Undergraduate Internship Program

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The purpose of this short report is to summarize the activities developed under my stay at Carnegie Mellon University at the Center for Silicon System Implementation (CSSI) of the Electrical and Computer Engineering (ECE) department, hosted by Professor Xin Li, from February 16th to May 1st.

The main goal of my stay was to develop an hardware implementation of the BM3D image denoising algorithm. This task involved the functional analysis of the algorithm in order to find bottlenecks which are more suitable to be hardware accelerated, leading to reduced execution time and power consumption. At the end of my stay the hardware module description and validation was complete.

I had weekly meetings with my host, as well as Professor Don Thomas, and their students involved in hardware implementation projects. In these meetings, we all presented our latest work and shared ideas and comments on the development of each one's projects, which was of great importance to the development of my work.

The working environment at the CSSI was very interesting, with high cooperation between all students and Professors. Furthermore, I had the opportunity to attend several lectures given by leading researchers on various subjects, for example, novel manufacturing techniques for integrated circuits.

On my last week on the CMU campus, I attended a lunch sponsored by CMU Portugal, where I shared my experiences with other students, staff and some of the professors involved in the CMU Portugal community.

Globally, my participation in this Program was very enriching, not only on a professional note, but also on a cultural and social level, because I had the opportunity to meet people from other cultures and experience the amazing city of Pittsburgh.

As a final note, I would like to thank Carnegie Mellon University (in particular, Prof. Xin Li), the CMU Portugal program and the Portuguese Foundation for Science and Technology (FCT) for the support provided. I would also like to thank Prof. Vitor Grade Tavares (FEUP) for encouraging my application to this program and for the orientation provided during my stay.