Undergraduate Internship Program Report-Spring 2017

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From January to March 2017 I had the fantastic opportunity to work at Carnegie Mellon University, in Pittsburgh. This report presents the research I conducted there, and some of the amazing experiences I lived during this short period of time.

I was sponsored by professor Rodrigo Ventura and hosted by professor Manuela Veloso. As soon as I arrived, professor Manuela joined me to the CORAL group and gave me access to the tools to start my work.

The initially proposed research was modified, due to software issues, and for that reason my work focused on identifying people from their voices. Voice processing is currently one of the emerging topics concerning the improvement of human-robot interaction. It is possible to create a more personal relationship between humans and robots by allowing the robot to address a person by its name.

The system was implemented on Cobot robot. The robot starts by asking something to the person with whom it is interacting to while recording its voice. After recording the voice, Mel Frequency Cepstral Coefficients (MFCCs) features are used as a way of representing the voice. A vector quantization algorithm, called Linde–Buzo–Gray, is applied to the features to reduce the data size. Finally, a model for feature optimization is created to improve the correct recognition of people.

Besides work, I attended to several talks and seminars provided by the university which all had the great advantage of free food! I also had the chance to visit google office in Pittsburgh by Professor Manuela invitation.

At CMU I also enjoyed the gym and Friday´s movies night.

Pittsburgh is a beautiful city with plenty of things to do, especially if you are a hiking fan. On spring, CMU organizes several hikes through some of the best trails around the city. There are also museums and a lot of city events which will allow you to enjoy the American way!

A special acknowledgment to Professor Manuela for all the support, and thank you CMU Portugal for letting me to participate in this program.