

Efrén Mezura-Montes

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Education

Ph.D. in *Computer Science*, CINVESTAV-IPN, 2004
M.S. in *Artificial Intelligence*, Universidad Veracruzana, 2001
B.S. in *Computer Systems Engineering*, Universidad de las Américas Puebla, 1997

Research Interests

- Evolutionary Computation (Evolution Strategies, Genetic Algorithms, Evolutionary Programming, Differential Evolution).
- Swarm Intelligence (PSO, Bacterial and Bee Foraging).
- Global optimization.
- Multiobjective optimization.
- Constraint Handling in Evolutionary Algorithms.

Professional Experience

2006-present Full time researcher, National Laboratory on Advanced Informatics (LANIA A.C.)
2005 Full time professor, Apizaco Institute of Technology
2005 Postdoctoral position, CINVESTAV-IPN, México City, México.
1999-2001 Assistant Professor, Instituto Tecnológico Superior de Xalapa, México.
1998-2001 Collaborator LANIA, Xalapa, Ver. México.
1998-2001 Visiting Professor, CONALEP, Xalapa, Ver. México
1997-1998 Information Systems Coordinator, Universidad de las Américas Puebla, México
1997-1998 Lecturer Assistant, Universidad de las Américas Puebla, México

Five Most Recent Publications

- Francisco Viveros-Jiménez, Efrén Mezura-Montes, and Alexander Gelbukh, Empirical Analysis of a Micro-Evolutionary Algorithm for Numerical Optimization, *International Journal of the Physical Sciences*, 7(8):1235–1258, February, 2012.
- Efrén Mezura-Montes and Carlos A. Coello Coello, Constraint-Handling in Nature-Inspired Numerical Optimization: Past, Present and Future, *Swarm and Evolutionary Computation*, 1(4):173-194, 2011.
- Efrén Mezura-Montes, Mariana Edith Miranda-Varela and Rubí del Carmen Gómez-Ramón, Differential Evolution in Constrained Numerical Optimization. An Empirical Study, *Information Sciences*, 180(22):4223-4262, 2010.
- Edgar Alfredo Portilla-Flores, Efrén Mezura-Montes, Jaime Álvarez Gallegos, Carlos A. Coello Coello, Carlos A. Cruz-Villar and Miguel G. Villareal-Cervantes, Parametric Reconfiguration Improvement in Non-Iterative Concurrent Mechatronic Design Using an Evolutionary-Based Approach, *Engineering Applications of Artificial Intelligence*, 24(5):757–771, 2011.

- Alfredo Arias-Montaño, Carlos A. Coello Coello and Efrén Mezura-Montes, Multi-Objective Evolutionary Algorithms in Aeronautical and Aerospace Engineering, *IEEE Transactions on Evolutionary Computation*, 2011 (accepted).

Six Other Significant Publications

- Efrén Mezura-Montes and Jorge Isacc Flores-Mendoza, Improved Particle Swarm Optimization in Constrained Numerical Search Spaces , in Raymond Chiong (Editor), *Nature-Inspired Algorithms for Optimisation*, pages: 299-332, Springer-Verlag, Studies in Computational Intelligence Series Vol. 193, 2009.
- Efrén Mezura-Montes and Betania Hernández-Ocaña, Modified Bacterial Foraging Optimization for Engineering Design, in Cihan H. Dagli et al. (editors) *Proceedings of the Artificial Neural Networks in Engineering Conference (ANNIE'2009)*, pages: 357–364, ASME Press Series, Intelligent Engineering Systems Through Artificial Neural Networks Vol. 19, November, 2009.
- Efrén Mezura-Montes and Carlos A. Coello Coello, An Empirical Study About the Usefulness of Evolution Strategies to Solve Constrained Optimization Problems, *International Journal of General Systems*, 37(4):443–473, August, 2008.
- Edgar A. Portilla-Flores, Efrén Mezura-Montes, Jaime Álvarez-Gallegos, Carlos A. Coello Coello and Carlos A. Cruz-Villar, Integration of structure and control using an evolutionary approach: an application to the optimal concurrent design of a CVT, *International Journal for Numerical Methods in Engineering*, 71(8):883–1008, August 2007.
- Efrén Mezura-Montes, Carlos A. Coello Coello, Jesús Velázquez-Reyes and Lucía Muñoz Dávila, Multiple Trial Vectors in Differential Evolution for Engineering Design ,*Engineering Optimization*, 39(5):567–589, July, 2007.
- Efrén Mezura-Montes and Carlos A. Coello Coello, A Simple Multi-Membered Evolution Strategy to Solve Constrained Optimization Problems, *IEEE Transactions on Evolutionary Computation*, 9(1):1–17, February 2005.

Honors and Awards

- 2009 Adviser of the BSc. thesis awarded with the 1st Place of the "Institutional Award to the Best Thesis 2009", Universidad Juárez Autónoma de Tabasco (UJAT), area: Engineering.
- 2007 Best Paper Award in the category Analog and Digital Circuit Design at the Electronics, Robotics and Automotive Mechanics Conference (CERMA'2007)
- 2006 Member of the Mexican National System of Researchers (SNI) as a Level 1 Researcher (2006-2102).
- 2006 Member of the CONACyT's RCEA committee.
- 2005 Best PhD Tesis in the Mexican Contest on Informatics and Computation Theses.
- 2004 Best Presentation Award in the Graduate Student Workshop at the Genetic and Evolutionary Computation Conference, Seattle, WA, USA, June.
- 2003 First Runner-Up in the category Theoretical Developments in Computational Intelligence Award at the international conference Artificial Neural Networks in Engineering (ANNIE'2003), St. Louis MO, USA, November.
- 2002 Scholarship from the Consejo Nacional de Ciencia y Tecnología to pursue graduate studies at CINVESTAV-IPN, 2002-2004
- 2001 M.S. in Artificial Intelligence. Graduated with Honorific Mention.
- 1999 Scholarship from the Consejo Nacional de Ciencia y Tecnología to pursue graduate studies at Universidad Veracruzana, 1999-2001.
- 1997 B.S in Computer Systems Engineering, Graduated with Honorific Mention.

Professional Activities and Services

- **Editorial Board Member of the following international journals:**
 - Soft Computing (Springer).
 - International Journal of Natural Computing Research (IGI).
 - International Journal of Energy Optimization and Engineering (IGI).
 - Artificial Intelligence Research (SCIEDU).
- Reviewer for the following international journals: IEEE Transactions on Evolutionary Computation, IEEE Transactions on Systems Man and Cybernetics, International Journal for Numerical Methods in Engineering, Structural and Multidisciplinary Optimization, Engineering Optimization, Journal of Heuristics, Applied Soft Computing, International Journal of Computational Intelligence Research, International Journal of Systems Science, European Journal of Operational Research, Journal of Computer Science and Technology, Computational Intelligence and Applications, Journal of Engineering Manufacture, Journal of Intelligent and Robotic Systems, Journal of Global Optimization, Journal of Aerospace Computing, Information, and Communication, Journal of Civil Engineering and Management, Revista Chilena de Ingeniería Inginiare, CT&F- Ciencia, Tecnología y Futuro (Colombia), among others.
- Founder and Co-Chair of IEEE Computational Intelligence Society Task Force on Nature-Inspired Constrained Optimization (2009–present).
- Member of the IEEE Computational Intelligence Society Evolutionary Computation Technical Committee (<http://iee-cis.org/technical/ectc/>).
- Member of the IEEE Systems Man and Cybernetics Society Soft Computing Technical Committee (http://www.ieeesmc.org/technicalcommittess/tc_sc.html).
- Co-Chair of the special session on nature-inspired constrained optimization in the IEEE Congress on Evolutionary Computation (CEC) (2006–present).
- Co-Chair of the track: “Evolutionary algorithms and other naturally-inspired algorithms” in the 9th Mexican International Conference on Artificial Intelligence (MICAI’2010).
- Co-Chair of the track “Algorithmic and applied mathematics” in the Mexican International Conference on Computer Science (ENC’2009).
- **Keynote Speaker** in the 2nd Workshop of the EuroMexican Laboratory on Informatics (LAEMI, 2008), Grenoble, France, November 28th, 2008.
- Program Committee member of specialized international conferences: IEEE Congress on Evolutionary Computation (CEC), ACM Genetic and Evolutionary Computation Conference (GECCO), International Conference on Evolutionary Multi-Criterion Optimization (EMO) International Conference on Computational Intelligence and Security (CIS), the Ibero-American Conference on Artificial Intelligence (IBERAMIA), Argentinian Conference on Computer Science (CACIC), among others.
- Program Committee member of specialized Mexican Conferences: Mexican International Conference on Artificial Intelligence (MICAI), the Mexican Conference on Evolutionary Computation (COMCEV) and the Conference on Computing (CORE).
- Co-organizer of the Second Workshop on Tendencies on Computing and Informatics in México, 2007.
- Tutorial speaker (MICAI 2005, 2006, 2008).

Funded Research

- New Bio-Inspired Models in Constrained Optimization, CONACyT Project 79809-Y, 2009-2011.
- Constrained Optimization Using Bacteria-based Models, CONACyT Project 102299, 2009.
- Advanced Studies in Differential Evolution to Solve the General Nonlinear Programming Problem, CONACyT project 52048-Y. 2007.

Theses Supervised

- 3 PhD Theses (in process).
- 23 MSc Theses (17 finished & 6 in process).
- 6 BsC Theses (5 finished & 1 in process).

Detailed Curriculum Vitae: Available at: <http://www.lania.mx/~emezura>