



The University of Texas  
at El Paso

**Mr. Leobardo Valera, Msc**

October 29, 2017

To whom it may concern

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Dear Sir or Madam,

It is a privilege and a great pleasure to share with all of you my impressions about Dr. Martine Ceberio. I met Dr. Ceberio when she started her work with the Army Research Lab in April 2013. The Co-PI of this project, Dr. Miguel Argaez, was my advisor at this time. I decided to work directly with her in Summer 2014 when I wanted to change my research to her interest.

When I started to work with Dr. Ceberio, I was very new at UTEP, and it was the first time I was working on a big project. Additionally, in that time, my English was not fluent, and my public speaking skills were weak. Dr. Ceberio, patiently and friendly suggested me to take some English classes and encourage me to attend some conference. These requests helped me to improve my English and developed confidence in me when I needed to present in some conferences.

I am not the only one who Dr. Ceberio has mentored. She created and started the Constraint Research and Reading Group (CR<sup>2</sup>G) over a decade ago, which gathers undergraduate and graduate students with interest in symbolic-numeric computations, interval arithmetic, constraint solving, optimization, (multi-criteria) decision making under uncertainty. She advises the ACM-W chapter at UTEP and several groups of high-school students.

Being a mentor is just one facet where Dr. Ceberio has shown outstanding results. I have had the opportunity of knowing her as a teacher from two points of view: as her teaching assistant and as her student.

As a teaching assistant, I have been a witness of how she selects exercises and activities to reinforce the concepts that clearly the majority of students had had difficulty to understand. As a student, I attended her classes of CS1 (CS1301/CS1101) and Problem Solving (CS5354). In both classes, Dr. Ceberio demonstrated her mastery in the subjects she was teaching. She has the ability of paraphrasing any problem in a way that any student can understand, and she also explains the concepts in a real-world context answering in advance the typical student questions: "where... how... when am I going to use that?"

Nowadays, working in teams is very important. Knowing that, Dr. Ceberio develops activities where working in a team is the best way to have the activity done. In those activities, the students develop a sense of unity and enthusiasm to reach the common goal that was assigned to them.

Dr. Ceberio also has been an advisor to Master and Ph.D. students. As my advisor of my Master degree, she guided me through the difficult but exciting path of researching, writing, and defending my Master thesis. In the stage of writing, she meticulously revised my thesis and provided me suggestions of how to make myself clear to prevent to leave ambiguities in my manuscript. When the defense day arrived, we discussed what would be the best way to make the defense in order to prevent to leave any margin for doubts.

Dr. Ceberio helped me to obtain my Master's degree by sharing her knowledge as a teacher with me and leading me as a mentor. Thanks to her, I was awarded with the Academic and Research Excellence Graduate Student Computational Science.

Dr. Ceberio has been my mentor and my teacher/advisor, but we have been also partners in research. Since the first day of working together, we have collaborated with each other, seeking the best way to find a subspace containing the solution of a large nonlinear system of equations (ROM). This research was the main topic of my Master thesis, and her contributions in this matter led us to write a couple of articles, which one of them was an Outstanding Paper Award at the 34th Annual Conference of the North American Fuzzy Information Processing Society NAFIPS'2015.

Having proven her ability to reduced large problems, Dr. Ceberio started to work with nonlinear dynamic systems, whose analytical solution does not exist and it has to be found using numerical computations. The nature of the problem and the numerical approach lead to having very large nonlinear systems of equations where uncertainty is always present. Dr. Ceberio handled the uncertainty present in this kind of problems using Interval Constraints Solving Techniques (ICST) and Interval analysis. ICST is well-known for providing a reliable solution to any system of equations, but it has the drawback of overestimation and large runtime. Dr. Ceberio was able to overcome successfully both inconvenient using together ICST and ROM. Solving this problem is very important because allows her to estimate parameters to prevent undesired situation on dynamic systems. Knowing how to prevent undesired events on these kind of systems is a cornerstone in simulations made in the Army Research Lab, which means that this was one of the many successes achieved by Dr. Ceberio. This approach has been presented in several conferences and, It has received positive feedbacks.

In conclusion, Dr. Ceberio is a person who has three qualities that make her an outstanding professor: she is a patient mentor, a good teacher, and a remarkable researcher.

Sincerely,

Mr. Leobardo Valera, Msc