

To whom it may concern,

My name is Sandra, and I have studied Physics and a Master Degree in Mathematics while I have been working on different experiences as you can see in my CV. In the master degree you can find that I have attended courses like Computational Mechanics, Hamiltonian Systems, Dynamical Systems, and Numerical Methods for Dynamical Systems.

You can find the project that we have develop in the master degree here: <https://upcommons.upc.edu/handle/2117/78470>

In this project we have found all the singularities that present the Friedmann-Lemaître-Robertson-Walker Universe with a nonlinear equation of state. We have studied the different cases and we have found a generic classification that depends on two parameters of the non-linear equation of state.

During my studies of Physics, I have focused on theoretical Physics. I think that this has made myself a problem solver, because these courses were focused in solving problems of physics and mathematical physics in their different theoretical frameworks. After that in the master of Applied Mathematics, I have seen more applications in which I can collaborate and I have passed with excellence a couple of courses as Hamiltonian Systems and Numerical Methods for Dynamical Systems. In the course of Numerical Methods, my interest for computing and algorithms grew, as I can see different applications. At this moment, I only knew FORTRAN as a programming language.

But at the age of 34, I have been contracted by a little enterprise that had a project that melted different areas of knowledge. In the first three months I had an intensive formation on c# and object oriented programming. We have built some programs in that process, which I think are very interesting, and shows some resolution of mathematical algorithms. Furthermore we build some applications of unity in 2D.

After that, I began to work on a project of building an algorithm that behaves as an audio music recognition. For building this tool we have had to understand how to implement the Fast Fourier Transformation in a program, furthermore, we have done a research for building and spectrogram and taking the most characteristic points for recognize the song that it is, and we have had to deal with the problem of a noisy ambient. We were three people working in that algorithm, my boss who is a recognized video game developer, an electronics fellow, and me.

After that I have worked as a programmer as you can see in my CV.

Currently I am doing lessons as a teacher in different topics of electricity and renewable energies and I continue learning day by day. I enjoy building new practices in the laboratory and managing different tools.

Maybe I can be wrong, but I think that I have a good profile, I am able to learn different topics, and currently I have knowledge of physics, some computer capabilities and enjoy being in a laboratory.

Furthermore, there is still a passion for researching and developing projects. I think that developing a PhD is a great opportunity for growing in that sense, and could be something that makes sense to all these changes and things that I have learned during this way.

Sandra Hidalgo