Martine Ceberio

Professor of Computer Science

Associate Dean of Engineering for People, Culture, and Environment

Computer Science Department
Miguel A. Loya College of Engineering
University of Texas at El Paso
500 West University Avenue
El Paso, Texas 79968-0518

email: mceberio@utep.edu
http://www.martineceberio.fr

Education

2003 – **Ph.D. in Computer Science**, *University of Nantes, France*
"Contributions to numerical under and over-constrained CSPs: Symbolic Tools and Flexible Constraints". Advisors: Frédéric Benhamou and Laurent Granvilliers

1999 – **D.E.A. in Computer Science**, *University of Nantes, France.* (D.E.A.: Diplôme d'Études Approfondies / Degree of Post-Graduate Advanced Studies)

1995 – **B.S. in Mathematics**, *University of Poitiers, France*

Employment

2023 – Present – **Associate Dean of Engineering for People, Culture, and Environment**, *University of Texas at El Paso*

2019 – Present – **Professor of Computer Science**, *University of Texas at El Paso*

June 2018 – **Faculty in Residence**, *Google, Mountain View, CA*

September 2017 – **Visiting Professor**, *University of Perugia, Italy*

2012 – 2019 – **Associate Professor of Computer Science**, *University of Texas at El Paso*

2004 – 2012 – **Assistant Professor of Computer Science**, *University of Texas at El Paso*

2003 – 2004 – **Visiting Asst Professor of Computer Science**, *University of Texas at El Paso*

1999 – 2003 – **Student instructor and Research Assistant in Computer Science** *University of Nantes, France*

Honors and Awards

1. **2026 Congressional Commendation Award recipient**, El Paso, April 2026
2. **2025 Piper Professor**, Minnie Stevens Piper Foundation Professor Award
3. **2024 Change Maker Women in Tech**, from El Paso Matters and Progress321, March 2024.
4. **2023 K. S. Fu award recipient**, from the North American Fuzzy Information Processing Society (NAFIPS)
5. **Provost Fellow for Diversity, Equity, and Inclusion**: fall 2022 - summer 2023
6. **Endowed AT&T Information Technology Fellow**: since fall 2021
7. Member of the **University of Texas System Academy of Distinguished Teachers**, since spring 2020.
8. Recipient of the **2019 University of Texas Regents' Outstanding Teaching Award**.
9. **Faculty Marshall of the College of Engineering** – Spring 2012 & 2019 Commencements
10. **UTEP EDGE Faculty Fellow**, January 2018 – Present
    The UTEP EDGE program is grounded on recognizing that students enter UTEP with many talents, great strengths, and big dreams. The UTEP Edge develops these assets through a variety of high-impact experiences made possible by the expertise and dedication of our faculty, staff, alumni, and community partners.
11. **Invited Speaker at:** Annual Lecture from a UT System Academy of Distinguished Teacher, University of Texas in Dallas, October 2024; the International Conference IFSA-EUSFLAT, the 19th World Congress of the International Fuzzy Systems Association, and The 12th Conference of the European Society for Fuzzy Logic and Technology, in Bratislava, September 19-24, 2021; MARS Initiative Seminar Series – Pacific Northwest National Lab (PNNL), July 2020. Hosted by Samrat Chatterjee. ; 2020 International Workshop on Engineering Applications (virtually held from Bogota, Colombia); at the 17th International Symposium on Scientific Computing, Computer Arithmetics and Verified Numerics, Sweden, September 2016.
12. Faculty Co-author of **Outstanding Paper Award**. Joint Annual Conference of the North American Fuzzy Information processing Society NAFIPS'2015 and 5th World Conference on Soft Computing, August 2015
13. **NSF CAREER** Recipient 2009

Teaching and Teaching-Related Activities

I believe everybody can learn and grow in any discipline, and I see teaching as a fascinating puzzle. Many of our students have been told they "cannot do math" or "do not look like computer scientists." Many also juggle school with work and family care, and growing class sizes make personal connection harder. Yet our students arrive with remarkable potential, diverse backgrounds, and valuable experience. My goal is to show each of them what I see in them, so that every student feels they matter, because they do. I also see myself as a mentor and advocate whose concern extends beyond my courses, to internships, research, graduate school, and careers.

This passion has taken shape in funded programs, curriculum work, and community engagement. With Google and Department of Education funding, I have run activities to broaden participation of women in computing and to provide leadership training for CS students. Since 2010, I have hosted high-school research interns, and I ran virtual outreach for female high-school students during COVID. I led the redesign of CS1 and CS2, created a problem-solving course (developed with Google and CAHSI and now adopted nationwide), and split discrete math into two courses aligned with CS1 and CS2. I was selected for Google's Faculty in Residence program (2018), returned as a mentor (2019), and led a virtual faculty cohort. More recently, I led 30 UTEP colleagues through an ACUE course on belonging and helped build a community of practice around it. I was also co-PI of an NSF RET that trained over 30 regional teachers in cybersecurity, data science, and AI, multiplying our impact to hundreds of K–12 students. The pandemic led me to experiment with new tools and earn UTEP's online and hybrid teaching certifications. I kept the best of those practices, such as MS Teams for communication and for the lectures students can revisit.

My teaching has been recognized by a UT Regents' Outstanding Teaching Award (2019), induction into the UT System Academy of Distinguished Teachers (2020), and a Minnie Stevens Piper Professor award (2025).

Teaching Workload and Courses Taught

Workload = assigned teaching courses, excluding research credit hours and independent studies

- 2023-present: **1 course per semester** to accommodate my 50% position as Associate Dean
- 2022-2023: **1 course per semester** to accommodate my position as Provost Fellow
- 2003-2022: **2 courses per semester**, excluding occasional course buyouts due to research projects

Over my 23 years at UTEP, I have taught courses:

- at the undergraduate level: including introductory courses (CS1, 2, & 3) which I redesigned, more theoretical courses (e.g., CS3350 Automata), practical ones (e.g., CS3360: Programming Languages), Artificial Intelligence, a few special topics in Constraint solving, Game development, problem solving. I designed and taught two Discrete Structures courses – 1 and 2 credit hours (so our students have the option to take a course equivalent to Discrete Mathematics within their major department).

- at the graduate level (Master's and doctorate): including core courses (e.g., CS5303 Logical Foundations of Computer Science, CS5350 Advanced Algorithms) and a few special topics in Intelligent Computing.

Outside of class, I created a Problem-Solving Club that welcomed undergraduate students once a week to practice problem solving and (when relevant) programming. This club became a very successful student organization: the coding interview club. Following on this initiative, I designed a new course on Problem Solving, which I piloted in summer 2016, and reworked with the advice and support of Google in spring and summer 2017: I taught the new course (numbered CS1190) twice in fall 2017 and it was since then been taught many times at UTEP and in multiple institutions across the country.

Over the years, I have reflected many times over my teaching; some of my reflections are available at: https://martineceberio.fr/category/blog.

Student Mentoring

As of Fall 2026, I am the research advisor (committee chair for graduate students) of:

- 6 PhD students
- 2 Master's students
- 5 undergraduate students

Over the last 2 years, I have graduated: 1 PhD student and 5 Master's students. I have mentored 8 undergraduate students. I also hosted and mentored a PhD student intern from the Universidad Autonoma de Ciudad Juarez (Mexico) in Spring 2026 and will host another one in Spring 2027. Among my previous graduated PhD students, some went on to the academic route, some started as post-doctoral researchers (e.g., Cornell University, RIKEN lab in Japan), one is a research data analyst.

I am active as committee member in dissertation and master's thesis committees, currently (as of fall 2026) member in 2 dissertation committees (with two PhD students and 1 Master's students having graduated this past summer).

Finally, I have also welcomed in my lab a number of high-school students since 2010. These students are provided with baseline skills in computer science, trained to define, develop, and present project ideas, and then on-boarded to research projects as testers. They participate in research meetings and learn the responsible conduct of research.

Faculty Training and Mentoring

- **Teaching Effectiveness Workshop Series – annually since Fall 2023**

  As a member of UTEP's Academy of Distinguished Teachers, I put together, lead, and facilitate a series of workshops, held annually since fall 2023 on topics supporting teaching effectiveness. I hold 6 workshops annually on the following topics:

  – The Teaching Portfolio and Teaching Awards

- The Teaching Philosophy
- Evidence of Teaching Effectiveness
- Teaching Frameworks for Evaluation, Training, and Self-Improvement
- Peer-Observation of Teaching
- A Special Workshop on the UT System's Regents' Outstanding Teaching Award Application

- **The Student Experience Project (SEP) co-lead at UTEP – since fall 2024**

  I have put together and co-led SEP at UTEP with Vice Provost for Professional Development, Engagement, and Strategic Initiatives Louie Rodriguez since fall 2023.

  SEP is structured as a community of practice in which participants receive training in and support about the following classroom practices:

  - Syllabus and Policy Revisions, based on Growth Mindset language
  - Wise Feedback
  - Creating a Classroom Welcoming Environment

  Now in its 3^{rd} cohort, the SEP at UTEP is now a community of practice of about 70 faculty. Additionally, in fall 2025, we started training Graduate Teaching Assistants with the same practices, and have partnered with Graduate School since fall 2026 to sustain our effort – now with about 40 TAs trained or in training. The number of students taught by faculty or TAs implementing SEP practices is well above 8,000. Preliminary reports by our center for institutional evaluation, research, and planning (CIERP) shows impact on retention of students from SEP courses about 5% higher than in other courses.

- **New Faculty Series – since fall 2023**

  As associate dean of the Loya Engineering College for people, culture, and environment at UTEP, I have put together and run an annual series of workshops for newly hired tenured/tenure-track faculty. This yearlong program aims to:

  - Build a welcoming community among new faculty.
  - Provide timely, practical guidance on essential university and college processes.
  - Support faculty success in teaching, research, service, and annual review preparation.
  - Connect new faculty with key campus resources and senior colleagues.
  - Create regular opportunities for questions, informal discussion, and individualized support.

  Now in its 4^{th} year, this program has so far brought together 40 new faculty. Faculty of the first cohort have all undergone their 3^{rd} year review last summer and they were all positive. No attrition has happened.

- **Computer Science Teaching Assistants Training – since spring 2026**

  Following the extension of our SEP work to Graduate Teaching Assistants, I offered to train the Computer Science TAs. Although the training is heavily based on the SEP practices, it provides a space and a neutral interlocutor to the TAs where they can voice concerns and look for advocacy.

- **Facilitator for the ACUE Micro-credential on Fostering a Culture of Belonging – Spring 2023**

  While a Provost Fellow for Diversity and Inclusion (in 2022-23), I was given the opportunity to facilitate the online micro-credential from ACUE (the Association of College and University Educators) on Fostering a Culture of Belonging. I facilitated it in Spring 2023, having completed it myself a few weeks earlier. I integrated in-person components for questions and discussions around the micro-credential topics. I also provided extra support on weekends to accommodate the participants' schedule, to make sure they had the support and confidence they needed to complete their work.

- **Support for awards applications – since spring 2024**

  Having been the recipient of the UT System's Regents' Outstanding Teaching Award (ROTA 2019) as well as the Minnie Stevens Piper Professor Award (2025), and having been inducted in the UT System's Academy of Distinguished Teachers (UTSADT 2020), I wanted to pay it forward and provide help to my fellow faculty in being recognized for the great work they do. I provide information sessions and Q&A sessions on these two awards in spring and fall (in addition to the workshops I mentioned above). I also provide mentoring to my colleagues (across the university, not only in my college). So far, two faculty I mentored went on and received the ROTA, one was inducted in the UTSADT.

- **Individual faculty mentoring – since spring 2026**

  Having so many opportunities to reach out to faculty, and having created a number of groups on campus for faculty (e.g., faculty who attend my teaching effectiveness workshops, non-tenure track faculty, new faculty), I have the opportunity to mentor some of them. I regularly provide feedback to colleagues pursuing tenure or promotion and I formally mentor colleagues who ask me to (with regular monthly meetings to check on progress).

- **Google Faculty-In-Residence Virtual Cohort – 2020-2023**

  For a couple of years, after participating in Google's Faculty In Residence Program in 2018 and returning to the program as a mentor in 2019, I ran a virtual cohort of former Google Faculty in Residence participant, facilitating discussions about teaching effectiveness and student sucess.

Teaching Scholarship – Invited and Contributed Presentations

Ed28 **InSPIRE HIIT Conference.** "Guiding Students as Co-Learners with AI in an Advanced Algorithms Course", November 2025.

Ed27 **AI in Teaching** panelist at AI Forum organized by UTEP's InSPIRE center, July 2025.

Ed26 **Mentoring for Staff: Committing to Our Ongoing Professional Development**, selected to be presented at the Annual Conference of UTEP's InSPIRE center (center for Teaching and Learning), October 2024

Ed25 **Invited Speaker at Annual Lecture from a UT System Academy of Distinguished Teacher**, University of Texas in Dallas, October 2024

Ed24 **Teaching Day**, University of North Texas, Dallas TX. (September 6, 2024).

Ed23 **Research and Creativity Week**, "Critical Dialogues: Creating a Robust and Intersectional EID Framework to Strengthen STEAM Grant Proposals", New Mexico State University, Las Cruces. (February 29, 2024).

Ed22 **Elevating Student Success through Collaboration and Innovation**, selected to be presented at the Annual Conference of UTEP's InSPIRE center (center for Teaching and Learning), October 2024

Ed21 **Celebrating Failure as an Essential Part of Learning**, invited workshop presentation at the University of Texas in Dallas, October 2024

Ed20 **Let's Talk about Students' Success**, invited workshop presentation at the University of North Texas in Dallas, September 2024

Ed19 **Celebrating Failure as Part of Learning**, selected to be presented at the National Higher Education Teaching Conference, Minneapolis, June 2024.

Ed18 **Research and Creativity Week: Critical Dialogues**, New Mexico State University, Las Cruces, February 2024.

Ed17 **Google Faculty in Residence Panel**: moderated by Jaye Espe, June 2021.

Ed16 Martine Ceberio, Jonatan Contreras, **"Putting the Focus on Learning",** UTEP's SOL (Support for Online Learning) Conference 2021.

Ed15 Sarah Taylor Hug, Martine Ceberio, et Al. **"Reflecting on Reflection: Integrating critical ways of thinking into computer science teaching and learning practice"**. SIGCSE 2021.

Ed14 Miguel Juarez, Joy Urbina, Maria G. Vallejo, Mike Pitcher, Hector Lugo, Karla Alaya, Martine Ceberio. Panel on **"Thinking Historically and Creating Digitally: History in 3D at the University of Texas at El Paso"**. Presented at the 2019 Digital Frontiers Conference, Austin, September 2019.

Ed13 Brianna Blaser, Martine Ceberio, Latifa Jackson, Nayda Santiago, Richard Ladner. Panel on **"Inspiring Diverse Women in Computer Science Research"**. Tapia Conference, September 18-21, 2019

Ed12 Melanie Martin, Eliana Valenzuela-Andrade, Martine Ceberio, Carlos E. Colon-Barrios, Antoine Picard, Josilene Quintana, Nayda Santiago, Akkady Tchaba.Panel on "**Problem-Solving as a Strategy to Improve the Academic Performance at HSIs: A CAHSI and Google Pilot Project".** Tapia Conference, September 18-21, 2019

Ed11 Ann Gates, Martine Ceberio. Joint presentation on **Strategies to Foster Retention during an Enrollment Growth Period**. Tapia Conference, September 18-21, 2019

Ed10 Panel at the CS4All Knowledge Forum. Panel on **"Transition from Post Secondary to Industry: What do Students Need in Order to Make this Transition Successfully?"**. September 12-13, 2018.

Ed9 **"Computer Science Opportunities for Middle and High-School Students"** at the 2nd Annual Canutillo ISD Professional Development Conference, GRIT (Growth, Resilience, Innovation, Tenacity). The University of Texas at El Paso, August 15-17, 2018.

Ed8 **"Computational Thinking in the Classroom"** at the 2nd Annual Canutillo ISD Professional Development Conference, GRIT (Growth, Resilience, Innovation, Tenacity). The University of Texas at El Paso, August 15-17, 2018.

Ed7 **"Innovative Teaching - Bilingualism and Learning Across the Disciplines"**, a UTEP EDGE and Center for Faculty Leadership and Development workshop, with co-presenters E. Mein and A. Esquinca – February 2018.

Ed6 Presentation to El Paso High School teachers at El Paso High School, about **Computational Thinking in the Classroom, across Disciplines** – Feb. 2018. Audience ≈ 100.

Ed5 Presentation at the **EPISD Hour of Code event for Teachers** – EPISD, Dec. 2017. Audience ≈ 60.

Ed4 Contributed presentation at the Teacher Networking Technology Conference in November 2015 in El Paso about **"Computational Thinking in the Classroom"**. Audience: about 35 teachers from all disciplines, from K-12.

Ed3 Contributed presentation at the Teacher Networking Technology Conference in October 2014 in El Paso about **"Coding your way through school"**. Audience: about 50 teachers from all disciplines, from K-12.

Ed2 Presentation to the Clint Independent School District about **Computer Science**, May 2014

Ed1 Invited speaker for a Webinar for all teachers of Ysleta School District about **how they can bring computer science in their classroom and what they can do it they are CS / math teachers**, March 2014.

Teaching Scholarship – Grants and Contracts

Ed1 **NSF Research Experience for Teachers – Co-PI** *Supplement: RET Site: Cybersecurity Research Experience for Educators through Data Science (CREEDS).* August 2024 – August 2025. Amount: $30,000.

Ed2 **NSF Research Experience for Teachers – Co-PI** *RET Site: Cybersecurity Research Experience for Educators through Data Science (CREEDS).* September 2022 – August 2025. Amount: $600,000.

Ed3 **Department of Education MSEIP – Co-PI** *Developing Software Engineering Leaders of Tomorrow.* October 2019 – September 2022. Amount: $742,174.

Ed4 **NSF IUSE/PFE RED – Co-PI** *IUSE/PFE:RED: Toward a Model of Change for Preparing a New Generation for Professional Practice in Computer Science.* July 2016 – June 2021. Amount: $1,919,849.

Ed5 **NSF Research on Gender – Co-PI** *Latinas in Computer Science and Engineering: A Qualitative.* September 15, 2012 – September 14, 2016 extended. Amount: $524,960.00.

Ed6 **NSF CCF 0953339 – PI** *CAREER: Symbolic-Numeric Constraint-Based Solutions for Real-World Scientific Problems*, 01/2010 to 12/2016. Amount: $564,650 + additional $32,000 REU supplement (2010, 2011, 2012).

Ed7 **Google – PI** *Google exploreCSR: Building Pathways to Graduate School* Received in Summer 2018, Project for Fall 2018 and Spring 2019. Amount: $35,000.00.

Ed8 **STEM Accelerator Fund:** *CS1 Course Redesign (cont'd).* Amount: $3,500, Spring 2018.

Ed9 **STEM Accelerator Fund:** *CS1 Course Redesign.* Amount: $8,500, Fall 2016 & Spring 2017.

Ed10 **Google CS Engagement Award:** Ceberio, Martine (PI). *Revamping CS1 to increase retention.* Amount: $5,000. (January 2015 – December 2015).

Ed11 **Raytheon – Co-PI** *Virtual Geocaching – STEM Student Software Application* Fall 2012 – Spring 2013. Amount: $36,000.00.

Professional Development in Teaching Practices and Pedagogy

- **Completed Trainings**
  - **Socrates Aspen Institute on AI and the Future of Leadership** – July 2026
  - **AI for Higher Education - AI for Faculty Specialisation**, Digital Education Council DEC – 09-11/2025.
  - **Blackboard Course Tools Training**, UTEP – 11/2025.
  - **Generative AI and the Future of Teaching**, UT Permian Basin – October 2025.
  - **Building a Culture of Psychological Safety: 8 Behaviors Every Leader Must Master**, Zenger Folkman – September 2025.
  - **Leadership Style**, Academic Impressions – September 2025.
  - **Bridging Gaps: A Workshop on Facilitating Difficult Conversations**, Alliance for Interdisciplinary Innovations in Computing Education (AiiCE) – April 2025.
  - **How You Say It Matters: A Toolkit for Improving Communications about Academic Standing**, EdX – 09-10/2024.
  - **Student Experience Project:** Spring 2024, national training in:
    - Your Syllabus as a Tool to Promote Student Equity, Belonging, and Growth
    - Wise Feedback to Foster Academic Engagement and Growth
    - Cultivating an Inclusive Learning Environment
  - **Teaching with AI Academy** – UTEP, Spring 2024
  - **Student Experience Project Training** – Spring / Fall 2024
  - **QPR Suicide Prevention Training** – UTEP, Spring 2023
  - **AAAS Sea Change Building Leadership Capacity**, Spring 2023
  - **ACUE Micro-credential in Fostering a Culture of Belonging**, March 2023
  - **EdX STEM Inclusive Teaching**, Fall 2022

- **AAAS Sea Change Climate Assessment**, Fall 2022
- **Teaching Hybrid Academy**, February 2021
- **Teaching Online Academy**, May 2020
- **UTEP's Dialogue in Leadership**, September 2020 - May 2021
- **Faculty in Residence at Google**, June 2018
- **UTEP's Leadership Development Institute**, September 2020 - May 2021

- **National Workshops and Conferences Attended**
  - 2026 Institute for Teaching and Mentoring and Sloan Program Directors Workshop – October 2026, Arlington, VA
  - 2024 Institute for Teaching and Mentoring and Sloan Program Directors Workshop – October 2024, New Orleans, LA
  - 2023 Institute for Teaching and Mentoring and Sloan Program Directors Workshop – October 2023, Tampa, FL
  - 2021 ACM SIGCSE Conference – March 2021
  - 2019 Tapia Conference – September 2019, San Diego, CA
  - Workshop Series: Affinity Research Group training, Puerto Rico – 2011, 2012

- **Local and Virtual Workshops and Conferences Attended**
  - Annual Conference of the Center for Faculty Leadership and Development, on Inclusive Excellence, August 2022
  - Humanizing Online Education During COVID-19 and Beyond – July 2020
  - Webinar: Equity in CS Education, hosted by CS4All, August 2020
  - Workshop: vREU – Affinity Research Group training, Summer 2020
  - Webinar: Zybook tools to teach online, April 2020
  - Webinar: Gradescope, Fall 2020
  - Workshop: Google's Faculty in Residence reunion workshop, March 2019
  - Early College High-School Students: How to make sure that they are integrated in our classrooms – April 2019
  - Rethinking Engineering Education at Hispanic Institutions Workshop – March 2018
  - Reporting and Using your Data for Curricular Improvement, organized by Dr. Toni Blum at UTEP, March 2017
  - Large Class Seminar on Peer-Led Tutoring, organized by Dr. Cidgem Siring at UTEP, December 2017
  - on Teaching and Motivation, led by Olin College instructors, organized by UTEP STEM-Accelerator Project team, June 2016
  - Networking Technology & Content Conference, El Paso, TX. – Nov. 2014 and 2015
  - Continuing Education Program, "Flipped Learning Brown Bag discussion," Center for Research in Engineering and Technology Education (CREaTE), 2014
  - Leadership Development Institute at UTEP: 2012-2013
  - Problem-Based Learning workshops: in May 2012, May 2013, May 2014

Service in Support of Teaching and Student Success at UTEP

☐ University-Level Service

- **UTEP Academy of Distinguished Teachers** member – since Fall 2019; Treasurer 2023-2026; Secretary 2026-present
- **Chair: Teaching Effectiveness and Development Committee:** standing committee of UTEP's Faculty Senate – Fall 2024 to September 1, 2025
  After the dissolution of the Faculty senate, I created a Special Interest Group in Teaching Effectiveness and ran it for a year (2025-26) until UTEP's Faculty Assembly and a new standing committee on Teaching Effectiveness were created.
- **Member: Teaching Effectiveness Committee:** standing committee of UTEP's Faculty Assembly.
- **Chair of the review committee – Minnie Stevens Piper Professor Award's UTEP Internal Selection:** 2025, 2026
- **Review committee member or Chair (depending on the years) – UTEP internal Regents' Outstanding Teaching Award:** annually
- **Chair** of the **Graduate Council** – 09/2022-08/2024
  In this role, I led the revision of the Graduate Council bylaws, approved by the UTEP's Graduate Faculty in Fall 2024 and approved by UTEP's President in August 2025.

☐ University of Texas System

- Member of the **UT System's Academy of Distinguished Teachers** – since spring 2020
  - **Executive Committee** member, since spring 2023
  - **Events committee** co-chair, since spring 2023
  - **Membership committee** member, since spring 2022
  - **Well-being committee** member, since spring 2021
- **Curriculum Innovation** Proposal reviewer – spring 2021

☐ Advisory Boards

- Merced College Computer Science programs – Spring 2021 to Spring 2023
- El Paso High STEM Academy – 2019-2022
- Harmony Science Academy of El Paso – 2012-2021
- Bel-Air's T-STEM Academy – 2017-2020
- Parkland's T-STEM Academy – 2015-2018
- Eastlake High School CSE program – 2015-2019
- Saint Patrick's Elementary and Middle School – 2013-2017

Research Activities

Publications since 2019

□ Chapters in Scholarly Books and Monographs

Ch22 Gallegos-Espinoza, D.L., Guel, Y.I., Sojib, M.N., Ceberio, M.: Adaptive Optimizer Sequencing for Kolmogorov-Arnold Networks. Preprint (2026). To appear in: **Advances in Soft Computing, Proceedings of MICAI 2026**, LNAI, vol. 17149. Springer, Cham (2027)

Ch21 Sojib, M. N.., Guel, Y.I., Gallegos Espinoza, D.L.., Ceberio, M.: FedAWL: Client Selection via Age-Weighted Loss for Non-IID Federated Learning. Preprint (2026). To appear in: **Advances in Soft Computing, Proceedings of MICAI 2026**, LNAI, vol. 17149. Springer, Cham (2027)

Ch20 Ceberio, M. C., Kosheleva, O. M., Kreinovich, V. Y., Nguyen, H. T., (2025). Towards an Optimal Design: What Can We Recommend to Elon Musk?. In: **Data Science for Econometrics and Related Topics**. Cham: Springer.

Ch19 Lauter, C. Q., Ceberio, M. C., Kreinovich, V. Y., Kosheleva, O. M., (2025). "Uncertainty Quantification for Results of AI-Based Data Processing: Towards More Feasible Algorithms". In: **Advanced Mathematical and Computational Tools for Metrology and Testing XIII.** (pp. 95-108). Singapore: World Scientific.

Ch18 Contreras, J., Ceberio, M. C., Kreinovich, V. Y., (2024). "Why rectified linear neurons: a possible interval-based explanation". In: **Artificial Intelligence and Machine Learning for Econometrics: Applications and Regulation (and Related Topics)**. Cham: Springer.

Ch17 Robles Herrera, S., Ceberio, M. C., Kreinovich, V. Y., (2024). "Foundations of Neural Networks Explain the Empirical Success of the "Surrogate" Approach to Ordinal Regression – and Recommend What Next". In: **Uncertainty, Constraints, AI, and Decision Making**. Cham: Springer.

Ch16 Csiszar, G., Ceberio, M. C., Kreinovich, V. Y., (2024). "Selecting the Most Adequate Fuzzy Operation for Explainable AI: Empirical Fact and Its Possible Theoretical Explanation". In: **Uncertainty, Constraints, AI, and Decision Making.** Cham: Springer.

Ch15 Tizpaz Niari, S., Ceberio, M. C., Kosheleva, O. M., Kreinovich, V. Y., (2024). "Why Unit Two-Variable-Per-Inequality (UTVPI) Constraints Are So Efficient to Handle: Intuitive Explanation". In: **Uncertainty, Constraints, AI, and Decision Making.** Cham: Springer.

Ch14 Tuyako Mizukoshi, M., Lodwick, W., Ceberio, M. C., Kosheleva, O. M., Kreinovich, V. Y., (2023). An Argument in Favor of Piecewise-Constant Membership Functions. In: **Uncertainty, Constraints, and Decision Making**. (pp. 377-386). Cham: Springer.

Ch13 Jonatan Contreras, Martine Ceberio, Olga Kosheleva, Vladik Kreinovich, and Nguyen Hoang Phuong, "Why Rectified Linear Neurons: Two Convexity-Related Explanations", In: **"Biomedical and Other Applications of Soft Computing"**, Nguyen Hoang Phuong and Vladik Kreinovich (eds.), Springer, (pp. 41-47). Cham, Switzerland, 2023.

Ch12 Robles, S.*, Ceberio, M., Kreinovich, V., "Why Model Order Reduction", In: **"Decision Making under Uncertainty and Constraints: A Why-Book"**, Martine Ceberio and Vladik Kreinovich (eds.), Springer, Cham, Switzerland, 2022.

Ch11 Contreras, J.*, Zapata, F., Kosheleva, O., Kreinovich, K., and Ceberio, M., ""Negative" Results – When the Measured Quantity Is Outside the Sensor's Range – Can Help Data Processing", In: **Integrating AI and Visualisation for Visual Knowledge Discovery,** Boris Kovalerchuk, Kawa Nazemi, Razvan Andonie, Nuno Datia, and Ebad Banissi (eds.), Springer, Cham, Switzerland, 2022.

Ch10 Ayub, C.*, Ceberio, M. C., Kreinovich, V. Y., (2020). How Quantum Computing Can Help With (Continuous) Optimization. In: **Decision Making under Constraints**. In Martine Ceberio and Vladik Kreinovich (Ed.), (pp. 7-14). Springer.

Ch9 Ceberio, M. C., Kreinovich, V. Y., (2020). Quantum Computing as a Particular Case of Computing With Tensors. In: **Decision Making under Constraints**. In Martine Ceberio and Vladik Kreinovich (Ed.),. Springer.

Ch8 Ceberio, M. C., Kosheleva, O. M., Kreinovich, V. Y., (2020). Italian Folk Multiplication Algorithm Is Indeed Better: It Is More Parallelizable. In: **Decision Making under Constraints**. In Martine Ceberio and Vladik Kreinovich (Ed.), (pp. 59-64). Springer.

Ch7 Ceberio, M. C., Kosheleva, O. M., Kreinovich, V. Y., (2020). Reverse Mathematics Is Computable for Interval Computations. In: **Decision Making under Constraints**. In Martine Ceberio and Vladik Kreinovich (Ed.), (pp. 65-70). Springer.

Ch6 Valera, L.*, Ceberio, M. C., Kreinovich, V. Y., (2020). Why Burgers Equation: Symmetry-Based Approach. In: **Decision Making under Constraints**. In Martine Ceberio and Vladik Kreinovich (Ed.), (pp. 211-216). Springer.

Ch5 Kosheleva, O. M., Ceberio, M. C., Kreinovich, V. Y., (2020). Attraction-Repulsion Forces Between Biological Cells: A Theoretical Explanation of Empirical Formulas. In: **Decision Making under Constraints**. In Martine Ceberio and Vladik Kreinovich (Ed.), (pp. 139-144). Springer.

Ch4 Garcia Contreras, A.*, Ceberio, M. C., Kreinovich, V. Y., (2020). Plans Are Worthless but Planning Is Everything: A Theoretical Explanation of Eisenhower's Observation. In: **Decision Making under Constraints**. In Martine Ceberio and Vladik Kreinovich (Ed.), (pp. 93-98). Springer.

Ch3 Garcia Contreras, A.*, Ceberio, M. C., Kreinovich, V. Y., (2020). Why Convex Optimization Is Ubiquitous and Why Pessimism Is Widely Spread. In: **Decision Making under Constraints**. In Martine Ceberio and Vladik Kreinovich (Ed.), (pp. 99-104). Springer.

Ch2 Baral, C., Ceberio, M. C., Kreinovich, V. Y., (2020). How Neural Networks (NN) Can (Hopefully) Learn Faster by Taking Into Account Known Constraints. In: **Decision Making under Constraints**. In Martine Ceberio and Vladik Kreinovich (Ed.), (pp. 15-20). Springer.

Ch1 Kosheleva, O. M., Ceberio, M. C., Kreinovich, V. Y., (2020). When We Know the Number of Local Maxima, Then We Can Compute All of Them. In: **Decision Making under Constraints**. In Martine Ceberio and Vladik Kreinovich (Ed.). Springer.

□ Refereed Journal Articles

J5 Ceberio, M. C., Lauter, C. Q., Kreinovich, V. Y., (2024). "Just-In-Accuracy: Mobile Approach to Uncertainty". (3rd ed., vol. 20). **Journal of Mobile Multimedia**.

J4 Contreras, J.*, Ceberio, M., Kosheleva, O., Kreinovich, K., "Why neural networks in the first place: a theoretical explanation", **Journal of Intelligent and Fuzzy Systems**, 2022.

J3 Contreras, J.*, Ceberio, M., Kosheleva, O., Kreinovich, K., "Why Gradient Descent – Not the Best Optimization Technique – Works Best in Neural Networks: Qualitative Explanation", **Journal of Combinatorics, Information, and System Sciences JCISS**, 2021, Vol. 45.

J2 Garcia Contreras, A.*, Ceberio, M. C., Kreinovich, V. Y., (2019). Scale Invariance Explains Quadratic Damping: Case of Insect Wings Flapping. **Journal of Uncertain Systems**, 13(3), 193-196.

J1 Alvarez, R.*, Sims, N.*, Servin, C., Ceberio, M. C., Kreinovich, V. Y., (2020). "If Space-Time Is Discrete, It Could Be Possible to Solve NP-Complete Problems in Polynomial Time". **International Journal of Unconventional Computing**, 15(3), 193-218.

□ Refereed Conference and Workshops Proceedings (peer reviewed)

C38 Maria L. Reyna-Cruz, Kristalys Ruiz-Rohena, Isaiah D. Johnson, Vladik Kreinovich, Martine Ceberio, and Christoph Lauter, Reducing Overestimation in Interval Neural Networks Using Certified Polynomial Approximations and Partitioning for Trustworthy Clinical AI. In: **Proceedings of the 8th International Conference on Artificial Intelligence and Computational Intelligence AICI'2027**, Hanoi, Vietnam, January 10–11, 2027, to appear.

C37 Reyna-Cruz, M. L., Ceberio, M., Lauter, C., Marquez-Barraza, C. A., López-Valles J. M., Trust by Design: Building Reliable Clinical AI to Advance Quality in Patient-Centered Care. In: **Proceedings of the 2nd International Conference on AI in Medicine and Healthcare (AiMH' 2026)**, Palma de Mallorca, Spain, June 24–26 2026, pp.43–48. Edited by Sergey Y. Yurish.

C36 Reyna-Cruz, M. L., Ceberio, M., Lauter, C., Kreinovich, V., Barraza, C. A. M.(2026). Efficient First-Approximation Algorithms for Interval-Valued Regression, with Medical Applications in Mind. In: **Proceedings of the 2026 Annual Conference of North American Fuzzy Information Processing Society (NAFIPS 2026)**, El Paso, Texas, March 14–16, 2026, Springer.

C35 Salgado, H.*, Kendall, M., Ceberio, M. C., (2026). "A Causal Argumentation Method for Explainability of Machine Learning Models". To be published in the Proceedings of the **Explainable AI Conference (XAI'26)**.

C34 Salgado, H.*, Kendall, M., Ceberio, M. C., (2026). "Causal Discovery for Explainable AI: A Dual-Encoding Approach". **The 3rd International Workshop on Causality, Agents and Large Models (CALM-26)**.

C33 Salgado, Henry,* Kendall, Meagan R., Ceberio, Martine, and Flores Abad, Angel. (2026)"Exploring Mechanical Engineering Student Degree Completion Outcomes at an HSI using Machine Learning and Counterfactuals". In the Proceedings for the 2026 ASEE Annual Conference.

C32 Salgado, Henry*, Kendall, Meagan R., Ceberio, Martine, and Coso Strong, Alexandra. (2026) "LLMs in Qualitative Research: Opportunities, Limitations, and Practical Consideration". In the Proceedings for the 2026 ASEE Annual Conference.

C31 Reyna-Cruz, M. L., Ceberio, M., Lauter, C., Lopez Valles, J. M. (2025). Deep Learning Explainability on Non- Hodgkin Lymphoma: Relapse and Treatment. In: **Proceedings of the Artificial Intelligence in Medicine and Healthcare (AIMH 2025)**, Innsbruck, Austria, pp. 76–79, ISBN: 978-84-09-71190-1.

C30 Ceberio, M. C., Kosheleva, O. M., Kreinovich, V. Y., (2025). "Why topology helps to detect cyber-intrusions". Proceedings of **the 17th International Workshop on Constraint Programming and Decision Making CoProD'2025**, Oldenburg, Germany, September 22, 2025.

C29 Salgado, H.*, Kendall, M., Ceberio, M. C., (2025). "Does the Model Say What the Data Says? A Simple Heuristic for Model Data Alignment". (pp. 13). **The 2nd International Workshop on Causality, Agents and Large Models (CALM-25)**. December 2025.

C28 Juan L. Puebla, Martine C. Ceberio, "What Makes a 7 a 7? Exploration into a Neural Network's Features of Interest", in the proceedings of the **Workshop on Engineering Applications**, Cali, Colombia, October 2025.

C27 Arin Rahman1, Jose Vega, Betul Aslantas, Krissel Marin, Alex Mayer, and Martine Ceberio, "Enhanced LSTM Approach to Hybrid Floating Photovoltaic-Hydropower (HFPVH) systems", in the proceedings of the **Workshop on Engineering Applications**, Cali, Colombia, October 2025.

C26 Tomy George, E.*, Jaulin, L., Kreinovich, V. Y., Lauter, C. Q., Ceberio, M. C., (2024). "Localizing robots using neural networks with interval data". (pp. 166-181). Proceedings of the **10th International Workshop on Reliable Engineering Computing REC'2024**, Beijing, China, October 26-27, 2024.

C25 Tomy George, E. , Kreinovich,V. , Lauter,C.Q., Ceberio, M.C., and Jaulin L. "Localizing Robots using Neural Networks with Interval Data", in the proceedings of the **10th International Workshop on Reliable Engineering Computing, Reliability Computations in Sustainable and Resilient Development**, October 26-27, 2024, Beijing, China.

C24 Ceberio, M. C., Kreinovich, V. Y., Kosheleva, O. M., Mayer, G., (2023). "Complex-Valued Interval Computations Are NP-Hard Even for Single Use Expressions". (pp. 246-257). Proceedings of the **2023 Annual Conference of North American Fuzzy Information Processing Society NAFIPS'2023**, Cincinnati, Ohio, May 31 - June 2, 2023.

C23 Ceberio, M. C., Kreinovich, V. Y., Kosheleva, O. M., Ginzburg, L., (2023). "Faster Algorithms for Estimating the Mean of a Quadratic Expression under Uncertainty." (pp. 290-300). Proceedings of the **2023 Annual Conference of the North American Fuzzy Information Processing Society NAFIPS'2023**, Cincinnati, Ohio, May 31 - June 2, 2023.

C22 Aggarwal, P., Ceberio, M. C., Kosheleva, O. M., Kreinovich, V. Y., (2023). "How People Make Decisions Based on Prior Experience: Formulas of Instance-Based Learning Theory (ILBT) Follow from Scale Invariance". (pp. 312-319). Proceedings of the **2023 Annual Conference of the North American Fuzzy Information Processing Society NAFIPS'2023**, Cincinnati, Ohio, May 31 - June 2, 2023.

C21 Ceberio, M. C., Kosheleva, O. M., Kreinovich, V. Y., (2023). "Integrity First, Service Before Self, and Excellence: Core Values of US Air Force Naturally Follow from Decision Theory". (pp. 320-324). Proceedings of the **2023 Annual Conference of the North American Fuzzy Information Processing Society NAFIPS'2023**, Cincinnati, Ohio, May 31 - June 2, 2023.

C20 Denes-Fazakas, L.*, Szylagyi, L., Eigner, G., Kosheleva, O. M., Ceberio, M. C., Kreinovich, V. Y., (2023). "Which Activation Function Works Best for Training Artificial Pancreas: Empirical Fact and Its Theoretical Explanation". Proceedings of the **IEEE Series of Symposia on Computational Intelligence SSCI 2023**, Mexico City, Mexico, December 6-8, 2023.

C19 Angel Garcia Contreras, Martine Ceberio, "Comparison of Higher-Order Approximations to Solve Dynamical Systems using Interval Constraint Solving", Proceedings of the **International Workshop on Engineering Applications (WEA'2022)**, Bogota, Colombia, October 2022.

C18 Martine Ceberio, Olga Kosheleva, and Vladik Kreinovich, "How to Describe Relative Approximation Error? A New Justification for Gustafson's Logarithmic Expression", Proceedings of the **15th International Workshop on Constraint Programming and Decision Making CoProD'2022**, Halifax, Nova Scotia, Canada, May 30, 2022.

C17 Salvador Robles, Martine Ceberio, and Vladik Kreinovich, "Computing the Range of a Function-of-Few-Linear-Combinations Under Linear Constraints: A Feasible Algorithm", Proceedings of the **15th International Workshop on Constraint Programming and Decision Making CoProD'2022**, Halifax, Nova Scotia, Canada, May 30, 2022.

C16 Leobardo Valera, Martine Ceberio, and Vladik Kreinovich, "How to Select a Representative Sample for a Family of Functions?", Proceedings of the **15th International Workshop on Constraint Programming and Decision Making CoProD'2022**, Halifax, Nova Scotia, Canada, May 30, 2022.

C15 Garcia Contreras*, A. F. and Ceberio, M., (2020). "Solving Dynamical Systems using Windows of Sliding Sub-problems". In the proceedings of **Applied Computer Sciences in Engineering: 8th Workshop on Engineering Applications, WEA 2021**, MedellÃn, Colombia, October 6–8, 2021. Pp 13–24.

C14 A. Garcia Contreras*, G. Throneberry*, L. Valera*, O. Olumoye*, M. Ceberio, and A. Abdelkefi, "Interval-based solving techniques for large-scale dynamical systems". **ASME 2020 International Design Engineering Technical Conference**.

C13 Omeiza Olumoye*, Glen Throneberry*, Angel Garcia*, Leobardo Valera*, Abdessattar Abdelkefi, and Martine Ceberio, (2019). Solving Large Dynamical Systems by Constraint Sampling. Proceedings of the **Workshop on Engineering Applications**, Bogota, Colombia, October 2019.

C12 Valera, L.*, Ceberio, M. C., Kreinovich, V. Y., (2019). Derivation of Louisville-Bratu-Gelfand Equation from Shift- or Scale-Invariance. (pp. 813-819). Proceedings of the **World Congress of the International Fuzzy Systems Association** and the **Annual Conference of the North American Fuzzy Information Processing Society IFSA/NAFIPS'2019**, Lafayette, Louisiana, June 18-22, 2019.

C11 Galindo, O.*, Ayub, C.*, Ceberio, M. C., Kreinovich, V. Y., (2019). Faster Quantum Alternative to Softmax Selection in Deep Learning and Deep Reinforcement Learning.

(pp. 814-817). Proceedings of the **2019 IEEE Symposium Series on Computational Intelligence SSCI'2019**, Xiamen, China, December 6-9, 2019.

C10 Kreinovich, V. Y., Ceberio, M. C., Alvarez, R.*, (2019). How to Use Quantum Computing to Check Which Inputs Are Relevant: A Proof That Deutsch-Jozsa Algorithm Is, In Effect, the Only Possibility. (pp. 828-832). Proceedings of the **2019 IEEE Symposium Series on Computational Intelligence SSCI'2019**, Xiamen, China, December 6-9, 2019.

C9 Ceberio, M. C., Kosheleva, O. M., Kreinovich, V. Y., Longpre, L., (2019). Between Dog and Wolf: A Continuous Transition from Fuzzy to Probabilistic Estimates. (pp. 906-910). Proceedings of the **IEEE International Conference on Fuzzy Systems FUZZ-IEEE'2019**, New Orleans, Louisiana, June 23-26, 2019.

C8 Ceberio, M. C., Kosheleva, O. M., Kreinovich, V. Y., (2019). Can We Improve the Standard Algorithm of Interval Computation by Taking Almost Monotonicity into Account?2. (pp. 767-778). Proceedings of the **World Congress of the International Fuzzy Systems Association** and the **Annual Conference of the North American Fuzzy Information Processing Society IFSA/NAFIPS'2019**, Lafayette, Louisiana, June 18-22, 2019.

C7 Ceberio, M. C., Kosheleva, O. M., Longpre, L., Kreinovich, V. Y., (2019). In its usual formulation, fuzzy computation is, in general, NP-hard, but a more realistic formulation can make it feasible. (pp. 412-417). Proceedings of the **IEEE International Conference on Fuzzy Systems FUZZ-IEEE'2019**, New Orleans, Louisiana, June 23-26, 2019.

C6 G. Throneberry*, L. Valera*, D. Furth*, A. Garcia Contreras*, M. Ceberio, and A. Abdelkefi, "Interval-based uncertainty quantification techniques for dynamical systems". **ASME 2019 International Design Engineering Technical Conference**.

C5 Leobardo Valera*, Angel Garcia*, Jesus Padilla*, Martine Ceberio, and Luis Bravo, "Handling Uncertainty in the Finite Element Method Using Interval Constraint Solving Techniques". In the proceedings of the **European Safety and Reliability Conference (ESREL 2019)**, Germany, September 2019.

C4 Ceberio, M. C., Kosheleva, O. M., Kreinovich, V. Y., (2019). "Can We Improve the Standard Algorithm of Interval Computation by Taking Almost Monotonicity into Account?" Proceedings of the **World Congress of the International Fuzzy Systems Association** and the **Annual Conference of the North American Fuzzy Information Processing Society IFSA/NAFIPS'2019**, Lafayette, Louisiana, June 18-22, 2019.

C3 Omeiza Olumoye, Glen Throneberry, Angel Garcia, Leobardo Valera, Abdessattar Abdelkefi, Martine Ceberio. "Solving Large Dynamical Systems by Constraint Sampling". In the proceedings of the **6th International Workshop on Engineering Applications (WEA 2019)**, Colombia, October 16-18, 2019.

C2 Leobardo Valera, Angel Garcia, Jesus Padilla*, Martine Ceberio, and Luis Bravo, "Handling Uncertainty in the Finite Element Method Using Interval Constraint Solving Techniques". Proceedings of the **European Safety and Reliability Conference (ESREL 2019)**, Germany, September 2019.

C1 Martine Ceberio, Olga Kosheleva, Vladik Kreinovich, "Can We Improve the Standard Algorithm of Interval Computation by Taking Almost Monotonicity into Account?"

Proceedings of the **World Congress of the International Fuzzy Systems Association** and the **Annual Conference of the North American Fuzzy Information Processing Society IFSA/NAFIPS'2019**, Lafayette, Louisiana, June 18-22, 2019.

□ Conference / Workshop Abstracts (peer-reviewed)

A10 Reyna Cruz, M.L., Tabares, R., Ceberio, M., Kreinovich, V., Lauter, C.Q., Marquez Barraza, C. (2024) "How to Use Machine Learning to Improve Detection of Developmental Dysplasia of the Hip: Towards a Validated Approach". Proceedings of the **2024 Asilomar Conference**, October 2024.

A9 Lauter, C. Q., Ceberio, M. C., Kreinovich, V. Y., Kosheleva, O. M., (2023). "Uncertainty Quantification for Results of AI-Based Data Processing: Towards Feasible Algorithms." Abstracts of **International Conference on Advanced Mathematical Tools in Metrology and Testing AMCTM 2023**, online, September 26-28, 2023.

A8 Denes-Fazakas, L.*, Szilagyi, L., Eigner, G., Kosheleva, O. M., Ceberio, M. C., Kreinovich, V. Y., (2023). "Which Activation Function Works Best for Training Artificial Pancreas: Empirical Fact and Its Theoretical Explanation". Abstracts of the **IEEE Series of Symposia on Computational Intelligence SSCI 2023**, Mexico City, Mexico, December 6-8, 2023.

A7 Csiszar, O., Csiszar, G., Kosheleva, O. M., Ceberio, M. C., Kreinovich, V. Y., (2023). "Why Fuzzy Control Is Often More Robust (and Smoother): A Theoretical Explanation". Abstracts of the **IEEE Series of Symposia on Computational Intelligence SSCI 2023** , Mexico City, Mexico, December 6-8, 2023.

A6 Kreinovich, V. Y., Ceberio, M. C., Kosheleva, O. M., (2020). White- and Black-Box Computing and Measurements under Limited Resources: Cloud, High Performance, and Quantum Computing, and Two Case Studies – Robotic Boat and Hierarchical Covid Testing. (pp. 19-20). Abstracts of the **Second International Conference on Artificial Intelligence and Computational Intelligence AICI'2021**, Hanoi, Vietnam, January 15-16, 2021.

A5 Ayub, C.*, Ceberio, M. C., Kreinovich, V. Y., (2019). How Quantum Computing Can Help With (Continuous) Optimization.. Abstracts of the **NMSU/UTEP Workshop on Mathematics, Computer Science, and Computational Science,** Las Cruces, New Mexico, April 6, 2019.

A4 Leobardo Valera, Martine Ceberio, and Vladik Kreinovich, "Derivation of Louisville-Bratu-Gelfand Equation from Shift- or Scale-Invariance", Proceedings of the **12th International Workshop on Constraint Programming and Decision Making CoProd'2019**, Part of the World Congress of the International Fuzzy Systems Association and the Annual Conference of the North American Fuzzy Information Processing Society IFSA/NAFIPS'2019, Lafayette, Louisiana, June 17, 2019, pp. 813-819.

A3 Martine Ceberio, Olga Kosheleva, and Vladik Kreinovich, "Can We Improve the Standard Algorithm of Interval Computation by Taking Almost Monotonicity into Account?", Proceedings of the **12th International Workshop on Constraint Programming and Decision Making CoProd'2019**, Part of the World Congress of the International Fuzzy Systems Association and the Annual Conference of the North American Fuzzy Information Processing Society IFSA/NAFIPS'2019, Lafayette, Louisiana, June 17, 2019, pp. 767-778.

A2 Julio Urenda, Martine Ceberio, "Covering Arrays as Algebraic Varieties". Proceedings of FQ14, the **14th International Conference on Finite Fields and their Applications**, Vancouver, 2019.

A1 G. Throneberry, L. Valera, D. Furth, A. Garcia Contreras, M. Ceberio, and A. Abdelkefi, "Interval-based uncertainty quantification techniques for dynamical systems". Proceedings of **ASME 2019 International Design Engineering Technical Conferences**.

□ Editorials

Edit1 Ceberio, M. C., Kreinovich, V. Y. (2024). Preface to the book "Uncertainty, Constraints, AI, and Decision Making". Cham, Springer.

□ Edited Research Books

B8 Ceberio, M. C., Kreinovich, V. Y., (eds). **Uncertainty, Constraints, AI, and Decision Making**.. Cham: Springer, 2024.

B7 Ceberio, M. C., Kreinovich, V. Y., (eds). **Decision Making under Uncertainty and Constraints: A Why-Book.** Cham: Springer, 2023.

B6 Ceberio, M., Kreinovich, V. (eds) **Decision Making under Uncertainty and Constraints: A Why-Book**, Springer, Cham, Switzerland, 2022.

B5 Ceberio, M. C., Kreinovich, V. Y., (eds) **How Uncertainty-Related Ideas Can Provide Theoretical Explanation for Empirical Dependencies**. Springer, 2021.

B4 Kearfott, R. B., Batyrshin, I., Reformat, M., Ceberio, M. C., Kreinovich, V. Y. (eds) **Fuzzy Techniques: Theory and Applications.** Springer, 2021.

B3 Bede, B., Ceberio, M. C., De Cock, M., Kreinovich, V. Y.. (eds) **Fuzzy Information Processing 2020**. Springer, 2020.

B2 Ceberio, M. C., Kreinovich, V. Y. (eds) **Decision Making under Constraints.** Springer, 2020.

B1 Ralph Baker Kearfott, Ildar Batyrshin, Marek Reformat, Martine Ceberio, and Vladik Kreinovich (eds.), "**Fuzzy Techniques: Theory and Applications",** Springer Verlag, Switzerland, 2019.

Grants and Contracts since 2012

□ Total Grants and Contracts since 2012

Since 2012: Total is $5,809,924 (**$1,443,905** as PI).

- **Federal funding: $385,905** as PI and $5,116,019 for projects in which I am co-PI
- **Army funding: $999,000** as PI and $190,000 for projets in which I am co-PI
- **Industry funding: $59,000** as PI and $35,000 as co-PI.
- **University funds: $25,000** from URI and two IDRs (IDR1 & IDR2)

☐ **Federal, since 2012**

1 **NSF Research Experience for Teachers – Co-PI** *Supplement: RET Site: Cybersecurity Research Experience for Educators through Data Science (CREEDS).* August 2024 – August 2025. Amount: $30,000.

2 **DoE MSI STEM Research and Development Consortium – Co-PI** *Robust Optimization Of Hybrid Floating Photovoltaic-Hydropower Systems To Provide Climate Change Resilient Energy Generation.* July 2024 – July 2026. Amount: $ 299,036.

3 **NSF Research Experience for Teachers – Co-PI** *RET Site: Cybersecurity Research Experience for Educators through Data Science (CREEDS).* September 2022 – August 2025. Amount: $600,000.

4 **Department of Education MSEIP – Co-PI** *Developing Software Engineering Leaders of Tomorrow.* October 2019 – September 2022. Amount: $742,174.

5 **NSF IUSE/PFE RED – Co-PI** *IUSE/PFE:RED: Toward a Model of Change for Preparing a New Generation for Professional Practice in Computer Science.* July 2016 – June 2021. Amount: $1,919,849.

6 **NSF Research on Gender – Co-PI** *Latinas in Computer Science and Engineering: A Qualitative.* September 15, 2012 – September 14, 2016 extended. Amount: $524,960.00.

7 **American Association for the Advancement of Science WIRC MSIs – PI** *Predicting Experts' Decisions and Disagreements using Argumentation Networks and Soft Constraints.* November 2012 – October 2013. Amount: $19,472.00.

8 **NSF CCF 0953339 – PI** *CAREER: Symbolic-Numeric Constraint-Based Solutions for Real-World Scientific Problems*, 01/2010 to 12/2016. Amount: $564,650 + additional $32,000 REU supplement (2010, 2011, 2012).

☐ **Other, since 2012**

1 **Google – PI** *Google exploreCSR: Building Pathways to Graduate School* Received in Summer 2019, Project for Fall 2019 and Spring 2020. Amount: $18,000.00.

2 **Google – PI** *Google exploreCSR: Building Pathways to Graduate School* Received in Summer 2018, Project for Fall 2018 and Spring 2019. Amount: $35,000.00.

3 **ARMY RESEARCH LABORATORY through STANFORD UNIVERSITY Army High Performance Computing Research Center– PI** *HPC Modeling and Simulation of Underbody Blast Parameter Estimation Problems*, start: January 1, 2014, end: December 31, 2017. Amount: $994,000.

4 **STEM Accelerator Fund:** *CS1 Course Redesign (cont'd).* Amount: $3,500, Spring 2018.

5 **STEM Accelerator Fund:** *CS1 Course Redesign.* Amount: $8,500, Fall 2016 & Spring 2017.

6 **Google CS Engagement Award:** Ceberio, Martine (PI). *Revamping CS1 to increase retention.* Amount: $5,000. (January 2015 – December 2015).

7 **ARMY RESEARCH LABORATORY through STANFORD UNIVERSITY Army High Performance Computing Research Center– Co-PI** *HPC Modeling and Simulation of Underbody Blast Parameter Estimation Problems*, start: April 1, 2013, end: December 31, 2013. Amount: $190,000.

8 **Raytheon – Co-PI** *Virtual Geocaching – STEM Student Software Application* Fall 2012 – Spring 2013. Amount: $36,000.00.

9 **UTEP Inter-Disciplinary Research fund – Co-PI** *Research on Identity and Participation in Science, Technology, Engineering, & Science (STEM)-IDR*, The University of Texas at El Paso, February 1, 2012 - January 31, 2013. Amount: $20,000.00.

10 **UTEP Inter-Disciplinary Research fund – Co-PI** *IDR1: Interdisciplinary Research Group on Decision Making and Judgment*, The University of Texas at El Paso, Spring 2012 – Spring 2013. Amount: $5,000.00.

Service (not mentioned in the Teaching section)

Professional Service since 2012

- **Reliable Computing Journal:** Editor in Chief, January 2019 – March 2023
- **North American Fuzzy Information Processing Society – NAFIPS**
  - President, January 2019 – December 2020
  - President-elect, January 2017 – December 2018
- Member of **NSF CISE Committee of Visitors** – Fall 2019
  This committee (of 21 people from the US and Canada) was in charge of auditing the NSF CISE processes: from which programs are proposed, to the review process, the awarding process, budgets, time to response, etc. The committee was also in charge of making recommendation to NSF CISE.
- **IEEE Technical Committee on Soft Computing**
  - Member, since March 2016
  - Awarded 2018 "IEEE Most Active SMC Technical Committee Award" for the third time.
- **Springer Soft Computing Journal Editorial Board:** Member, Nov. 2011 – Jan. 2013.
- **Conference organization and chairing of program committees**
  - **CoProD:** Constraint Programming and Decision Making Annual International Workshop. Program and general co-chair since 2008 (http://coprod.constraintsolving.com)
  - **ACM Symposium of Applied Computing, track on Knowledge Representation and Reasoning:** Co-chair since 2016.
  - **NAFIPS**: 2016: co-chair and co-program chair (nafips.cs.utep.edu); 2012 and 2014: co-program chair. Program committee member annually.
- **Program Committee Member**
  - SIGCSE 2020, 2021, RESPECT 2020, 2021, FLAIRS-29, -30 (the Florida AI Research Society), IJCAI'19, '15, '13 (International Joint Conference in Artificial Intelligence), RCRA 2017 (Rappresentazione della Conoscenza e Ragionamento Automatico), IAE/AIE 2017 (International Conference on Industrial Engineering, Other Applications of Applied Intelligent Systems)), MICAI'13 (Mexican Conference in Artificial Intelligence), WSCS'13 (World Conference on Soft Computing), WEA'12

(Workshop on Engineering Applications), M-PREF'12, '13, '14, '15 (international workshop at ECAI'12 & '13– European Conference on Artificial Intelligence) & '15 at IJCAI 2015, NAFIPS'15 – 23 special session on Interval Computations, Workshop on Intelligent Personalization (IP) — Joint Workshop on Constraints and Preferences for Configuration and Recommendation (CPCR) and Intelligent Techniques for Web Personalization (ITWP) at IJCAI 2015, CSP track at ACM SAC, 2005 – 2014

* Grace Hopper Celebration 2012 New Investigator Subcommittee Member (Fall 2011 – Summer 2012)

– **Reviewer for... (a selection of review assignments since 2012 only)**

* Conferences: including Workshops at CP, SAC (Symposium of Applied Computing) (for the CSP track), NAFIPS (North American Fuzzy Information Processing Society), ECAI (the European Conference on Artificial Intelligence), FIE (the Frontiers In Education conference), IJCAI (the International Joint Conference in Artificial Intelligence), Mexican International Conference on Artificial Intelligence (MICAI) 2011, 2012, 2013, PPAM 2013, 2015, Workshop on Engineering Applications (WEA), 2012, FLAIRS 2016, FuzzIEEE 2016, ICTCS 2014 (the Italian Conference on Theoretical Computer Science), AI*IA 2016 (the XV International Conference of the Italian Association for Artificial Intelligence), IFSA-NAFIPS 2013, FuzzIEEE 2017, AMAI.
* Journals: including Reliable Computing, INFORMS Jounal on Computing, Information Sciences, Journal of Experimental and Theoretical Artificial Intelligence, the Annals of Mathematics and Artificial Intelligence, Artificial Intelligence, Special Issues of Soft Computing, Journal of Logical and Algebraic Methods in Programming, Transactions on Mathematical Software, AAAS-Science, Acta Cybernetica, Journal of Advanced Computational Intelligence and Intelligent Informatics.
* Proposals: Member of NSF panels in CISE (once of twice annually 2012 – 2021, then 2023).
* Others:
  · Grace Hopper Conference: reviewer of 2014 scholarship applications
  · DoD 2014 Star Award reviewer
  · NCWIT Collegiate Award reviewer 2015, 2016
  · NCWIT Educator Award reviewer 2015

– **Students**

* External advisor for a team of CS undergraduate students at Texas A&M Corpus Christi – Spring 2021.
* External reviewer of a PhD dissertation for the Computer Science program at the University of Paris 6, France, 2017.
* Co-Supervisor of 2 graduate students from ENSTA France (advisor: Prof. Luc Jaulin), interning in the TRACS lab at UTEP for five months from April to August 2014, and for three months in summer 2016 (TRACS is the lab on Theoretical Research driven by Applications in CS, which includes my research group CR2G: cr2g.constraintsolving.com)
* External reviewer of a PhD dissertation for the Executive Board of the Italian Association for Logic Programming (GULP), 2012.

- **External Tenure and Promotion Reviews**
  - External reviewer for 1 Tenure and Promotion case at a US University: Fall 2025
  - External reviewer for 1 Tenure and Promotion case at a US University: Fall 2023
  - External reviewer for 2 Tenure and Promotion cases at US Universities: fall 2021

Institutional Service since 2012

□ Department Service

- Current assignments
  - **Tenure & Promotion Committee** member – since September 2012
  - **CS Undergraduate Curriculum Committee** member
  - **CS Fundamentals course cluster CQI committee** member since fall 2022, chair from 2015 to 2022
  - **Faculty advisor to student club:** Code Core – Fall 2025-present
- Previous assignments
  - **Post-Tenure Review Committee** chair for 2 faculty members – Fall 2024
  - **Graduate advisor to all MS CS students – August 2022 to November 2023**
  - **Lead** of a departmental brown bag discussion series on teaching topics (e.g., transitioning to teaching large classes) – 2018 to 2023
  - **Computer Science Department's course schedule** – 2007 to 2010, 2012 to 2017, and Fall 2018 to Fall 2022 (in an advisory capacity)
  - **CS Faculty Search committee**, Fall 2018 – Spring 2019, Fall 2019 – Spring 2020, co-chair in Fall 2021 – Spring 2022 (2 positions).
  - **CS Faculty Annual Performance Review Committee** – Feb. 2015 to May 2022
  - **CS Academic advisor to undergraduate students** – about 25 a semester – until Fall 2021
  - **CS Chair sub:** 2 weeks in July 2021
  - **Weekly online social hour**, lead – March 2020 to Summer 2021
  - **Faculty Advisor:**
    - CS student organization called Out of Bounds (activity: project group development) – 2021-2023
    - ACM-W chapter at UTEP (Founder and advisor, 2012 – 2018) As the ACM-W advisor, I guided and supervised the ACM-W students in the following projects that were funded by NCWIT or Google:
    - NCWIT Seed Fund: in spring 2014 to develop a still existing mentoring program for CS UG students
    - Google IgniteCS program: in spring 2016, ACM-W was awarded its first Google IgniteCS project to put in place formal and informal program to teach computer science to young students at a middle school of El Paso. In spring 2017, they received their second award for a similar program at a high-school of El Paso.

· In fall 2017, they were very active in helping with the NCWIT Aspirations in Computing program and they are working on developing and submitting a Google First project.

* **Computer Science Advancement of Women in Computing committee** member, Aug. 2015 to 2020
* **Programming Languages course cluster Committee**: Chair, Aug. 2013 – May 2015
* **Computer Science website**: Webmaster, 2011 – 2014
* **CS ABET preparation Committee**: Member, Sept. 2012 – Fall 2013
* **2013 CS Faculty Search Committee**: Chair, Aug. 2012 – May 2013
* **2012 CS Faculty Search Committee**: Member, Dec. 2011 – April 2012

☐ **College-level Service – aside from Associate Dean's activities**

– Past assignments

* **CS Faculty advisor to student organization:** Studio Sigilo (engineering and fashion) – Fall 2023-2025
* **Dean's Search Committee:** member – Fall 2021 and Spring 2022
* **Ad-hoc Committees and Activities**
  · **Post-tenure Committee** member – Summer 2020
  · **UTEP Computer Science Representative & Presenter**, UT System meeting of Colleges of Engineering, with Brazilian Delegation – August 2019
  · **College Faculty Marshall** – May 2019
  · **Gold-Nugget Selection Committee**: Spring 2019
  · **Presenter**, LSAMP Cohort – Spring 2019
  · **NSF CAREER grant mentoring program**: Presenter (for junior faculty) – Feb. 2019
  · **Internal Grant Competition**: Reviewer – NSF MRI 2020, 2018, 2017, DoD HBCU MSI 2021
  · **University-wide NSF CAREER grant mentoring program**: Presenter and mentor (program for junior faculty led by the College of Engineering) – Feb. 2018
  · **Task force on Faculty Success**: 2013 – 2017
* **NCWIT Extension Services**: Member of the College team who worked on **increasing the number of female students in Computing**. Fall 2012 – Summer 2014
* **Facilitation Team For Information and Security**: Sept. 2011 – Nov. 2012

☐ **University-level Service**

– Current Assignments

* **Committee Member:**

- · **AAAS SEA Change committee on Career and Professional Development** member – since Spring 2024
- · **Inter-Collegiate Athletics Council** member – since November 2020
- · **UTEP Academy of Distinguished Teachers** member – since Fall 2019; Treasurer – 2023-26; Secretary – 2026-present
- · **Women's Advisory Council to the President**: Ex-officio member (as past chair), since 2019
- · **COURI's Board of Advisors**: Member, since 2015. COURI is the Campus Office for Undergraduate Research Initiatives at UTEP
- · **UTEP's Mama Ph.D. group**: Member, since 2010

* **UTEP EDGE Fellow** – since February 2018
* **OSCCR Hearing Officer** – since September 2018

– Previous Assignments

* **Lead of the Special Interest Group in Teaching Effectiveness** – 2025-26
* **Chair: Teaching Effectiveness and Development Committee:** standing committee of UTEP's Faculty Senate – Fall 2024 to September 1, 2025
* **Provost Fellow** for Diversity, Equity, and Inclusion – September 2022 to August 2023
* **Faculty Senate Committee on Committees** – Spring 2019 – Fall 2021
* **Mentoring Circles** Faculty mentor – Spring 2020 (canceled after one session due to pandemic), Spring 2021
* **Provost Search Committee** – Fall 2019 - Spring 2020
* Ad-hoc Committees
  - · **Flo Hyman Award Selection committee** recognizing K-5, 6-8, 9-12 young women with outstanding leadership and athletic record – member, August 2021 to February 2022
  - · **President of Hearing Tribunal** – June 2021 to September 2021
  - · **BUILD mentoring award** reviewer – July 2020
* **Faculty Senate**: Vice-President, 2014 – 2015
* **Executive Council of the Faculty Senate**
  - · Member as representative of UTEP's College of Engineering, 2015 – 2017
  - · Secretary, 2012 – 2014
  - · Representative of the executive council on the IT standing committee of the Faculty Senate, 2013 – 2014
  - · Representative of the executive council on the UGCC and Student Grievance Committee standing committee of the Faculty Senate, 2014 – 2015
  - · Member: 2010 – 2012
* **Executive committee of the Computational Sciences Program** 2008 – 2015
* **Board of the Women's Resource Center** (now Student Resource Center): 2011 – 2014
* **UTEP's Undergraduate Curriculum Committee** (standing committee of the Faculty Senate): 2011 – 2014

* **Computational Sciences Faculty Search**: Member, September 2013 – April 2014
* **Women's Advisory Council to the President**
  - Chair, Sept. 2010 – December 2012
  - As past chair, Jan. 2013 – Dec. 2013
  - Member, 2006 – 2013

Local / State / Global Outreach & Service since 2012

- **Faculty advisor** for a **virtual research program for high-school students** (Fall 2020 + Spring 2021)
  - Nexus program at UTEP moved online: 6-week online program; 8 female (junior and senior) HS students participated in the pilot program in fall 2020. We will conduct a similar program starting in late March with freshmen and sophomore female HS students.
- **Faculty advisor** for **summer research projects for high-school students** (2010 through 2017 and 2021 through 2023)
  - Nexus program at UTEP: summer internship for high-school students in my research lab. *Notably: an unprecedented high-number of interns participated in summers 2014 and 2016: 7 female high-school students)*
- **NCWIT Aspirations in Computing Regional Affiliate Competition Coordinator**
  - Coordinator of the El Paso affiliate, fall 2015 to spring 2018
  - Coordinator of the El Paso/Las Cruces affiliate from 2011 to spring 2014
    15 schools of El Paso/Las Cruces and the wider area have participated in the competition, and over 50 young women have been honored.
- **Presentations about computer science** I regularly give presentations about computer science, at UTEP or at various schools of the El Paso area.
  - **Presentations to K-12 Students**
    * Presentation to El Paso High School Computer Science students – Spring 2022.
    * Presentation to El Paso High School students visiting UTEP – Feb. 2018. Audience ≈ 80.
    * Presentation to the Girls-Who-Code group from Harmony Science Middle School of El Paso – UTEP, May 2017. Audience: 8.
    * Presentation to an all-girls summer camp at Fab Lab El Paso – June 2016
    * Presentation at Harmony Science Academy of El Paso about computer science and careers (December 2014)
    * Invited speaker at the New Mexico Celebration of Women in Computing, Las Cruces, NM (November 2012).

- **Presentations to College Students**
    - Guest speaker at the Annual banquet of UTEP's SWE student chapter, 2018
    - Presentation to doctorate students about being a professor in computer science, May 2015

- **Career Fairs/Days presenter:**
    - Harmony Science Academy: promoting Computer Science, (November 2016)
    - Girls Powered Event presenter at Eastwood High School in El Paso (October 2016)
    - Ibero Academy: Presentation about Computer Science to Kindergartdeners, 1st graders, and 2nd graders (May 2014)
    - Loretto Academy of El Paso – all-girls middle and high school (April 2011, April 2012, April 2014)

- **UTEP tours and open house events**
    - Hosted a day of Computer Science for Bel-Air High School in June 2017 (about 50 students)
    - Hosted a day of Computer Science and Engineering for Saint Patrick's Elementary School – 3rd to 5th grade – in May 2017 (about 60 students)
    - Hosted a day of Computer Science and Engineering for Saint Patrick's Middle School in December 2016 (about 80 students)
    - Hosted a day of Computer Science for Bel-Air High School in May 2016 (about 50 students)
    - Participates in UTEP's Orange and black Days, and other events such as Open houses annually
    - Regularly prepare presentation material and train my research team students to give overviews of CS to visiting students.

- **High-school classroom innovation:**
    - Computer Science and Language Learning, Loretto Academy of El Paso (Fall 2013).

- **Judge:**
    - Science Fair judge at Harmony Science Academy Middle School, El Paso, February 2017.
    - Science Fair judge at St Patrick's Elementary and Middle School, El Paso, February 2016 and 2017.

Administrative Role – since August 2023

Below is an outline of my activities in the role as Associate Dean of Engineering for People, Culture, and Environment, in which I have been serving since August 2023.

In alignment with UTEP's strategic priority of fostering a culture of care, as Associate Dean for People, Culture, and Environment (ADPCE), I am committed to nurturing an environment of inclusive excellence for all members of the College of Engineering. A strong culture – one where everyone feels seen, valued, respected, and supported – is a vital catalyst for success. By fostering belonging, trust, and respect, we create the foundation for faculty, staff, and students to achieve their full potential.

Key dimensions of this culture include prioritizing professional development, providing mentorship, and ensuring transparency in policies and procedures that guide periodic reviews such as tenure and promotion for faculty and performance evaluations for staff. To this end, I have devoted significant effort to:

- Expanding access to professional development opportunities, both through programs I design and deliver, and by promoting resources available across and beyond the university: this includes creating pathways and mentoring so faculty and staff see how they can evolve;
- Creating spaces for dialogue and exchange, including book clubs, retreats, and listening & information sessions on tenure and promotion;
- Mentoring faculty at all career stages through initiatives such as the New Faculty Series, mentoring events, and information sessions;
- Providing clarity on policies and procedures related to tenure and promotion (including third-year review), annual evaluations, post-tenure reviews, and workload policies: this includes drafting new policy that promote clarity and usefulness; and
- Overseeing college review processes to ensure transparency, consistency, and timeliness.

In addition, I lead initiatives that advance the College's alignment with UTEP's broader commitment to inclusive excellence and its emphasis on teaching, learning, and the student experience. This includes supporting faculty in demonstrating and enhancing their effectiveness as instructors.

Finally, in my role as ADPCE, I serve as a point of contact, advisor, and mediator for issues involving faculty, staff, or students.

Notable accomplishments since August 2023:

- *New Faculty Series of Workshops:* A cohort-based program providing orientation, mentoring, and community-building to support new faculty onboarding and foster belonging;

- *Simplification of the third-year review process:* Streamlined by replacing the annual evaluation during the review year;
- *Streamlining of post-tenure review:* Improved clarity and efficiency in review procedures;
- *Clarification of the tenure and promotion process:* Delivered through dedicated information and listening sessions.