Martine Ceberio

Professor of Computer Science

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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. **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

Publications since 2019

□ Chapters in Scholarly Books and Monographs

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, published or accepted in Final Form

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 Proceedings (peer reviewed)**

C33 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)**.

C32 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)**.

C31 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.

C30 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.

C29 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.

C28 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.

C27 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.

C26 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.

C25 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.

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.

□ Refereed Workshop Proceedings (peer reviewed)

W1 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.

□ 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.

□ Contributed Presentations Related to Education

Ed15 **InSPIRE HIIT Conference.** "Guiding Students as Co-Learners with AI in an Advanced Algorithms Course", November 2025.

Ed14 **AI in Teaching** panelist at AI Forum organized by UTEP's InSPIRE center, July 2025.

Ed13 **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

Ed12 **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

Ed11 **Celebrating Failure as an Essential Part of Learning**, invited workshop presentation at the University of Texas in Dallas, October 2024

Ed10 **Let's Talk about Students' Success**, invited workshop presentation at the University of North Texas in Dallas, September 2024

Ed9 **Celebrating Failure as Part of Learning**, selected to be presented at the National Higher Education Teaching Conference, Minneapolis, June 2024.

Ed8 **Research and Creativity Week: Critical Dialogues**, New Mexico State University, Las Cruces, February 2024.

Ed7 **Google Faculty in Residence Panel**: moderated by Jaye Espe, June 2021.

Ed6 Martine Ceberio, Jonatan Contreras, **"Putting the Focus on Learning",** UTEP's SOL (Support for Online Learning) Conference 2021.

Ed5 Sarah Taylor Hug, Martine Ceberio, et Al. **"Reflecting on Reflection: Integrating critical ways of thinking into computer science teaching and learning practice"**. SIGCSE 2021.

Ed4 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.

Ed3 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

Ed2 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

Ed1 Ann Gates, Martine Ceberio. Joint presentation on **Strategies to Foster Retention during an Enrollment Growth Period**. Tapia Conference, September 18-21, 2019

☐ **Invited Presentations and Plenary Talks**

Pres6 **Invited Speaker at Annual Lecture from a UT System Academy of Distinguished Teacher**, University of Texas in Dallas, October 2024

Pres5 **Teaching Day**, University of North Texas, Dallas TX. (September 6, 2024).

Pres4 **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).

Pres3 **Invited Plenary Speaker** at 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.

Pres2 **Invited Speaker** at the MARS Initiative Seminar Series – Pacific Northwest National Lab (PNNL), July 2020. Hosted by Samrat Chatterjee.

Pres1 **Invited Plenary Speaker** at the 2020 International Workshop on Engineering Applications (virtually held from Bogota, Colombia);

Grants and Contracts since 2019

☐ **Total Grants and Contracts since 2019**

Since 2019: Total is $3,609,059.

- **Federal funding: $3,591,059**.
- **Industry funding: $18,000**.

☐ **Federal, since 2019**

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.

☐ **Other, since 2019**

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.

Service / Outreach since 2019

Professional Service since 2019

- **Reliable Computing Journal:** Editor in Chief, January 2019 – March 2023
- **North American Fuzzy Information Processing Society – NAFIPS**
  - President, January 2019 – December 2020
  - Past President, January 2021 – December 2022
- 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.
- **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.
- **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), NAFIPS'15 – 23 special session on Interval Computations, IPMU, ACM SAC KRR
- **Reviewer for... (a selection of review assignments since 2019 only)**
  - Conferences: including 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), Workshop on Engineering Applications (WEA), FLAIRS, FuzzIEEE, IFSA-NAFIPS, FuzzIEEE, AMAI, XAI, ASEE.
  - Journals: including Reliable Computing, the International Journal on Approximate Reasoning (IJAR), the Journal of Experimental and Theoretical Artificial Intelligence, JACII, Acta Cybernetica
  - Proposals: Member of NSF panels in CISE (once of twice annually 2012 – 2021, 2023, 2025).

- **Students**
  - External advisor for a team of CS undergraduate students at Texas A&M Corpus Christi – Spring 2021.
- **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
- 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
  - **Computer Science Advancement of Women in Computing committee** member, Aug. 2015 to 2020

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

- Past assignments
  - **CS Faculty advisor to student organization:** Studio Sigilo (engineering and fashion) – Fall 2023-Summer 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-level Service**

- Current Assignments
  - **Teaching Professional Development Workshop Series:** Lead and presenter
    - Designed and delivered 6 workshops around teaching effectiveness and teaching portfolio in Fall 2023-Spring 2024, 6 workshops in Fall 2024-Spring 2025, 7 workshops planned for Fall 2025-Spring 2026
    - Attendance: over 60 people overall (about 12 to 20 participants per workshop, including repeat participants)
  - **Co-lead of UTEP's Student Experience Project Initiative**
    - Community of Practice of 50 faculty and 20 TAs on campus, including all faculty from Entering Student Experience (UNIV1301, Developmental Math, Developmental English) and a number of other courses across campus from faculty who took ACUE's microcredential course on Fostering a Culture of Belonging
    - Professional development for faculty
    - Over 5,000 UTEP students impacted since Fall 2024
  - **Internal Selection committee lead:** for application to the UT System's Regents Outstanding Teaching Award, Spring 2026
  - **Committee Member:**
    - **Internal Selection committee for nomination for membership in the UT System Academy of Distinguished Teachers:** member – Spring 2026
    - **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 since Fall 2023
    - * **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
  - **Chair: Teaching Effectiveness and Development Committee:** standing committee of UTEP's Faculty Senate – Fall 2024 to September 1, 2025
  - **UTEP internal Regents' Outstanding Teaching Award**
    - * Reviewer – Annually
    - * Mentor to an applicant in 2021 and 2022, who was awarded the Outstanding Teaching Award in 2022.
  - **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
  - **Facilitator** of an ACUE micro-credential course on Fostering a Culture of Belonging – Spring 2023
  - **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
  - **Women's Advisory Council to the President**: member

☐ **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

Local / State / Global Outreach & Service since 2019

- **Google Faculty Development Programs**
  - Virtual Cohort subgroup lead – spring 2020 – 2023
    This group meets once a month to discuss pedagogy in computer science.
  - 2019 Faculty in Residence mentor (Mountain View, CA) – June 2019
- **Advisory Boards**
  - Merced College Computer Science programs – Spring 2021 to Spring 2023
- **Local Advisory Boards**
  - El Paso High STEM Academy – 2019-2022
  - Harmony Science Academy of El Paso – 2012-2021
  - Bel-Air's T-STEM Academy – 2017-2020
  - Eastlake High School CSE program – 2015-2019
- **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)*
- **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.

Professional Development since 2019

The following are programs and meetings I attended in recent years and that contributed to my professional development.

- **Generative AI and the Future of Teaching**, workshop at UT Permian Basin, Fall 2025
- **Certificate in AI for Higher Education with a focus on Faculty Leadership Administration**, training throught the Digital Education Council, Fall 2025
- **Blackboard course tools** training – UTEP, Fall 2025

- **Building a Culture of Psychological Safety: 8 Behaviors Every Leader Must Master**, training by Zenger Folkman, Fall 2025
- **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
- **UTEP Workshops and Conferences**
  - 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
  - Early College High-School Students: How to make sure that they are integrated in our classrooms – April 2019
- **Other Workshops**
  - 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
- **National Workshops and Conferences**
  - 2021 SIGCSE Conference – March 2021
  - 2019 Tapia Conference – September 2019

Administrative Role – since 2023

Below is an outline of my activities in my role as Associate Dean of Engineering for People, Culture, and Environment.

In alignment with UTEP's strategic priority of fostering a culture of care, as Associate Dean for People, Culture, and Environment (ADPCE), I amcommitted 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 inclusive 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;
- 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; 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.