Ever since I decided to pursue a Bachelor's degree in Physics at the age of 17, I have been passionate about research and its potential to solve complex problems. Throughout my undergraduate years, I gravitated toward experimental physics, and by the time I was nearing the end of my degree, I began actively participating in research in the same laboratory where I would later complete my Master's. This early exposure to research not only solidified my interest in the field but also set the stage for my academic and professional journey in materials science.

During my Master's in Materials Science and Engineering, I specialized in the characterization and application of 2D materials, which I find particularly exciting due to their promising potential in various cutting-edge technologies. Specifically, I focused on the development and characterization of nanocomposites, exploring their use in a wide range of devices, including sensors, organic photovoltaics, transistors, and light-emitting diodes (LEDs). One of my major research projects involved studying an aqueous solution nanocomposite made from two commercial materials: the conductive polymer composite PEDOT:PSS and 2D-MoS_2. The primary goal of this project was to investigate the potential of this nanocomposite for use in transparent electrodes for organic photovoltaic devices. The combination of these materials offered a unique opportunity to explore the properties of 2D materials in real-world applications.

The techniques used were Scanning Electron Microscopy (SEM) and Transmission Electron Microscopy (TEM) for morphological characterization; electrical conductivity and temperature-dependent electrical conductivity measurements for the electrical characterization; and Ultraviolet-Visible (UV-VIS) spectrophotometry and Raman spectroscopy for the optical characterization.

This work was presented at two international conferences, and in addition, a paper is currently in the process of submission.

After my Master's, I started working at the SENAI Institute for Innovation (ISI) in Brazil, where I focused on lithium-ion batteries. My work primarily involved the synthesis and characterization of a lignin-based anode. During my time at ISI, I gained experience in additional characterization techniques, such as Dynamic Light Scattering (DLS), rheology, X-ray diffraction (XRD), and cyclic voltammetry (CV).

Working at ISI also allowed me to see the "other side" of research—the industrial side. It was a valuable opportunity to experience firsthand what it's like to work with research at a larger scale.

During my time as a physics student, I tutored for two semesters in the course Pre-Calculus. This experience allowed me to develop my teaching skills by helping students with exercises and assisting them in understanding the subject matter. Additionally, during my Master's, I worked alongside my advisor in one of their classes. It was an experimental physics course, where I assisted students in conducting experiments and also provided theoretical explanations when possible.

I believe that my experience with research during my Master's and at the SENAI Institute for Innovation has provided me with a unique perspective on solving problems related to materials research. Additionally, my hands-on experience in the laboratory will be valuable as I pursue my PhD. At EPFL, I would like to continue working with 2D materials and devices. I believe that Professor Andras Kis would be the ideal mentor to help me continue on this path. I have already made contact with him and would be eager to work with him.

In summary, I believe I bring with me research experience, industry-sharpened laboratory skills, and above all, an insatiable desire to learn and excel. I look forward to the next milestone in my life – a PhD in Materials Science and Engineering from EPFL