

CMU Portugal

Undergraduate Internship Program - Summer 2016

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This report summarizes the activities carried out during my internship at CMU, which took place from July 15 to September 15, 2016. I was hosted and supervised by Professor Gary Fedder. During my stay, I integrated into a team-based project to develop soft parylene-platinum neural probes for the vagus nerve.

Firstly, a literature review for electronic front-ends for neural probes was done. Doing so helped me understand the neural signal characteristics, what kind of specifications were present in state-of-the-art circuits and set a baseline for the potential impact of the work.

Then, an effort was made in the design and development of a front-end architecture in CMOS for recording neural signals from the peripheral nerve. The design was not fully completed as the complexity was too large for the small time period, but doing so will probably be the theme of my Master's dissertation.

I also participated in weekly research group meetings to learn about the application, processing, and testing aspects of the overall probe project. The feedback I received on my work during these meetings was extremely valuable. Besides that, being able to discuss ideas with PhD students from my group daily greatly improved my teamwork skills.

In the end of the internship, a presentation was done in order to show the results of the internship and also discuss what can be done to develop it even further.

Besides the professional enrichment, this internship allowed me to embrace a completely new culture and to live in the incredible city of Pittsburgh, which I am very grateful of.

Lastly, I would like to thank the Portuguese Foundation for Science and Technology and the CMU Portugal for the support provided.