

Executive Summary

I have been an associate professor since September 2012. During these years, I have continued to pursue my goals of excellence, just like I had before being granted tenure. I continued to embrace UTEP's mission, which is Access and Excellence, pursuing a research agenda of quality, as demonstrated by publications and funding level, and engaging students in research and in community building to enhance recruitment and retention in our computer science program.

Specifically, I have developed and deepened a research program focused on optimization and uncertainty quantification (research funded by ARL through the Army High-Performance Computing Research Center at Stanford since April 2013 – \$1,184,000). I have also contributed to my research community by organizing and chairing several international events (including the Annual International Meeting of the North American Fuzzy Information Processing Society – 2011 and 2016). I have developed my activities aimed to enhance recruitment and retention of students in our computer science department, for instance by creating an ACM-W chapter at UTEP, by leading the NCWIT AiC El Paso affiliate, by designing computer science summer camps, and by hosting high-school students as research interns in summer. I have also been involved in projects that aim at understanding the challenges faced by latin@s in engineering (NSF Research on Gender – \$524,900), and enhancing the retention of our majority-minority students in computer science (NSF IUSE/PFE RED – \$4,992,592).

□ Teaching

Since 2012 at UTEP, I have taught a number of classes: mostly undergraduate-level courses because of the need to cover a list of required courses and to give way to more junior colleagues to teach graduate courses.

In particular, I have taught five core courses (two undergraduate courses, three graduate courses), one regularly offered elective course (artificial intelligence at both the undergraduate and graduate levels), and four special topics or topics in soft computing (undergraduate) / emerging programming paradigms (graduate).

Beyond training and mentoring students enrolled in my courses, I value mentoring and I dedicate a great part of my time to it. During my time at UTEP, I offered and taught over 10 independent study projects as an additional way to mentor students. Shortly after joining UTEP, I created the Constraint Reading and Research Group (CR2G): over the years, this group has gathered a total of four PhD students, eight Master's students, about 20 undergraduate students, and 15 high-school students.

□ Research

My main drive in conducting research in computer science is to enhance decision-making processes: automating decisions while ensuring reliability of the process and the outcome. Most of the decisions

I try to automate involve numerical models. The core of my research is in numerical constraint solving (NCS) and interval computations. My research interests mainly lie in the area of non-linear continuous constraint and optimization solving, along with the many applications of these.

During my probation period at UTEP, I received a total of \$1,276,243 in federal funding, of which \$596,092 as a PI of two NSF grants – one of which is an NSF CAREER grant, and additional funding from European grants. My efforts in acquiring funding have been consistent over the years, totalling over 25 submitted proposals. I have strived to impact through my research. Publishing my work has been a priority: I have published in peer-reviewed conference proceedings (30), in books as chapters (5), and in journals (15); I also participated and contributed abstracts and/or short papers in workshops. I value collaboration above all: I have worked with people across the world, e.g., in Japan (National Institute of Informatics), France (University of Nantes), Italy (University of Perugia), and across Colleges and departments at UTEP. My interdisciplinary collaborations have resulted in joint papers with researcher from departments of mathematics, biological sciences, geological sciences, and education, to name a few. I also always involved students in my work to catch any opportunity to train them and to teach them team-working first hand.

□ **Service**

I have consistently served on committees at UTEP, ranging from departmental to university-level committees. In particular, I have recently become chair of the Women’s Advisory Council to the President (WAC) that has been putting the bulk of its efforts to making our campus family friendly. In addition, my involvement in my research community has been at many varied levels: from reviewer or program committee member for journals and many conferences, member of several NSF panels, conference chair, organizer of a number of conferences and workshops, to taking the lead in building a community of scientists and engineers interested in decision making, through the NSF-funded workshops CoProD and the popular community website constraintsolving.com. Finally, I value serving the local community and both implementing the access and excellence mission of UTEP and encouraging women to pursue computing careers. To this end, I have participated in a number of events in high-schools, at career fairs, science fairs, formal presentations, and I have worked towards including high-school students in my research, which I have been successful at over the last two years, now totalling a number of 15 high-school students (8 male / 7 female students).