

Alumni Feature: Junior Samuel Lopez Yopez, postdoc from Kvitsiani Group

In brief, tell me about your specific field of research and explain why you are interested in this particular area?

I focused my research on understanding the decision-making process under uncertain conditions. I found the development of algorithms that could mimic the complex decision-making process, and how neurons could implement them fascinating. Just imagine that we could come up with a formal framework that could explain why fundamental decisions are made and under what conditions. And not only that, how all this information is represented and used in neural circuits. In very general terms, from my perspective, understanding the decision-making process is understanding the purpose of the brain. In a very philosophical view, our purpose.

What was most memorable to you about your experiences in your PhD and postdoctoral program, and what was most memorable to you about your experiences at DANDRITE and Aarhus University?

For both questions, it is the same answer. For me it will be the people. The opportunity to meet and learn from amazing and diverse people from around the world will be the most memorable. From lab visits and conferences abroad to my regular meeting with my amazing colleagues. It helped me grow as a person and as a professional more than I could have imagined.

Can you describe your career path to us? Where are you now?

I am a biomedical engineer with a master's degree in applied physics. Before starting my PhD at DANDRITE, I did an internship on new nanodevices for bioinspired computing. I have been fascinated by the topic of how to generate intelligent agents since then. During my time at DANDRITE, I applied and gained knowledge by building new devices and analyzing neural activity and actual animal behavior. Currently, I work as an Artificial Intelligence (AI) Scientist at Thales Group's R&D institute CortAIx.

How have you used your skills and experiences gained at DANDRITE and Aarhus University in your subsequent positions?

With the experiences that DANDRITE and Aarhus University have given me, I can now discuss scientific issues more objectively. I have been able to research on cutting edge techniques. I can also plan how to develop some ideas around a very specific topic. And I must say that, inspired by the behavior of mice and humans, I learned to develop better Artificial Intelligence (AI) algorithms. In my current position, I hope to create and apply algorithms in products for artificial and augmented intelligence in areas such as defense, cybersecurity, and aerospace.

What advice would you give to someone who is considering pursuing a doctorate within science?

A PhD is a great, valuable, and amazing experience. However, it's probably not the way you're thinking right now (and it will probably take you to places you weren't expecting at all). You have to be sure that this is the path you want to take. Because a PhD comes with a lot of responsibility and several challenges (some are fun and many are not). You will probably feel ignorant like never before and will have to deal with frustration many times. And it's okay to feel that way sometimes. You will also feel great at other times. This is all part of the journey and it is worth it. Never take things related to your project too personal (trust me in this one). And above all, enjoy this welcoming institute, the city that surrounds you, the great people you will meet, and this incredible journey.

Text by Junior Samuel Lopez Yopez