

# Martine Ceberio

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## □ Chronology of Employment

Since Sept. 2012, **Associate Professor**

*Computer Science Department, The University of Texas at El Paso (UTEP), USA*

Aug. 2004 – Aug. 2012, **Assistant Professor**

*Computer Science Department, The University of Texas at El Paso (UTEP), USA*

★ Including two 1-year extension of my probationary period (2007, 2009)

Aug. 2003 – Aug. 2004, **Visiting Assistant Professor**

*Computer Science Department, The University of Texas at El Paso (UTEP), USA*

Sept. 1999 – May 2003, **Student instructor and Research Assistant**

*Computer Science Department, University of Nantes, France*

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## □ Chronology of Education

May 2003, **Ph.D. in Computer Science**

*Department of Computer Science, University of Nantes, France*

Title: “Contributions to Numerical Under and Over-Constrained CSPs: Symbolic Tools and Flexible Constraints”

Advisors: Professors Frédéric Benhamou and Laurent Granvilliers

1999, **D.E.A. of Computer Science** (Diplôme d’Études Approfondies)

*Department of Computer Science, University of Nantes, France*

(D.E.A.: Diplôme d’Études Approfondies) Advisors: Professors Frédéric Benhamou and Olivier Lhomme

1997, **M.S. in Mathematics**

*Department of Mathematics, University of Nantes, France*

1995, **B.S. in Mathematics**

*Department of Mathematics, University of Poitiers, France*

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## □ Honors and Awards

- Faculty Co-author of Best Student Paper Award (first place), NAFIPS’2015 Annual Conference and 5<sup>th</sup> World Conference on Soft Computing, August 2015

- Faculty Co-author of Best Student Paper Award (first place), NAFIPS'2011 Annual Conference, March 2011
- Faculty Marshall at UTEP's Spring 2011 Commencement
- Office of Research And Sponsored Projects Outstanding Performance Award, 2009-2010, for Outstanding Performance in Securing Extramural Funding
- NSF IMPACT Seminar Fellowship, UTEP 2006 – 2007

## □ Publications / Creative Activity (Published or Accepted)

### □ Books as Editor

- B2 Ceberio, M. C., Kreinovich, V. Y., Constraint Programming and Decision Making: Theory and Applications.. Springer Verlag, Berlin, Heidelberg. (To appear in 2016)
- B1 Ceberio, M. C., Kreinovich, V. Y., Constraint Programming and Decision Making. Springer Verlag, Berlin, Heidelberg. (2014)

### □ Chapters in Scholarly Books and Monographs

- Ch21 Martine Ceberio, Olga Kosheleva, and Vladik Kreinovich, “Optimizing  $\text{pred}(25)$  Is NP-Hard”, In: Martine Ceberio and Vladik Kreinovich (eds.), **Constraint Programming and Decision Making: Theory and Applications**, Springer Verlag, Berlin, Heidelberg, to appear.
- Ch20 Martine Ceberio, Olga Kosheleva, and Vladik Kreinovich, “Constraint Approach to Multi-Objective Optimization”, In: Martine Ceberio and Vladik Kreinovich (eds.), **Constraint Programming and Decision Making: Theory and Applications**, Springer Verlag, Berlin, Heidelberg, to appear.
- Ch19 Martine Ceberio, Olga Kosheleva, and Vladik Kreinovich, “From Global to Local Constraints: A Constructive Version of Bloch’s Principle”, In: Martine Ceberio and Vladik Kreinovich (eds.), **Constraint Programming and Decision Making: Theory and Applications**, Springer Verlag, Berlin, Heidelberg, to appear.
- Ch18 Martine Ceberio, Olga Kosheleva, and Vladik Kreinovich, “Range Estimation under Constraints is Computable Unless There Is a Discontinuity”, In: Martine Ceberio and Vladik Kreinovich (eds.), **Constraint Programming and Decision Making: Theory and Applications**, Springer Verlag, Berlin, Heidelberg, to appear. pdf file
- Ch17 Juan Carlos Figueroa Garcia, Martine Ceberio, and Vladik Kreinovich, “Algebraic Product is the Only t-Norm for Which Optimization Under Fuzzy Constraints is Scale-Invariant”, In: Martine Ceberio and Vladik Kreinovich (eds.), **Constraint Programming and Decision Making: Theory and Applications**, Springer Verlag, Berlin, Heidelberg, to appear.
- Ch16 Martine Ceberio, Olga Kosheleva, and Vladik Kreinovich, “Towards a Physically Meaningful Definition of Computable Discontinuous and Multi-Valued Functions (Constraints)”, In: Martine Ceberio and Vladik Kreinovich (eds.), **Constraint Programming and Decision Making: Theory and Applications**, Springer Verlag, Berlin, Heidelberg, to appear.

- Ch15 Olga Kosheleva, Martine Ceberio, and Vladik Kreinovich, “Peak-End Rule: A Utility-Based Explanation”, In: Martine Ceberio and Vladik Kreinovich (eds.), **Constraint Programming and Decision Making: Theory and Applications**, Springer Verlag, Berlin, Heidelberg, to appear.
- Ch14 Martine Ceberio, Olga Kosheleva, and Vladik Kreinovich, “Simplicity Is Worse Than Theft: A Constraint-Based Explanation of a Seemingly Counter-Intuitive Russian Saying”, In: Martine Ceberio and Vladik Kreinovich (eds.), **Constraint Programming and Decision Making**, Springer Verlag, Berlin, Heidelberg, 2014, pp. 9-14.
- Ch13 Martine Ceberio and Vladik Kreinovich, “Continuous If-Then Statements Are Computable”, In: Martine Ceberio and Vladik Kreinovich (eds.), **Constraint Programming and Decision Making**, Springer Verlag, Berlin, Heidelberg, 2014, pp. 15-18.
- Ch12 Aline Jaimes, Craig Tweedie, Tanja Magoc, Vladik Kreinovich, and Martine Ceberio, “Selecting the Best Location for a Meteorological Tower: A Case Study of Multi-Objective Constraint Optimization”, In: Martine Ceberio and Vladik Kreinovich (eds.), **Constraint Programming and Decision Making**, Springer Verlag, Berlin, Heidelberg, 2014, pp. 61-66.
- Ch11 Olga Kosheleva, Martine Ceberio, and Vladik Kreinovich, “Why Tensors?”, In: Martine Ceberio and Vladik Kreinovich (eds.), **Constraint Programming and Decision Making**, Springer Verlag, Berlin, Heidelberg, 2014, pp. 75-78.
- Ch10 Olga Kosheleva, Martine Ceberio, and Vladik Kreinovich, “Adding Constraints – A (Seemingly Counterintuitive but) Useful Heuristic in Solving Difficult Problems”, In: Martine Ceberio and Vladik Kreinovich (eds.), **Constraint Programming and Decision Making**, Springer Verlag, Berlin, Heidelberg, 2014, pp. 79-84.
- Ch9 Vladik Kreinovich, Juan Ferret, and Martine Ceberio, “Constraint-Related Reinterpretation of Fundamental Physical Equations Can Serve as a Built-In Regularization” In: Martine Ceberio and Vladik Kreinovich (eds.), **Constraint Programming and Decision Making**, Springer Verlag, Berlin, Heidelberg, 2014, pp. 91-96.
- Ch8 Paden Portillo, Martine Ceberio, and Vladik Kreinovich, “Towards an Efficient Bisection of Ellipsoids”, In: Martine Ceberio and Vladik Kreinovich (eds.), **Constraint Programming and Decision Making**, Springer Verlag, Berlin, Heidelberg, 2014, pp. 137-142.
- Ch7 Uram Anibal Sosa Aguirre, Martine Ceberio, and Vladik Kreinovich, “Why Curvature in L-Curve: Combining Soft Constraints”, In: Martine Ceberio and Vladik Kreinovich (eds.), **Constraint Programming and Decision Making**, Springer Verlag, Berlin, Heidelberg, 2014, pp. 175-180.
- Ch6 Christian Servin, Martine Ceberio, Aline Jaimes, Craig Tweedie, and Vladik Kreinovich, “How to Describe and Propagate Uncertainty When Processing Time Series: Metrological and Computational Challenges, with Potential Applications to Environmental Studies”, In: Shyi-Ming Chen and Witold Pedrycz (eds.), **Time Series Analysis, Modeling and Applications: A Computational Intelligence Perspective**, Springer Verlag, 2013, pp. 279-299.
- Ch5 Martine Ceberio, Vladik Kreinovich, Andrzej Pownuk, and Barnabas Bede, “From Interval Computations to Constraint-Related Set Computations: Towards Faster Estimation of Statistics and ODEs Under Interval, P-Box, and Fuzzy Uncertainty”, In: JingTao

Yao (ed.), **Novel Developments in Granular Computing: Applications for Advanced Human Reasoning and Soft Computation**, IGI Global Publisher, pp. 131-147, 2010.

- Ch4 Tanja Magoč, François Modave, Vladik Kreinovich, and Martine Ceberio, “Risk Management in Investment Portfolios: The Use Of Fuzzy Measures, Fuzzy Integrals and Constraint Programming”, Aboul-Ella Hassanién and Ajith Abraham (Eds), Foundations on Computational Intelligence, in **Studies in Computational Intelligence**, Springer Verlag, Vol. 202/2009, pp 133-173, 2009.
- Ch3 Hung T. Nguyen, Vladik Kreinovich, François Modave, and Martine Ceberio, “Fuzzy Without Fuzzy: Why Fuzzy-Related Aggregation Techniques Are Often Better Even in Situations Without True Fuzziness”, Aboul-Ella Hassanién and Ajith Abraham (Eds), Foundations of Computational Intelligence, Springer-Verlag, 2009, Vol. 2, pp. 27-51.
- Ch2 Martine Ceberio and François Modave, “Interval-based Multicriteria Decision Making”, in **Modern Information Processing: From Theory to Applications**, edited by B. Bouchon-Meunier, G. Coletti, R. R. Yager (Eds), Elsevier Mathematics, pp. 281–294, 2006.
- Ch1 Martine Ceberio, Ken Satoh, and Hiroshi Hosobe, “Speculative Constraint Processing with Multi-Agent Belief Revision”, in Francesca Toni and Paolo Torroni (Eds.), **Computational Logic in Multi-Agent Systems – CLIMA VI** (Post-Proceedings of the 6th International Workshop on Computational Logic in Multi-Agent Systems), Lecture Notes in Artificial Intelligence, Vol. 3900, pp. 340–357, Springer-Verlag, 2006.

□ **Refereed Journal Articles, published or accepted in Final Form**

● **Refereed Journal Articles**

- J22 Vladik Kreinovich, Martine Ceberio, and Quentin Brefort, “In category of sets and relations, it is possible to describe functions in purely category terms”, **Eurasian Mathematical Journal**, 2015, Vol. 6, No. 2, pp. 90-94.
- J21 Quentin Brefort, Luc Jaulin, Martine Ceberio, and Vladik Kreinovich, “Towards Fast and Reliable Localization of an Underwater Object: An Interval Approach”, **Journal of Uncertain Systems**, 2015, Vol. 9, No. 2, pp. 95-102.
- J20 Karen Villaverde, Olga Kosheleva, Martine Ceberio, “Computations under Time Constraints: Algorithms Developed for Fuzzy Computations can Help”. **Journal of Uncertain Systems**, 26(2), 138-145, 2013.
- J19 Olga Kosheleva, Martine Ceberio, “How Accurately Should We Write on the Board? When Marking Comments on Student Papers?”. **Journal of Uncertain Systems**, 6(2), 89-91, 2013.
- J18 Xiaojing Wang, Martine Ceberio, Shamsnaz Virani, Angel Garcia, and Jeremy Cummins. “A Hybrid Algorithm to Extract Fuzzy Measures for Software Quality Assessment”. **Journal of Uncertain Systems**, 2013.
- J17 Vladik Kreinovich, Christelle Jacob, Didier Dubois, Janette Cardoso, Martine Ceberio (2012). “Failure Analysis of a Complex System Based on Partial Information about Subsystems, with Potential Applications to Aircraft Maintenance”. **Journal of Applied and Computational Mathematics**, 11(2), 165-179.

- J16 Aline Jaimes, Craig Tweedie, Vladik Kreinovich, and Martine Ceberio, “Scale-Invariant Approach to Multi-Criterion Optimization under Uncertainty, with Applications to Optimal Sensor Placement, in Particular, to Sensor Placement in Environmental Research”, **International Journal of Reliability and Safety**, 2012, Vol. 6, No. 1-3, pp. 188-203.
- J15 Aline Jaimes, Craig Tweedy, Tanja Magoc, Vladik Kreinovich, and Martine Ceberio, “Selecting the Best Location for a Meteorological Tower: A Case Study of Multi-Objective Constraint Optimization”, **Journal of Uncertain Systems**, 2010, Vol. 4, No. 3.
- J14 Martine Ceberio and Vladik Kreinovich, “Computing with Tensors: Potential Applications of Physics-Motivated Mathematics to Computer Science”, **Journal of Uncertain Systems**, 2010, Vol. 4, No. 3.
- J13 Martine Ceberio and Vladik Kreinovich, “Diagonalization is also practically useful: a geometric idea”, **Geoinformatics**, 2010, Vol. 20, No. 1, pp. 15-20.
- J12 Omar Ochoa, Martine Ceberio, and Vladik Kreinovich, “How to Describe Spatial Resolution: An Approach Similar to the Central Limit Theorem”, **Applied Mathematical Sciences**, 2010, Vol. 4, No. 63, pp. 3153-3160.
- J11 Martine Ceberio, Vladik Kreinovich, Gunter Mayer, “For Complex Intervals, Exact Range Computation Is NP-Hard Even for Single Use Expressions (Even for the Product)”, **Reliable Computing Journal**, 2007.
- J10 Daniel Berleant, Martine Ceberio, Gang Xiang, Vladik Kreinovich, “Towards Adding Probabilities and Correlations to Interval Computations”, **International Journal of Approximate Reasoning**, 2007.
- J9 Gang Xiang, Martine Ceberio, Vladik Kreinovich, “Computing Population Variance and Entropy under Interval Uncertainty: Linear Time Algorithms”, **Reliable Computing**, 2007.
- J8 Martine Ceberio, Scott Ferson, Vladik Kreinovich, Sanjeev Chopra, Gang Xiang, Adrian Murguia, and Jorge Santillan, “How To Take Into Account Dependence Between the Inputs: From Interval Computations to Constraint-Related Set Computations, with Potential Applications to Nuclear Safety, Bio- and Geosciences”, **Journal of Uncertain Systems**, 2007.
- J7 Martine Ceberio, Vladik Kreinovich, Sanjeev Chopra, Luc Longpre, Hung T. Nguyen, Bertram Ludaescher, and Chitta Baral, “Interval-Type and Affine Arithmetic-Type Techniques for Handling Uncertainty in Expert Systems”, **Journal of Computational and Applied Mathematics**, 2007, Vol. 199, No. 2, pp. 403-410.
- J6 Scott Starks, Vladik Kreinovich, Luc Longpré, Martine Ceberio, Gang Xiang, Roberto Araiza, Jan Beck, Radhi Kandathi, A. Nayak, and Roberto Torres, “Towards Combining Probabilistic and Interval Uncertainty in Engineering Calculations: Algorithms for Computing Statistics under Interval Uncertainty, and Their Computational Complexity”, **Reliable Computing**, Vol. 12, No 6, pp. 471-501, Dec. 2006.
- J5 Frédéric Benhamou, Martine Ceberio, Philippe Codognet, Hiroshi Hosobe, Christophe Jermann, Ken Satoh, Kasunori Ueda, “Franco-Japanese Research Collaboration in Constraint Programming, R&D Project Report”, **Progress in Informatics**, no 3, pp. 59-65, 2006.
- J4 Chandra S. Peadamallu, Linet Ozdamar, Martine Ceberio, “Efficient Interval Partitioning – Local Search Collaboration for Constraint Satisfaction”, **Journal on Computers and Operations Research**, 2006.

- J3 Martine Ceberio and Vladik Kreinovich, “Fast Multiplication of Interval Matrices (Interval Version of Strassen’s Algorithm)”, **Reliable Computing**, Vol. 10, No. 3, pp. 241-243, April 2004.
- J2 Martine Ceberio and Vladik Kreinovich, “Greedy Algorithms for Optimizing Multivariate Horner Schemes”, in **ACM-SIGSAM Bulletin**, Vol. 38, No. 1 (147), pp. 8-15, March 2004.
- J1 Martine Ceberio, Laurent Granvilliers, “Horner’s Rule for Interval Evaluation Revisited”, **Computing**, Vol. 69, No 1, pp. 51–81, 2002.
- **Refereed Conference Proceedings (peer reviewed)**
- C42 Martine Ceberio, Leobardo Valera, Olga Kosheleva, and Rodrigo Romero. “Model Reduction: Why It Is Possible and How It Can Potentially Help to Control Swarms of Unmanned Aerial Vehicles”. To be published in the Proceedings of the North American Fuzzy Information Processing Society Annual Conference, NAFIPS’2015.
- C41 Brefort, Q., Jaulin, L., Ceberio, M. C., Kreinovich, V. Y., (2014). “If We Take Into Account that Constraints Are Soft, Then Processing Constraints Becomes Algorithmically Solvable”. (pp. 1-10). Proceedings of the IEEE Symposium on Computational Intelligence for Engineering Solutions, Orlando, Florida SSCI’2014, December 9-12, 2014.
- C40 Miguel Argaez, Miguel Hernandez, Leticia Velazquez, Martine Ceberio, Reinaldo Sanchez-Arias, “Reduced-Order Modeling Using Orthogonal Wavelets”, to be published in the proceedings of **IFORS Barcelona 2014**.
- C39 Paula A. Gonzalez-Parra, Martine Ceberio, Sunmi Lee, Carlos Castillo-Chavez. “Optimal Control for a Discrete Time Influenza Model”. In the proceedings of the **Second Colombian Congress of Computational Biology and Bioinformatics (CCB-COL 2013)**.
- C38 X. Wang, M. Ceberio, A. Garcia. “Towards Fuzzy Method for Estimating Prediction Accuracy for Discrete Inputs, with Application to Predicting At-Risk Students”. Proceedings of the **Annual Conference of North American Fuzzy Information Processing Society (NAFIPS’2013)**, Alberta, Canada, June 2013.
- C37 X. Wang, M. Ceberio, S. Virani, C. Del Hoyo, and L. Gutierrez. “Fuzzy measure extraction for software quality assessment as a multi-criteria decision-making problem”. Proceedings of the **2012 International Conference on Software Engineering Research and Practice**, Las Vegas, NV, July 2012.
- C36 X. Wang, A. F. Garcia Contreras, M. Ceberio, C. Del Hoyo, L. C. Gutierrez, and S. Virani. “Interval-based algorithms to extract fuzzy measures for software quality assessment”. Proceedings of the **Annual Conference of North American Fuzzy Information Processing Society (NAFIPS’2012)**, Berkeley, CA, August 2012.
- C35 Xiaojing Wang, Angel Garcia Contreras, Martine Ceberio, Christian Del Hoyo, Luis Gutierrez, “A Speculative Algorithm to Extract Fuzzy Measures from Sample Data”, Proceedings of the **2012 annual international conference of Fuzz-IEEE (FuzzIEEE’12)**.
- C34 Vladik Kreinovich, Christelle Jacob, Didier Dubois, Janette Cardoso, Martine Ceberio, and Ildar Batyrshin, “Estimating Probability of Failure of a Complex System Based on Inexact Information about Subsystems and Components, with Potential Applications to Aircraft Maintenance”, In: I. Batyrshin and G. Sidorov (eds.), Proceedings

- of the **10th Mexican International Conference on Artificial Intelligence MICAI'2011**, Puebla, Mexico, November 26 - December 4, 2011, Springer Lecture Notes in Artificial Intelligence, Vol. 7905, pp. 70-81.
- C33 Martine Ceberio and Vladik Kreinovich, "No-Free-Lunch Result for Interval and Fuzzy Computing: When Bounds Are Unusually Good, Their Computation is Unusually Slow", In: I. Batyrshin and G. Sidorov (eds.), Proceedings of the **10th Mexican International Conference on Artificial Intelligence MICAI'2011**, Puebla, Mexico, November 26 - December 4, 2011, Springer Lecture Notes in Artificial Intelligence, Vol. 7905, pp. 13-23.
- C32 Jan Sliwka, Luc Jaulin, Martine Ceberio, and Vladik Kreinovich, "Processing Interval Sensor Data in the Presence of Outliers, with Potential Applications to Localizing Underwater Robots", Proceedings of the **2011 IEEE International Conference on Systems, Man, and Cybernetics SMC'2011**, Anchorage, Alaska, October 9-12, 2011, pp. 2330-2337.
- C31 Paden Portillo, Martine Ceberio, and Vladik Kreinovich, "Towards an Efficient Bisection of Ellipsoids", Proceedings of the **ITEA Live-Virtual-Constructive Conference "Test and Evaluation"**, El Paso, Texas, January 24-27, 2011.
- C30 Karen Villaverde, Olga Kosheleva, and Martine Ceberio, "Computations under Time Constraints: Algorithms Developed for Fuzzy Computations Can Help", Proceedings of **NAFIPS 2011, the North American Fuzzy Information Processing Society**, 2011.
- C29 Xiaojing Wang, Jeremy Cummins, and Martine Ceberio, "The Bees Algorithm to Extract Fuzzy Measures from Sample Data", *best student paper award*, Proceedings of **NAFIPS 2011, the North American Fuzzy Information Processing Society**, 2011. Best Student Paper Award (first place).
- 28 Olga Kosheleva, Martine Ceberio. "Why polynomial formulas in soft computing, decision making, etc.?" In the Proceedings of the International conference FUZZ-IEEE 2010: pp. 1-5.
- C27 Aline Jaimes, Craig Tweedie, Tanja Magoc, Vladik Kreinovich, and Martine Ceberio, "Multi-Objective Optimization under Positivity Constraints, with a Meteorological Example", Proceedings of the **IEEE World Congress on Computational Intelligence WCCI'2010**, Barcelona, Spain, July 18-23, 2010, pp. 2355-2361.
- C26 Carlos Acosta and Martine Ceberio, "A Constraint-Based Approach to Verification of Programs with Floating-Point Numbers", in the Proceedings of **SERP'08 - the 2008 International Conference on Software Engineering Research and Practice**, 2008.
- C25 Martine Ceberio and Christian Servin, "Cascade Vulnerability Problem Simulator Tool", in the Proceedings of the **2008 International Conference on Modeling, Simulation and Visualization Methods, MSV'08**, pp. 227-231, 2008.
- C24 Yoonsik Cheon, Antonio Cortes, Martine Ceberio, and Gary T. Leavens, "Integrating Random Testing with Constraints for Improved Efficiency and Diversity", in the **20th International Conference on Software Engineering and Knowledge Engineering, SEKE'08**, San Francisco Bay, California, USA, July 1-3, 2008.
- C23 Roberto Araiza, Martine Ceberio, Naga Suman Kanagala, Vladik Kreinovich, and Gang Xiang, "Applications of 1-D Versions of Image Referencing Techniques to Hydrology

- and to Patient Rehabilitation”, in the proceedings of **NAFIPS 2008, the North American Fuzzy Information Processing Society**, 2008.
- C22 Tanja Magoč, Martine Ceberio, and François Modave, ”Interval-based Multi-Criteria Decision Making: Strategies to Order Intervals”, in the proceedings of **NAFIPS 2008, the North American Fuzzy Information Processing Society**, 2008.
- C21 Naga Suman Kanagala, Martine Ceberio, Thompson Sarkodie-Gyan, Vladik Kreinovich, and Roberto Araiza, ”Identification of Human Gait in Neuro-Rehabilitation: Towards Efficient Algorithms”, in the Proceedings of the **24th Southern Biomedical Engineering Conference**, Eds. H. Nazeran, M. Goldman, and R. Schoephoerster, Medical and Engineering Publishers, pp. 153–156, 2008.
- C20 Richard D. Brower, Martine Ceberio, Patricia Nava, Thompson Sarkodie-Gyan, Huiying Yu, ”Identification of Human Gait using Fuzzy Inferential Reasoning”, in the Proceedings of **ICORR’07, the 10th International Conference On Rehabilitation Robotics**, Netherlands, 2007.
- C19 Richard Brower, Martine Ceberio, Chad MacDonald, Thompson Sarkodie-Gyan, ”Determination of Human Gait Phase Using Fuzzy Inference”, in the Proceedings of **ICORR’07, the 10th International Conference On Rehabilitation Robotics**, Netherlands, 2007.
- C18 Martine Ceberio, Vladik Kreinovich, Andrzej Pownuk, and Barnabas Bede, ”From Interval Computations to Constraint-Related Set Computations: Towards Faster Estimation of Statistics and ODEs under Interval, p-Box, and Fuzzy Uncertainty”, in the proceedings of **IFSA’07 World Congress, the International Fuzzy Systems Association** (Main theme: Theory and Applications of Fuzzy Logic and Soft Computing), 2007.
- C17 Stefano Bistarelli, Martine Ceberio, Eric Freudenthal, and Christian Servin, ”An Optimization Approach to the Cascade Vulnerability Problem using Soft Constraints”, in the proceedings of **NAFIPS 2007, the North American Fuzzy Information Processing Society**.
- C16 Michael Orshansky, Wei-Shen Wang, Martine Ceberio, Gang Xiang, ”Interval-based Robust Statistical Techniques for Non-negative Convex Functions, with Application to Timing Analysis of Computer Chips”, in the proceedings of **the 21st International Symposium on Applied Computing, SAC’06**, 2006.
- C15 Martine Ceberio, Richard Coy, François Modave, ”Multi-criteria Decision Making for Assisted Design”, in the proceedings of **IPMU’06, Information Processing and Management of Uncertainty in Knowledge-based Systems**, pp. 1567–1574, 2006.
- C14 Evgeny Dantsin, Alexander Wolpert, Martine Ceberio, Gang Xiang, and Vladik Kreinovich, ”Detecting Outliers under Interval Uncertainty: A New Algorithm Based on Constraint Satisfaction”, in the proceedings of **IPMU 2006, Information Processing and Management of Uncertainty in Knowledge-based Systems**, 2006.
- C13 Olga Kosheleva and Martine Ceberio, ”Processing Educational Data: From Traditional Statistical Techniques to an Appropriate Combination of Probabilistic, Interval, and Fuzzy Approaches”, in the Proceedings of the **International Conference FNG’05, , Information Processing and Management of Uncertainty in Knowledge-based Systems**, 2005.
- C12 Martine Ceberio, G. Randy Keller, Olga Kosheleva, Vladik Kreinovich, Roberto Araiza, M. Averill, and Gang Xiang, ”Data Processing in the Presence of Interval Uncertainty



and Erroneous Measurements: Practical Problems, Results, Challenges”, in the Proceedings of the **Second Scandinavian Workshop on Interval Methods And Their Applications**, 2005.

- C11 Martine Ceberio and Vladik Kreinovich, ”Towards an Optimal Approach to Soft Constraint Problems”, in the Proceedings of the **17th IMACS World Congress Scientific Computation, Applied Mathematics and Simulation (IMACS)**, 2005.
- C10 Martine Ceberio, Vladik Kreinovich, Sanjeev Chopra, Bertrand Ludaescher, and Emad Saad, ”Taylor Model-type Techniques for Handling Uncertainty in Expert Systems, with Potential Applications to Geoinformatics”, in the Proceedings of the **17th IMACS World Congress Scientific Computation, Applied Mathematics and Simulation (IMACS’05)**, 2005.
- C9 Martine Ceberio, Ken Satoh, and Hiroshi Hosobe, ”Speculative Constraint Processing with Iterative Revision for Disjunctive Answers”, in the proceedings of **CLIMA IV, Computational Logic in Multi-agent Systems**, pp.119–134, 2005.
- C8 Martine Ceberio and Richard Coy, ”Enhancement of Parameter Estimation using Flexible Constraints: an Application to Shock-response Study”, in the Proceedings of “**Algorithmic Mathematics and Computer Science (AMCS’05)**”, 2005.
- C7 François Modave, Martine Ceberio, Xiaojing Wang, Olga Garay, R. Ramirez, and R. Tejada, ”Comparison of Computer Attacks: an Application of Interval-based Fuzzy Integration”, in the Proceedings of **NAFIPS’05, the North American Fuzzy Information Processing Society**, 2005.
- C6 Martine Ceberio, François Modave, and Xiaojing Wang, ”Comparing Attacks: an Approach Based on Interval Computations and Fuzzy Integration”, in the Proceedings of **FuzzIEEE’05, the IEEE International Conference on Fuzzy Systems**, 2005.
- C5 P. Jaksurat, Eric Freudenthal, Martine Ceberio, and Vladik Kreinovich, ”Probabilistic Approach to Trust: Ideas, Algorithms, and Simulations”, in the Proceedings of the **5th International Conference on Intelligent Technologies (InTech’04)**, 2004.
- C4 Martine Ceberio and François Modave, ”An Interval-valued, 2-additive Choquet Integral for Multicriteria Decision Making”, in the proceedings of **IPMU 2004, Information Processing and Management of Uncertainty in Knowledge-based Systems**, 2004.
- C3 Martine Ceberio and François Modave, ”Interval-Based Multicriteria Decision Making”, in the Proceedings of **AI+MATH’04, the International Symposium on Artificial Intelligence and Mathematics**, 2004.
- C2 Martine Ceberio, Laurent Granvilliers, ”Solving Nonlinear Equations by Abstraction, Gaussian Elimination, and Interval Methods”, in the proceedings of **FroCos 2002**, pp 117-131, 2002.
- C1 Martine Ceberio, Laurent Granvilliers, ”Solving Nonlinear Systems by Constraint Inversion and Interval Arithmetic”, in the proceedings of **AISC 2000**, pp 127-141, 2000.

- **Refereed Workshop Proceedings (peer reviewed)**

- W9 Luis Gutierrez, Martine Ceberio, Vladik Kreinovich, Rebekah L. Gruver, Marianna Pena, Matthew J. Rister, Abraham Saldana, John Vasquez, Janelle Ybarra, and Salem Benferhat, ”From Interval-Valued Probabilities to Interval-Valued Possibilities: Case Studies of Interval Computation under Constraints”, Proceedings of the **6th International**

**Workshop on Reliable Engineering Computing REC'2014**, Chicago, Illinois, May 25-28, 2014.

- W8 Christelle Jacob, Didier Dubois, Janette Cardoso, Martine Ceberio, and Vladik Kreinovich, "Estimating Probability of Failure of a Complex System Based on Partial Information about Subsystems and Components, with Potential Applications to Aircraft Maintenance", Proceedings of the **International Workshop on Soft Computing Applications and Knowledge Discovery SCAKD'2011**, Moscow, Russia, June 25, 2011, pp. 30-41.
- W7 Aline Jaimes, Craig Tweedie, Tanja Magoc, Vladik Kreinovich, and Martine Ceberio, "Optimal Sensor Placement in Environmental Research: Designing a Sensor Network under Uncertainty", In: Michael Beer, Rafi L. Muhanna, and Robert L. Mullen (Eds.), Proceedings of the **4th International Workshop on Reliable Engineering Computing REC'2010**, Singapore, March 3-5, 2010, pp. 255-267.
- W6 Martine Ceberio, Vladik Kreinovich, Andrzej Pownuk, "Constraint-Related Set Computations: A New FEM-Motivated Approach to Propagating Uncertainty", in the proceedings of **FEMTEC'09**.
- W5 Paulo Pinheiro Da Silva, Martine Ceberio, Christian Servin, Vladik Kreinovich, "Propagation and Provenance of Probabilistic and Interval Uncertainty in Cyberinfrastructure-Related Data Processing", in the proceedings of **the NSF Workshop on Reliable Engineering Computing, REC'08**.
- W4 Martine Ceberio, Scott Ferson, Vladik Kreinovich, Sanjeev Chopra, Gang Xiang, "How to Take into Account Dependence Between the Inputs: From Interval Computations to Constraint-Related Set Computations, With Potential Applications to Nuclear Safety, Bio- and Geosciences", in the proceedings of **the NSF Workshop on Reliable Engineering Computing, REC'06**, 2006.
- W3 Martine Ceberio, Vladik Kreinovich, and Lev Ginzburg, "On the Use of Intervals in Scientific Computing: What is the Best Transition from Linear to Quadratic Approximation?", in the Proceedings of the **Second Scandinavian Workshop on Interval Methods And Their Applications**, 2005.
- W2 Scott Starks, Vladik Kreinovich, Luc Longpré, Martine Ceberio, Gang Xiang, Roberto Araiza, Jan Beck, Rathi Kandathi, A. Nayak, and Roberto Torres, "Towards Combining Probabilistic and Interval Uncertainty in Engineering Calculations", in the proceedings of the **NSF Workshop on Reliable Engineering Computing**, pp. 193–213, 2004.
- W1 Martine Ceberio, Vladik Kreinovich and Lev Ginzburg, "Towards Joint Use of Probabilities and Intervals in Scientific Computing: What is the Best Transition from Linear to Quadratic Approximation?", in the Proceedings of the **Workshop on State-of-the-Art in Scientific Computing (PARA'04)**, 2004.

- **Conference/Workshop abstracts**

- A25 Martine Ceberio, Miguel Argaez, Luis Gutierrez, Leobardo Valera. “Using Interval Constraint Solving Techniques to Solve Dynamical Systems”. CORS/INFORMS 2015 Meeting, Montreal, June 2015.
- A24 Miguel Argaez, Martine Ceberio, Leobardo Valera. “A Model Order Reduction for Solving Large-Scale Square Nonlinear Systems of Equations”. CORS/INFORMS 2015 Meeting, Montreal, June 2015.
- A23 Leobardo Valera, Martine Ceberio. “Using Regularization to Improve the Rate of Convergence in a Model-Order Reduction (MOR) Problem”. 22th International Symposium on Mathematical Programming. Pittsburg, Pennsylvania, ISMP’2015, July 2015.
- A22 Martine Ceberio, Olga Kosheleva, and Vladik Kreinovich, “From Global to Local Constraints: A Constructive Version of Bloch’s Principle”, Proceedings of the of the **Seventh International Workshop on Constraints Programming and Decision Making, CoProd’2014**, Wuerzburg, Germany, September 21, 2014, to appear.
- A21 Martine Ceberio, Olga Kosheleva, and Vladik Kreinovich, “Range Estimation under Constraints is Computable Unless There Is a Discontinuity”, Proceedings of the of the **Seventh International Workshop on Constraints Programming and Decision Making, CoProd’2014**, Wuerzburg, Germany, September 21, 2014, to appear.
- A20 Juan Carlos Figueroa Garcia, Martine Ceberio, and Vladik Kreinovich, “Algebraic Product is the Only t-Norm for Which Optimization Under Fuzzy Constraints is Scale-Invariant”, Proceedings of the **Sixth International Workshop on Constraints Programming and Decision Making CoProd’2013**, El Paso, Texas, November 1, 2013, pp. 8-11.
- A19 Martine Ceberio, Olga Kosheleva, and Vladik Kreinovich, “Towards a Physically Meaningful Definition of Computable Discontinuous and Multi-Valued Functions (Constraints)”, Proceedings of the **Sixth International Workshop on Constraints Programming and Decision Making CoProd’2013**, El Paso, Texas, November 1, 2013, pp. 22-26.
- A18 Olga Kosheleva, Martine Ceberio, and Vladik Kreinovich, “Peak-End Rule: A Utility-Based Explanation”, Proceedings of the **Sixth International Workshop on Constraints Programming and Decision Making CoProd’2013**, El Paso, Texas, November 1, 2013, pp. 12-16.
- A17 Paula Gonzalez-Parra, Martine Ceberio, and Carlos Castillo Chavez. “Interior-Point Methods for a Multi-Group Discrete-Time Influenza Model”. Presented at the **Mathematical Congress of the Americas 2013**, August 2013.
- A16 Joel Henderson, Stefano Bistarelli, Martine Ceberio (2013). “Multi-Experts Multi-Criteria Decision Making”, To be published in the Proceedings of **Numerical Computations: Theory and Algorithms International Conference**, Italy, June 2013.
- A15 Martine Ceberio, Vladik Kreinovich, (2012). “Preface to the special issue”. (vol. 6, pp. 83). **Journal of Uncertain Systems**.
- A14 Ali Jalal-Kamali, Martine Ceberio, Vladik Kreinovich, (2012). “Constraint Optimization: From Efficient Computation of What Can Be Achieved to Efficient Computation of a Way to Achieve the Corresponding Optimum”. Proceedings of the **Fifth International Workshop on Constraint Programming and Decision Making Co-ProD’12**, Novosibirsk, Russia, September 23, 2012.

- A13 Martine Ceberio, Olga Kosheleva, Vladik Kreinovich, (2012). “Simplicity Is Worse Than Theft: A Constraint-Based Explanation of a Seemingly Counter-Intuitive Russian Saying”. Proceedings of the **Fifth International Workshop on Constraint Programming and Decision Making CoProD’12**, Novosibirsk, Russia, September 23, 2012.
- A12 Uram Anibal Sosa Aguirre, Martine Ceberio, and Vladik Kreinovich, “Why Curvature in L-Curve: Combining Soft Constraints”, Proceedings of the **Fourth International Workshop on Constraint Programming and Decision Making CoProD’11**, El Paso, 2011.
- A11 Olga Kosheleva, Martine Ceberio, and Vladik Kreinovich, “Adding Constraints: A (Seemingly Counterintuitive but) Useful Heuristic in Solving Difficult Problems”, Proceedings of the **Fourth International Workshop on Constraint Programming and Decision Making CoProD’11**, El Paso, 2011.
- A10 Shubhra Datta, Martine Ceberio, Mario Bencomo, and George Moreno, “On the Practicality of Constraint-Based Program Verification”, in the proceedings of **SCAN’10**, 2010.
- A9 Karen Villaverde, Olga Kosheleva, and Martine Ceberio, “Why Ellipsoid Constraints, Ellipsoid Clusters, and Riemannian Space-Time: Dvoretzky’s Theorem Revisited”, in the book of abstracts of **CoProD’10**, 2010.
- A8 Vladik Kreinovich, Juan Ferret, and Martine Ceberio, “Constraint-Related Reinterpretation of Fundamental Physical Equations Can Serve as a Built-In Regularization”, in the book of abstracts of **CoProD’10**, 2010.
- A7 Paden Portillo, Martine Ceberio, Vladik Kreinovich, “Towards an Efficient Bisection of Ellipsoids”, in the book of abstracts of **CoProD’10**, 2010.
- A6 Olga Kosheleva, Martine Ceberio, and Vladik Kreinovich, “Why Tensors?”, in: Martine Ceberio (ed.), Abstracts of the **Second Workshop on Constraint Programming and Decision Making CoProD’09**, El Paso, Texas, November 9-10, 2009, pp. 20-23.
- A5 Martine Ceberio and Vladik Kreinovich, “Continuous If-Then Statements Are Computable”. In: Martine Ceberio (ed.), Abstracts of the **Second Workshop on Constraint Programming and Decision Making CoProD’09**, El Paso, Texas, November 9-10, 2009, pp. 11-14.
- A4 Aline Jaimes, Craig Tweedy, Tanja Magoc, Vladik Kreinovich, and Martine Ceberio, “Selecting the Best Location for a Meteorological Tower: A Case Study of Multi-Objective Constraint Optimization”. In: Martine Ceberio (ed.), Abstracts of the **Second Workshop on Constraint Programming and Decision Making CoProD’09**, El Paso, Texas, November 9-10, 2009, pp. 56-60.
- A3 Martine Ceberio, Vladik Kreinovich, Scott Ferson, Cliff Joslyn, “Adding Constraints to Situations when, in addition to Intervals, we also have Partial Information about Probabilities”, in the proceedings of **SCAN’06** + published in the **post-proceedings of SCAN’06**, the GAMM - IMACS International Symposium on Scientific Computing, Computer Arithmetic and Verified Numerical Computations.
- A2 Luc Longpré, Vladik Kreinovich, Eric Freudenthal, Martine Ceberio, Francois Modave, Neelabh Bajjal, Wei Chen, Vinod Chirayath, Gan Xiang, and J. Ivan Vargas, “Privacy, Protecting, Processing, and Measuring Loss”, presented at the **South Central Information Security Symposium**, 2005.

A1 Martine Ceberio, Vladik Kreinovich, Luc Longpré, Emad Saad, Bertrand Ludäscher, Chitta Baral, and Hung T. Nguyen, “Affine Arithmetic-Type Techniques for Handling Uncertainty in Expert Systems, with Applications to Geoinformatics and Computer Security”, in the Proceedings of the **11th GAMM-IMACS International Symposium on Scientific Computing, Computer Arithmetic, and Validated Numerics (SCAN’04)**, 2004.

- **Edited Research Book**

B1 Martine Ceberio and Vladik Kreinovich (eds.), *Constraint Programming and Decision Making*, Springer Verlag, Berlin, Heidelberg, 2014.

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□ **Grants and Contracts**

□ **Total Grants and Contracts**

Since September 2003,

- **Federal funding:** \$ 1,803,444, of which \$ 623,563 as PI;
- **Army funding:** \$ 715,000 of which \$ 525,000 as PI;
- **Industry funding:** \$ 36,000 from Raytheon, as a co-PI.
- **European funding:** 20,000 euros, of which 5,000 euros as PI;
- **University funds:** \$ 33,900 from URI and two IDRs (IDR1 & IDR2).

□ **Federal**

1. **NSF Research on Gender – Co-PI *Latinas in Computer Science and Engineering: A Qualitative***. September 1, 2012 – August 31, 2015. Amount: \$499,729.00.
2. **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.
3. **NSF CCF 0953339 – PI *CAREER: Symbolic-Numeric Constraint-Based Solutions for Real-World Scientific Problems***, 01/2010 to 12/2014. Amount: \$564,650 + additional \$32,000 REU supplement (2010, 2011, 2012).
4. **NSF CCF 0839052 – PI *Constraint Programming and Decision Making Workshop, Co-ProD’08***, 08/2008 – 07/2010. Amount: \$7,441.
5. **NSF OCI 0506429 – co-PI of the SCI: Collaborative Research project, called *DAPLDS, a Dynamically Adaptive Protein-Ligand Docking System based on Multi-Scale Modeling***, with Michela Taufer, Pat Teller, Aug. 2005 to Jan. 2008. Amount: \$ 680,152.

□ Other

1. **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, 2015, end: December 31, 2015. Amount: \$275,000.
  2. **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, 2014. Amount: \$250,000.
  3. **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.
  4. **Raytheon – Co-PI** *Virtual Geocaching – STEM Student Software Application* Fall 2012 – Spring 2013. Amount: \$36,000.00.
  5. **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.
  6. **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.
  7. **UTEP University Research Incentive grant – PI** *A Hybrid Robust Solver for Problems with Uncertainty: HyRS*, Jan. 2009 to Dec. 2009. Amount: \$ 5,400.
  8. **NIH Grant 1 T36 GM078000-01 – senior personnel**: instructor in charge of the development of a bio-informatics-oriented lab for the course Introduction to Computer Science.
  9. **UTEP University Research Incentive grant – PI**: *Next Steps towards Flexibility in Problem-Solving*. Jan-Dec. 2005. Amount: \$ 3,500.
  10. **GRA Advance (Research assistantship)** awarded in December 2004: support for 4.5 months of assistantship.
  11. **Grant of the French Ministry of Research – PI**: to help expatriates establish collaborations between French researchers working abroad and French institutions. Sept. 2004 to Aug. 2006. Amount: 5,000 euros.
  12. **PAI Egide Sakura**: external collaborator, French-Japanese project. Jan. 2004 to Dec. 2006. Amount: 15,000 euros.
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## □ Service / Outreach

### □ National / International Outreach

- Member of **NAFIPS’ board of directors**, since March 2011 (NAFIPS is the North American Fuzzy Information Processing Society)
- Member of the Springer Soft Computing Journal Editorial Board (November 2011 – January 2013).
- Webmaster of the **community website <http://www.constraintsolving.com>**.
- **Conference organization and chairing of program committees**
  - \* Program and general chair of the CoProD’08, ’09, ’10, ’11, ’12 workshops ([coprod.constraintsolving.com](http://coprod.constraintsolving.com))
  - \* Program and general co-chair of the CoProD’13, ’14, ’15 workshops ([coprod.constraintsolving.com](http://coprod.constraintsolving.com))
  - \* Co-general chair and co-program chair of NAFIPS’2011 ([nafips.cs.utep.edu](http://nafips.cs.utep.edu)), Co-general chair of SCAN’08, the 13th GAMM - IMACS International Symposium on Scientific Computing, Computer Arithmetic and Validated Numerics ([scan2008.com](http://scan2008.com))
  - \* Co-program chair of NAFIPS’2012 and NAFIPS’2014
  - \* Co-organizer and member of the program committee of CPAIOR’09 workshop on Bound Reduction Techniques for Constraint Programming and Mixed-Integer Non-linear Programming ([www.cs.utep.edu/mceberio/Research/br-cpaior09/](http://www.cs.utep.edu/mceberio/Research/br-cpaior09/))
  - \* Program chair of the DSCP workshop at CP’05 on Distributed and Speculative Constraint Programming
  - \* Co-chair of the RCA (Reliable Computing and their Applications) track at ACM SAC’05, ’06 (Symposium on Applied Computing)
- **Participation in Program Committees**
  - \* Member of the program committee of the CSP track at SAC since 2005
  - \* Member of the scientific committee of Virtual Concept 2005, international conference
  - \* Member of the scientific committee of the international conference AMCS’05 (Algorithmic Mathematics and Computer Science)
  - \* Member of the program committee, IJCAI’13 (International Joint Conference in Artificial Intelligence).
  - \* Member of the program committee, MICAI’13 (Mexican Conference in Artificial Intelligence).
  - \* Member of the program committee of the WSCS’13 (World Conference on Soft Computing).
  - \* Member of the program committee, WEA’12 (Workshop on Engineering Applications).

- \* Member of the program committee of M-PREF'12, '13 (international workshop at ECAI'12 & '13– European Conference on Artificial Intelligence) & '15 at IJCAI 2015
- \* Member of the program committee, NAFIPS'15 special session on Interval Computations.
- \* Member of the 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
- \* Grace Hopper Celebration 2012 New Investigator Subcommittee Member (Fall 2011 – Summer 2012)

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

- \* Conferences: including CP (Principles and Practice of Constraint Programming), Workshops at CP, SAC (Symposium of Applied Computing) (for the CSP track), NAFIPS (North American Fuzzy Information Processing Society), ICORR (the International Conference On Rehabilitation Robotics), ECAI (the European Conference on Artificial Intelligence), FIE (the Frontiers In Education conference), IJCAI (the International Joint Conference in Artificial Intelligence), AAAI (Annual Conference of the Association for the Advancement of Artificial Intelligence), PSI (Ershov Memorial Conference), PARA10 (State of the Art in Scientific and Parallel Computing), ICLP08 (the 24th International Conference on Logic Programming), Mexican International Conference on Artificial Intelligence (MICAI), PPAM 2013, Workshop on Engineering Applications (WEA), 2012.
- \* Journals: including Computing, ANOR, Reliable Computing, IJAR (International Journal of Approximate Reasoning), INFORMS Journal on Computing, Informations Science, Journal of Experimental and Theoretical Artificial Intelligence.
- \* Books: Applied Interval Analysis, by Luc Jaulin, 2001; Java for Everyone (class test) by Horstmann at Wiley, 2009; Data Structures: Abstraction and Design Using Java, by Koffman and Wolfgang at Wiley, 2009.
- \* Proposals: Member of NSF panels in Maths/Physics (2008), CISE (2008, 2011, 2012, 2013, 2014, 2015), DUE (2010, 2011).
- \* Others:
  - Grace Hopper Conference: reviewer of 2014 scholarship applications
  - DoD 2014 Star Award reviewer
  - NCWIT Collegiate Award reviewer 2015
  - NCWIT Educator Award reviewer 2015

– **Students**

- \* Co-Supervisor of a graduate student from France interning in my lab for five months from April 2014 to August 2014
- \* External reviewer of a PhD dissertation for the Executive Board of the Italian Association for Logic Programming (GULP), 2012.



- \* External reviewer for the dissertation of a PhD candidate from the Indian Institute of Technology of Bombay, India (2009)
- \* Supervisor of an undergraduate students from France for a project during a year at UTEP (2006).

## □ Department Committees

### • Current assignments

- Member of the **Faculty Evaluation Committee** – February 2015 – **present**.
- Member of the **CS Undergraduate Curriculum Committee** – August 2013 – **present**.
  - \* Chair of the Undergraduate Fundamentals courses Committee – May 2015 – **present**.
  - \* Chair of the Fundamentals Committee – May 2015 – **present**.
- In charge of the **Computer Science Department's course schedule** – 2007 to Spring 2010 and August 2012 – **present**.
- Founder and **advisor of the ACM-W chapter at UTEP** – June. 2012 to **present**

### • Previous assignments

- Chair of the Programming Languages course Committee – August 2013 – May 2015.
- **Webmaster** of the Computer Science website – August 2011 – August 2014.
- Part of the **CS ABET preparation Committee** – September 2012 – Fall 2013
- **Chair of the 2013 CS Faculty Search Committee** – August 2012 May 2013
- **CS Faculty Search Committee** – December 2011 – Spring 2012
- **Minute-taker at the faculty meetings** of the Computer Science Department – August 2011 – July 2012.
- **Chair of the CS Colloquium committee** – Sept. 2010 to Sept. 2011
- **Advisor of the ACM chapter at UTEP** – Sept. 2005 to Sept. 2011
- Member of the **CS Faculty search committee** – Sept. 2010 - May 2011
- Member of the **CS Chair search committee** – Sept. 2008 - May 2009
- Member of the **CS Graduate committee** – since Sept. 2004
- Member of the **CS Facilities committee** – Sept. 2005 to Sept. 2011
- Member of the **CS Information Assurance committee** – Sept. 2007 to Sept. 2011

## □ College Committees

### • Current assignments

- Member of a team part of the **NCWIT Extension Services** (along with Ann Gates, Miguel Velez-Reyes, Pat Nava, Gabby Gandara) who worked on **increasing the number of female students in Computing**. Fall 2012 – Summer 2014.
- Member of the **Task force on Faculty Success**. March 2013 – **present**.

- Member of the **WEST, Women in Engineering Support Team**. Fall 2012 – **present**.

- Previous assignments

- Member of the **Facilitation Team For Information and Security**. September 2011 – November 2012.
- Member of the **Civil Engineering Faculty search committee** – Sept. 2008 - May 2009
- Member of the working group on UTEP’s **Key Strategic Direction** about enhancing students’ success – Dec. 2005 - April 2006.
- Member of the working group on UTEP’s **Key Strategic Direction** about research – Jan. 2005 - April 2005.
- Member of **UTEP’s Integrated Curriculum group** – 2004.

- **University Committees**

- Current Assignments

- **Vice-President of the Faculty Senate**. (September 2014 – present).
- Member of the **Executive Council of the Faculty Senate** – as **Secretary** (September 2012 – **present**) as such:
  - \* Representative of this council on the IT standing committee of the Faculty Senate (2013-2014)
  - \* Representative of this council on the UGCC and Student Grievance Committee standing committee of the Faculty Senate (2014-2015)
- Member of COURI’s Board of Advisors: COURI is the Campus Office for Undergraduate Research Initiatives at UTEP (March 2015 – present).
- Member of the **Executive committee of the Computational Sciences Program**. (September 2008 – present).
- Member of UTEP’s Mama PhD. (September 2010 – **present**).

- Previous Assignments

- Member of the **Board of the Women’s Resource Center** (now Student Resource Center). (September 2011 – August 2014).
- Member of **UTEP’s Undergraduate Curriculum Committee** (standing committee of the Faculty Senate) (September 2011 – August 2014)
- **Member of the Computational Sciences Faculty Search**. September 2013 – April 2014.
- **Faculty Senate** member. September 2010 – August 2012.
- **Chair of the Women’s Advisory Council to the President**. Sept. 2010 – December 2012
- Member of the **Women’s Advisory Council to the President, as past chair**. Jan. 2013 – Dec. 2013

- Chair of the **Women’s Advisory Council to the President**. Sept. 2010 – Dec. 2012
- Member of the **Women’s Advisory Council to the President**. Sept. 2006 – Dec. 2013
- Member of the **UTEP Catalog and Calendar Committee for the Senate**. Sept. 2006 - Sept. 2008

□ **Other**

• **Member of Professional Societies**

- Member of ACM (Association for Computing Machinery)
- Member of ASEE (American Society for Engineering Education)
- Member of the CPNA (Constraint Programming Society in North America)
- Member of the ACP (Association for Constraint Programming)
- Member of the AAUW (American Association for University Women)
- Member of ProfessHers
- Member of Empowering Leadership

□ **Local / State Outreach**

*Note: most of the following outreach activities aim to attract women to computing.*

– **Advisory Boards’ membership**

- \* Member of the board of advisors of Harmony Science Academy of El Paso
- \* Member of the board of advisors of Saint Patrick’s Elementary and Middle School
- \* Member of the advisory board of Eastlake High School CSE program

– **Faculty advisor** for summer research projects for high-school students (2010, 2011, 2012, 2014):

- \* Nexus program at UTEP:  
*Notably: an unprecedented high-number of interns participated in summer 2014: 7 female high-school students)*
- \* research projects for Early College High-School students at El Paso Community College (2010, 2011).

– **NCWIT Awards for Aspirations in Computing Regional Competition:**

- \* Coordinator since fall 2011  
*Since then, 15 schools of El Paso/Las Cruces and the wider area have participated in the competition, and 40 young women have been honored.*
- \* Part of the **NCWIT local effort** (led by Dr. Steve Roach, UTEP) to engage high-school girls of El Paso to participate in the NCWIT Awards for Aspirations in Computing (Fall 2009, 2010: ).

- \* Keynote speaker at the awards ceremony in Spring 2011 at UTEP.
- **Presentations about computer science:**
    - \* 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.
    - \* 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 if they are CS / math teachers, March 2014
    - \* Invited speaker at the New Mexico Celebration of Women in Computing, Las Cruces, NM (November 2012).
    - \* Presentation about career choices and computer science at the Young Women in Computing at New Mexico State University, Las Cruces (April 2011).
    - \* Presentation about career choices to **Early College High School Students** at El Paso Community College (April 2010).
    - \* Presentation at the **Extend Your Horizons** conference at UTEP (May 2008).
    - \* Presentation about Artificial Intelligence and Games at **Wiggs Middle School**, El Paso (May 2007).
    - \* Invited speaker for a lecture series organized by the association Proyecto Abel in **Ciudad Juarez, Mexico**: 2-hour lecture in Spanish on "from Artificial Intelligence to Constraint Programming" to about twenty high-school students (May 2006).
- **Career Fairs/Days presenter:**
    - \* Ibero Academy: Presentation about Computer Science to Kindergartners, 1st graders, and 2nd graders (May 2014)
    - \* Loretto Academy of El Paso – all-girls middle and high school (April 2011, April 2012, April 2014)
    - \* **Career Expo** at Mitzi Bond Elementary School, El Paso (March 2007, 2008, 2010, 2011).
- **UTEP tours and open house events**
    - \* Participated in UTEP's Orange and Blue Days, and other events such as Open houses.
    - \* 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).
    - \* Computer Science and Language Learning, Loretto Academy of El Paso (Fall 2011).
- **Judge:**
    - \* Chapin High-School **Senior Project Symposium** (April 2011).
    - \* Judge at the **Science Fair** of Harmony Science Academy (for elementary and middle schools), El Paso (Fall 2009).

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## **Teaching**

### **Courses taught**

Over my 12 years at UTEP, I have consistently taught two courses each semester, with the exception of two semesters after I was hired as an assistant professors and four semesters during which I was given a course release (teaching only one course per semester). I have also regularly taught independent studies, in addition to the above regular course load.

I have taught courses at the undergraduate level: including introductory courses (CS1, 2, & 3), theoretical (CS3350 Automata), practical (CS3360: Programming Languages), Artificial Intelligence, a few special topics in Constraint solving, Game development, as well as graduate courses: including core courses (e.g., Logical Foundations of Computer Science), a few special topics in Intelligent Computing.

My teaching evaluations have consistently been around 4/5.

### **Teaching innovation**

Always seeking innovation in the classroom to increase student success, break the barrier of usual intimidation, engage all students, I have tried several approaches over the years, from using the old hotmail messenger to answer my students' questions in real time, to being an early adopter of piazza (online system, sort of friendlier alternate to BlackBoard) to engage students through active participation and to still allow one to one mentoring.

I have also sought professional development (see below) and integrated what I learned in my classes: cooperative learning and problem-based teaching. I am now considering how to combine problem-based learning techniques with the concept of flipped classroom, where the material is expected to be delivered mostly outside of the classroom, lecturing is kept to a minimum, and "former lecture" time is dedicated to more in depth discussions and/or engaging activities.

### **Professional Development**

- Affinity Research Group training: in summers 2011 and 2012
- Problem-Based Learning workshops: in May 2012, May 2013, May 2014

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## **Other Professional Development**

The following are meetings I have attended in the recent years that contributed to my professional development (these include either training or informative meetings about grant programs).

- Gender Summit: November 2013
- NCWIT Summer: May 2013
- Leadership Development Institute at UTEP: 2012-2013
- NSF CE21 Community Meeting: 2011, 2012, 2014
- CRA Career: Washington DC, 2012
- CRA-W: Atlanta, 2012