineering Department (ECE), under the supervision of Professor Shawn Blanton. It was a three-month internship, from February 9th to April 30th, 2015.

The main goal was to implement a novel security system in an hardware. The security system is an innovative project from the Statistical Learning in Chip (SLIC) Group, since it is the first security system that has the ability to learn with previous actions of the user. It was proposed this year by Xuanle Ren (PhD student), Professor Shawn Blanton (my host at CMU) and Professor Vítor Tavares (my supervisor at FEUP), so I had the opportunity to work directly with them. All the proposed schedule and tasks were accomplished with success and the final result was a complete implementation of the system in a board.

Besides this contact with my host Professor and with the PhD students that I was working with, I had the opportunity to join the weekly meetings of the Statistical Learning in Chip Group with Professor Don Thomas and four more Ph.D students. I led this meeting two times, where I presented my work and got some excellent feedback about it. Also, Professor Shawn Blanton invited me to join the Advanced Chip Test Laboratory weekly meetings with all of his eight PhD students that are working on the Circuit Testing area. Both of these meetings were very enriching, allowing me to learn a lot in different fields that I had no previous knowledge.

I participated in several faculty candidate seminars related with the work of the SLIC group which were very stimulating and I had lunch with Professor Shawn Blanton twice, not only to discuss the work, but also the American culture and activities in the city of Pittsburgh. Finally, I attended a lunch sponsored by CMU Portugal in my last week at CMU, which provided the opportunity to share the experience of this internship with Professor João Claro and with the CMU Portugal staff.

The whole experience was absolutely great, in a professional, cultural and social standpoint. I was in touch with the best research that is being done in ECE and in a city that has a lot to offer.

Finally, I would like to thank the Carnegie Mellon University and the CMU Portugal Program and staff, the Portuguese Foundation for Science and Technology (FCT) for the support and the Professors Shawn Blanton and Vítor Tavares that worked with me.