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Dear examining commission, with this letter I would like to express my interest for the Ph.D. position in computer science at UVA's School of Engineering and Applied Science.

Background. During my bachelor's degree in Electronic Engineering at the University of Antioquia I had the opportunity to explore several sub-fields of electronics, and the one that intrigued me the most was digital systems. I decided to push my education further and joined the double degree program with the Politecnico di Torino, where I obtained my M.Sc. in Computer Engineering, with focus on Embedded Systems. For my thesis, I developed a software application for secure passwords storage, that leveraged heavily on the capabilities of the SEcube framework, an open source security-oriented hardware platform with an accompanying set of software libraries. After graduating, I was hired as a software developer for an automotive infotainment project at Marelli, where I was able to hone my skills in embedded software development in C/C++ within a Linux ecosystem. Three years later I started my path as researcher at Politecnico di Torino. Over the past year, I have been working on three different projects, two of which focus on bioinformatics algorithms and technologies, and the third on heterogeneous architectures. In addition to my research, I am also serving as a teaching assistant in the computer engineering department. Thanks to all of these experiences I have improved not only my hard skills, but I have also learned to collaborate with clients, colleagues and students, and to manage my own time and work under pressure with tight deadlines. I have become comfortable with multitasking as well as with investigating on my own new topics that I am not familiar with. I have learned to explain myself better and to support others as well as to ask for help when I need it.

Research interests. Computer architectures and their inner workings have always fascinated me. The opportunities to improve computational performance utilizing new emerging technologies, such as neuromorphic designs, and their integration with traditional ones like CPUs, GPUs and FPGAs is a topic I would love to investigate. In terms of applicability, I am interested in bioinformatics because of the impact it can have on medical research, and the challenges it posses due to the large amounts of noisy data that needs to be analyzed, requiring high computational power and the use of innovative disciplines like machine learning.

Why a PhD. After three years working in the private sector, I wanted to try something that had always captivated me: academic research. I wanted to challenge myself and be part of an environment where I could learn and explore new ideas with experienced researchers. I wanted to be part of the scientific community, where open source code and peer-reviewed journals are the norm. I wanted to be in the frontier of knowledge.

From my ongoing experience as a research assistant, I have confirmed that my choice was correct and that my passion for computer technologies and their application to solve real-world issues is genuine. I am confident in my abilities and am ready to take on the challenge of starting my Ph.D. at UVA, that will allow me to continue my research activities while also allowing me to engage with academia, both as a student and as a teaching assistant.

Why UVA. UVA captured my attention for being one of the top-ranked public institutions in the USA, with a strong focus on research activities. The diversity of the programs and multidisciplinary Labs suggest that students can collaborate with colleagues from other departments in projects that can have a significant impact on society. Out of the programs offered I have chosen computer science as it is the one that aligns better with my background, and with one of the topics I would love to investigate which is computer architectures. Looking at the faculty members, their published papers and their current work, I was able to find professors with whom I would like to work on interesting and challenging projects, involving the improvement of existing technologies like GPUs, and the design of hardware accelerators for bioinformatics algorithms.

Aspirations. As for my aspirations in the near future, I hope to make a meaningful contribution to the scientific community. I would like to become an expert in a niche field while also maintaining a broad perspective on interesting topics. I would love to be able to guide and support new students and researchers, just as I have been guided.

Sincerely,
Walter Gallego Gomez