

# Marco A. MONTES DE OCA, Ph.D.

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EDUCATION	Degree: <i>Docteur en Sciences de l'ingénieur</i> (Ph.D. Engineering Sciences). Dissertation title: Incremental social learning in swarm intelligence systems. Institution: <i>Université Libre de Bruxelles</i> , Brussels, Belgium. Completion date: July 2011.  Degree: <i>Diplôme d'Études Approfondies en Sciences Appliquées</i> (M.S. Applied Sciences). Thesis title: On the performance of particle swarm optimizers. Institution: <i>Université Libre de Bruxelles</i> , Brussels, Belgium. Completion date: September 2006.  Degree: <i>Maestro en Ciencias en Sistemas Inteligentes</i> (M.S. Intelligent Systems). Thesis title: Performance effects of direct and indirect communication among agents in ant-based clustering algorithms. Institution: <i>Tecnológico de Monterrey</i> , Monterrey, N.L., Mexico. Completion date: May 2005.  Degree: <i>Ingeniero en Sistemas Computacionales</i> (B.S. Computer Systems Engineering). Final Project: An adaptive website managed by a multiagent system. Institution: <i>Instituto Politécnico Nacional</i> . Mexico City, Mexico. Completion date: November 2002.	
SPECIALIZED COURSES	Higher Education Teaching Certification Program, Module: Preparing an Academic Portfolio. Center for Teaching and Learning. University of Delaware, Newark, DE, USA. January 2012.  International Doctoral School in Algorithmic Decision Theory: Computational Social Choice. Sponsored by the European Science Foundation's COST Action on Algorithmic Decision Theory. Estoril, Portugal. April 9-14, 2010.  Summer School in Collective Robotics. Sponsored by the Portuguese Association in Artificial Intelligence. Lisbon, Portugal. August 27-31, 2007.	
PROFESSIONAL EXPERIENCE	<i>Principal Data Scientist, Senior Data Scientist</i>  Applying and developing mathematical and computational techniques for automating and personalizing TV ad scheduling (also known as <i>programmatic TV advertising</i> ).  <i>Postdoctoral Researcher</i>	<b>clypd, Inc.</b> <b>Somerville, MA, USA</b> <b>January 2016 – Present,</b> <b>August 2014 – December 2015</b>  <b>Dept. of Mathematical Sciences</b> <b>University of Delaware</b> <b>Newark, DE, USA</b> <b>August 2011 – August 2014</b>  Conducted research on artificial intelligence, complex systems, swarm intelligence, particle swarm optimization, and collective decision-making, and taught (2-2 load) single- and multi-variable calculus courses to Engineering majors, and fundamentals of optimization to Mathematics and Economics majors.

*Security Consultant*

**Dept. of Computer Science  
Tecnológico de Monterrey  
Monterrey, N.L., Mexico  
June 2005 – August 2005**

Worked for the *Tecnológico de Monterrey* at Alestra S.A. de C.V. at the information security department developing operating procedures to help the company keep their VoIP systems secure against electronic attacks. Specific controls were developed for ensuring proper backup and user management procedures, as well as for keeping their VoIP systems up to date.

*Independent Consultant*

**Independent Consultant  
Monterrey, N.L., Mexico  
August 2003 – March 2004**

Worked remotely from Mexico for BioProcessors, Corp., a US-based biotechnology company, on projects involving on-line real-time 3D graphics.

*Systems Development Engineer,  
Directorate of Material Resources and Services*

**Ministry of Public Education  
Mexico City, Mexico  
January 2002 – August 2003**

Designed and implemented a web-based system for the inventory control, called SIBISEP, for the Ministry of Public Education. The number of registered items was in the order of millions and the system had hundreds of accesses on a daily basis. To date, SIBISEP has nation-wide operations.

*Systems Development Engineer,  
Virtual Reality Laboratory*

**Center for Multimedia  
National Center for the Arts  
Mexico City, Mexico  
December 2000 – August 2003**

Implemented different kinds of user interfaces for real-time 3D navigation of virtual environments.

PRIZES AND  
AWARDS

Best Paper Award in the Ant Colony Optimization and Swarm Intelligence track at the 2011 Genetic and Evolutionary Computation Conference (GECCO), Dublin, Ireland, July 16, 2011.

Best Paper Award in the Swarm Intelligence/Evolutionary Computing session at the First World Congress on Lateral Computing. Bangalore, India, December 18, 2004.

Travel award to present one paper at the 2009 IEEE Congress on Evolutionary Computation (CEC) held in Trondheim, Norway. May 18-21, 2009.

Travel award to present two papers at the 2008 Genetic and Evolutionary Computation Conference (GECCO) held in Atlanta, GA, USA. July 12-16, 2008.

HONORS

More than 1000 citations to my work, with an *h-index* equal to 16, according to Google Scholar.

Four of my publications have been nominated for a best paper award (conference papers 2, 9, 17, and 19). My co-authors and I received the award for two of these publications (conference papers 2 and 19).

Recipient of an Alban Programme scholarship – A competitive European Commission's scholarship for Latin American students. This scholarship allowed me to pursue my doctoral studies in Europe from 2005 to 2008.

Awardee of a CONACyT (Mexican Research and Technology Council) scholarship in 2005. Declined the offer in order to accept an Alban scholarship.

Graduated with honors from *Tecnológico de Monterrey* in 2005 because my GPA was the highest among fellow graduates from my program.

Recipient of two academic excellence scholarships that covered full tuition or provided a stipend. One scholarship from *Tecnológico de Monterrey* from 2003 to 2005, and the other from *Instituto Politécnico Nacional* from 1995 to 2001.

COURSES TAUGHT *Instructor of Fundamentals of Optimization* **University of Delaware  
Newark, DE, USA  
Two times, Spring 2013, 2014**

Course for senior undergraduate, first year graduate students. Topics include maximization and minimization of functions of finitely many variables subject to constraints. Linear, convex, smooth, and non-smooth programming. Optimality conditions. Duality. Overview of computational approaches.

*Instructor of Multivariable Calculus* **University of Delaware  
Newark, DE, USA  
Five times, Spring and Fall 2012, 2013,  
and Spring 2014**

Course for STEM undergraduate students. Topics include vectors, vector functions, equations of lines, planes, and other surfaces, scalar and vector fields, gradient, multiple integrals, Green's, and Divergence theorems. Supervised one undergraduate grader in the fall 2012.

*Instructor of Single Variable Calculus* **University of Delaware  
Newark, DE, USA  
One time, Fall 2011**

Taught two sections of approximately 110 students each. Topics: functions, limits, derivatives, differentiation rules, and integrals. Supervised three graduate TAs and one undergraduate grader.

*Instructor of Particle Swarm Optimization* **Université Libre de Bruxelles &  
Vrije Universiteit Brussel  
Brussels, Belgium  
Three times, February 2009, 2010, and  
2011**

Taught the module on particle swarm optimization of a swarm intelligence course. The module's duration was 10 hours and served a class of approximately 10 students. Instruction was in English.

## PUBLICATIONS

### BOOK CHAPTERS

**4. M. A. Montes de Oca** (2013). Incremental Social Learning in Swarm Intelligence Algorithms for Continuous Optimization. *Computational Intelligence. Revised and Selected Papers of the International Joint Conference, IJCCI 2011*. K. Madani *et al.* (Eds.) pp. 31–45. Springer. Berlin, Germany.

**3. M. A. Montes de Oca**, C. Cotta, and F. Neri (2012). Local Search. *Handbook of Memetic Algorithms*, F. Neri, C. Cotta, and P. Moscato (Eds.) pp. 29–41. Springer. Berlin, Germany.

**2. T. Stützle**, M. López-Ibáñez, P. Pellegrini, M. Maur, **M. A. Montes de Oca**, M. Birattari, and M. Dorigo (2011). Parameter Adaptation in Ant Colony Optimization. *Autonomous Search*. Y. Hamadi, E. Monfroy, and F. Saubion (Eds.) pp. 191–215. Springer. Berlin, Germany.

1. M. Dorigo, **M. A. Montes de Oca**, S. Oliveira, and T. Stützle (2011). Ant Colony Optimization. *Wiley Encyclopedia of Operations Research and Management Science*, J. J. Cochran *et al.* (Eds.) vol. 1, pp. 114-125. John Wiley & Sons, Inc. New York.

JOURNALS

13. T. Liao, D. Molina, **M. A. Montes de Oca**, and T. Stützle. (2014). A Note on the Bound Constraints Handling for the IEEE CEC'05 Benchmark Function Suite. *Evolutionary Computation*. 22(2):351–359.

12. T. Liao, K. Socha, **M. A. Montes de Oca**, T. Stützle, and M. Dorigo (2014). Ant Colony Optimization for Mixed-Variable Optimization Problems. *IEEE Transactions on Evolutionary Computation*. 18(4):503–518.

11. T. Liao, T. Stützle, **M. A. Montes de Oca**, and M. Dorigo (2014). A Unified Ant Colony Optimization Algorithm for Continuous Optimization. *European Journal of Operational Research*. 234(3):597–609.

10. T. Liao, **M. A. Montes de Oca**, and T. Stützle (2013). Computational Results for an Automatically Tuned CMA-ES with Increasing Population Size on the CEC'05 Benchmark Set. *Soft Computing*. 17(6):1031–1046.

9. M. Dorigo, D. Floreano, L. M. Gambardella, F. Mondada, S. Nolfi, T. Baaboura, M. Birattari, M. Bonani, M. Brambilla, A. Brutschy, D. Burnier, A. Campo, A. L. Christensen, A. Decugnière, G. Di Caro, F. Ducatelle, E. Ferrante, A. Fröster, J. Martinez Gonzales, J. Guzzi, V. Longchamp, S. Magnenat, N. Mathews, **M. A. Montes de Oca**, R. O'Grady, C. Pinciroli, G. Pini, P. Réturnaz, J. Roberts, V. Sperati, T. Stirling, A. Stranieri, T. Stützle, V. Trianni, E. Tuci, A. E. Turgut and F. Vaussard (2013). Swarmanoid: a novel concept for the study of heterogeneous robotic swarms. *IEEE Robotics and Automation Magazine*. 20(4):60–71.

8. F. Sambo, **M. A. Montes de Oca**, B. Di Camillo, G. Toffolo, and T. Stützle (2012). MORE: Mixed Optimization for Reverse Engineering. An application to modeling biological networks response via sparse systems of nonlinear differential equations. *IEEE/ACM Transactions on Computational Biology and Bioinformatics*. 9(5):1459–1471.

7. Z. Yuan, **M. A. Montes de Oca**, M. Birattari, and T. Stützle (2012). Continuous Optimization Algorithms for Tuning Real and Integer Parameters of Swarm Intelligence Algorithms. *Swarm Intelligence*. 6(1):49–75.

6. **M. A. Montes de Oca**, E. Ferrante, A. Scheidler, C. Pinciroli, M. Birattari, and M. Dorigo (2011). Majority-Rule Opinion Dynamics with Differential Latency: A Mechanism for Self-Organized Collective Decision-Making. *Swarm Intelligence*. 5(3–4):305–327.

5. **M. A. Montes de Oca**, D. Aydın, and T. Stützle (2011). An Incremental Particle Swarm for Large-Scale Continuous Optimization Problems: An Example of Tuning-in-the-loop (Re)Design of Optimization Algorithms. *Soft Computing*. 15(11):2233–2255.

4. **M. A. Montes de Oca**, T. Stützle, K. Van den Enden, and M. Dorigo (2011). Incremental Social Learning in Particle Swarms. *IEEE Transactions on Systems, Man, and Cybernetics – Part B: Cybernetics*. 41(2):368–384.

3. **M. A. Montes de Oca**, T. Stützle, M. Birattari, and M. Dorigo (2009). Frankenstein's PSO: A Composite Particle Swarm Optimization Algorithm. *IEEE Transactions on Evolutionary Computation*. 13(5):1120–1132.
2. M. Dorigo, **M. A. Montes de Oca**, and A. Engelbrecht (2008). Particle Swarm Optimization. *Scholarpedia*, 3(11):1486.
1. **M. A. Montes de Oca**, L. Garrido, and J. L. Aguirre (2005). Efectos de la comunicación directa entre agentes en los algoritmos de agrupación de clases basados en el comportamiento de insectos sociales. *Inteligencia Artificial*. Iberoamerican Journal of Artificial Intelligence. Spanish Association for Artificial Intelligence. 3(25) pp. 59–69.

FULL PAPERS AT PEER-REVIEWED CONFERENCES, WORKSHOPS AND SYMPOSIA

27. **M. A. Montes de Oca**, and L. F. Rossi (2014). A Continuous-Time Binary Consensus Protocol with Hysteretic Units Applied to the Density Classification Problem. *Proc. of the 14th International Conference on the Synthesis and Simulation of Living Systems (ALIFE'14)*, H. Sayama *et al.* (Eds.) New York, NY, USA. July-August 2014. pp. 934-940. MIT Press.
26. J. Kirby, **M. A. Montes de Oca**, S. Senger, L. F. Rossi, and C. Shen (2013). Tracking Time-dependent Scalar Fields with Swarms of Mobile Sensors. *Proc. of the 7th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO'13)*, Philadelphia, PA, USA. T. Holvoet *et al.* (Eds.) IEEE Computer Society Press, Los Alamitos, CA. USA. pp. 159–168.
25. Z. Yuan, T. Stützle, H.-C. Lau, M. Birattari, and **M. A. Montes de Oca** (2013). An Analysis of Post-Selection in Automatic Tuning. *Proc. of the Genetic and Evolutionary Computation Conference (GECCO'13)*, Amsterdam, The Netherlands. C. Blum (Ed.) ACM Press, New York, NY, USA. pp. 1557–1564.
24. **M. A. Montes de Oca**, E. Ferrante, A. Scheidler, and L. F. Rossi (2012). Binary Consensus via Exponential Smoothing. *Proc. of the 2nd International Conference on Complex Sciences: Theory and Applications (COMPLEX'12)*, Santa Fe, NM, USA. K. Glass *et al.* (Eds.) LNCS 7461. Springer, Berlin, Germany. pp. 244–255.
23. T. Liao, D. Molina, T. Stützle, **M. A. Montes de Oca**, and M. Dorigo (2012). An ACO Algorithm Benchmarked on the BBOB Noiseless Function Testbed. *Proc. of the Workshop on Black-Box Optimization Benchmarking of the Genetic and Evolutionary Computation Conference (GECCO'12)*, Philadelphia, USA. A. Auger *et al.* (Eds.) ACM Press, New York, NY, USA. pp. 159–166.
22. J. Kirby, **M. A. Montes de Oca**, S. Senger, L. F. Rossi, and C. Shen (2012). Swarm Interpolation Using an Approximate Chebyshev Distribution. *Proc. of the 8th International Conference on Swarm Intelligence (ANTS'12)*, Brussels, Belgium. M. Dorigo *et al.* (Eds.) LNCS 7461. Springer, Berlin, Germany. pp. 324-331.
21. D. Aydın, T. Liao, **M. A. Montes de Oca**, and T. Stützle (2011). Improving Performance via Population Growth and Local Search: The Case of the Bee Colony Algorithm. *Proc. of the International Conference on Artificial Evolution (EA'11)*. Angers, France. J-K. Hao *et al.* (Eds.) LNCS 7401. pp. 85–96.

20. T. Liao, **M. A. Montes de Oca**, and T. Stützle (2011). Tuning Parameters across Mixed Dimensional Instances: A Performance Scalability Study of Sep-G-CMA-ES. *Proc. of the Workshop on Scaling Behaviours of Landscapes, Parameters and Algorithms of the Genetic and Evolutionary Computation Conference (GECCO'11)*, Dublin, Ireland. E. Özcan *et al.* (Eds.) ACM Press. New York, NY. pp. 703–706.
19. T. Liao, **M. A. Montes de Oca**, D. Aydın, T. Stützle, and M. Dorigo (2011). An Incremental Ant Colony Algorithm with Local Search for Continuous Optimization. *Proc. of the Genetic and Evolutionary Computation Conference (GECCO'11)*, Dublin, Ireland. N. Krasnogor *et al.* (Eds.) ACM Press. New York, NY. pp. 125–132. [**Best paper award in the Ant Colony Optimization and Swarm Intelligence track**]
18. **M. A. Montes de Oca**, T. Stützle, M. Birattari, and M. Dorigo (2010). Incremental Social Learning Applied to a Decentralized Decision-Making Mechanism: Collective Learning Made Faster. *Proc. of the 4th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO'10)*, Budapest, Hungary. I. Gupta *et al.* (Eds.) IEEE Computer Society Press. Los Alamitos, CA. pp. 243–252.
17. **M. A. Montes de Oca**, E. Ferrante, N. Mathews, M. Birattari, and M. Dorigo (2010). Opinion Dynamics for Decentralized Decision-Making in a Robot Swarm. *Proc. of the 7th International Conference on Swarm Intelligence (ANTS'10)*, Brussels, Belgium. M. Dorigo *et al.* (Eds.) LNCS 6234. Springer, Berlin, Germany. pp. 252–263. [**Nominated for the best paper award**]
16. Z. Yuan, **M. A. Montes de Oca**, T. Stützle, and M. Birattari (2010). Modern Continuous Optimization Algorithms for Tuning Real and Integer Algorithm Parameters. *Proc. of the 7th International Conference on Swarm Intelligence (ANTS'10)*, Brussels, Belgium. M. Dorigo *et al.* (Eds.) LNCS 6234. Springer, Berlin, Germany. pp. 204–215.
15. **M. A. Montes de Oca**, E. Ferrante, N. Mathews, M. Birattari, and M. Dorigo (2009). Optimal Collective Decision-Making through Social Influence and Different Action Execution Times. *Proc. of the Workshop on Organisation, Cooperation and Emergence in Social Learning Agents of the European Conference on Artificial Life (ECAL'09)*, Budapest, Hungary. D. Curran and C. O'Riordan (Eds.)
14. P. Spanevello and **M. A. Montes de Oca** (2009). Experiments on Adaptive Heterogeneous PSO Algorithms. *Proc. of the Doctoral Symposium on Engineering Stochastic Local Search (SLS-DS'09)*, Brussels, Belgium. F. Hutter and M. A. Montes de Oca (Eds.) IRIDIA Technical Report TR/IRIDIA/2009-024, Université Libre de Bruxelles, Brussels, Belgium. pp. 36–40.
13. F. Sambo, **M. A. Montes de Oca**, B. Di Camillo, and T. Stützle (2009). On the Difficulty of Inferring Gene Regulatory Networks: A Study of the Fitness Landscape Generated by Relative Squared Error. *Proc. of the International Conference on Artificial Evolution (EA'09)*, Strasbourg, France. P. Collet *et al.* (Eds.) LNCS 5975. Springer, Berlin, Germany. pp. 74–85.
12. **M. A. Montes de Oca**, J. Peña, T. Stützle, C. Pinciroli, and M. Dorigo (2009). Heterogeneous Particle Swarm Optimizers. *Proc. of the IEEE Congress on Evolutionary Computation (CEC'09)*, Trondheim, Norway. P. Haddow *et al.* (Eds.) IEEE Press, Piscataway, NJ. pp. 698–705.
11. **M. A. Montes de Oca**, K. Van den Enden, and T. Stützle (2008). Incremental Particle Swarm-Guided Local Search for Continuous Optimization. *Proc. of the International Workshop on Hybrid Metaheuristics (HM'08)*, Málaga, Spain. M. J. Blesa *et al.* (Eds.), LNCS 5296. Springer, Berlin, Germany. pp. 72–86.

10. **M. A. Montes de Oca** and T. Stützle (2008). Towards Incremental Social Learning in Optimization and Multiagent Systems. *Proc. of the Evolutionary Computation and Multi-Agent Systems and Simulation (ECoMASS) Workshop (GECCO'08)*, Atlanta, GA, USA. ACM Press, New York, NY, USA. pp. 1939–1944.
9. **M. A. Montes de Oca** and T. Stützle (2008). Convergence Behavior of the Fully Informed Particle Swarm Optimization Algorithm. *Proc. of the Genetic and Evolutionary Computation Conference (GECCO'08)*, Atlanta, GA, USA. ACM Press, New York. pp. 71–78. [**Nominated for the best paper award in the Ant Colony Optimization, Swarm Intelligence, and Artificial Immune Systems track**]
8. **M. A. Montes de Oca** (2008). Exposing a Bias Toward Short-Length Numbers in Grammatical Evolution. *Proc. of the Eleventh European Conference on Genetic Programming (EuroGP'08)*, Naples, Italy. M. O'Neill *et al.* (Eds.), LNCS 4971. Springer, Berlin, Germany. pp. 278–288.
7. **M. A. Montes de Oca**, T. Stützle, M. Birattari, and M. Dorigo (2007). Composing Particle Swarm Optimization Algorithms. *Proc. of the Doctoral Symposium on Engineering Stochastic Local Search (SLS-DS'07)*, Brussels, Belgium. E. Ridge, T. Stützle, M. Birattari, and H. H. Hoos (Eds.) Technical report TR/IRIDIA/2007-014 IRIDIA, Université Libre de Bruxelles, Brussels, Belgium, September 2007. pp. 6–10.
6. M. Iqbal and **M. A. Montes de Oca** (2006). An Estimation of Distribution Particle Swarm Optimization Algorithm. *Proc. of the Fifth International Workshop on Ant Colony Optimization and Swarm Intelligence (ANTS'06)*, Brussels, Belgium. M. Dorigo, L. M. Gambardella, M. Birattari, A. Martinoli, R. Poli, and T. Stützle (Eds.), LNCS 4150. Springer, Berlin, Germany. pp. 72–83.
5. **M. A. Montes de Oca**, T. Stützle, M. Birattari, and M. Dorigo (2006). A Comparison of Particle Swarm Optimization Algorithms Based on Run-Length Distributions. *Proc. of the Fifth International Workshop on Ant Colony Optimization and Swarm Intelligence (ANTS'06)*, Brussels, Belgium. M. Dorigo, L. M. Gambardella, M. Birattari, A. Martinoli, R. Poli, and T. Stützle (Eds.), LNCS 4150. Springer, Berlin, Germany. pp. 1–12.
4. **M. A. Montes de Oca**, L. Garrido, and J. L. Aguirre (2005). Effects of Inter-agent Communication in Ant-based Clustering Algorithms: A Case Study on Communication Policies in Swarm Systems. *Proc. of the 4th Mexican International Conference on Artificial Intelligence (MICAI'05)*, Monterrey, N.L. México. A. Gelbukh, A. de Albornoz, and H. Terashima (Eds.), LNAI 3789. Springer, Berlin, Germany. pp. 254–263.
3. **M. A. Montes de Oca**, L. Garrido, and J. L. Aguirre (2005). An hybridization of an ant-based clustering algorithm with growing neural gas networks for classification tasks. *Proc. of the 20th Annual ACM Symposium on Applied Computing (SAC'05)*, Santa Fe, NM, USA. ACM Press. pp. 9–13.
2. **M. A. Montes de Oca**, L. Garrido, and J. L. Aguirre (2004). A first approach to study the effects of direct information exchange between agents in ant-based clustering. *Proc. of the 1st World Congress on Lateral Computing*, Bangalore, India. World Federation on Lateral Computing. pp. 23–30. [**Best paper award in the Swarm Intelligence/Evolutionary Computing session**]
1. **M. A. Montes de Oca**, L. Garrido, and J. L. Aguirre (2004). On the effects of direct communication between agents in ant-based clustering algorithms. In *Proc. of the 5th Iberoamerican Workshop on Multi-Agent Systems (Iberagents'04)*, Puebla, México. November 2004.

EDITED BOOKS, PROCEEDINGS, AND JOURNAL SPECIAL ISSUES

2. M. Dorigo, S. Garnier, **M. A. Montes de Oca**, and C. Solnon (Eds.) (2014). Proc. of the Ninth International Conference on Swarm Intelligence (ANTS 2014). LNCS 8667. Springer. Berlin, Germany.
1. F. Hutter and **M. A. Montes de Oca** (Eds.) (2009). Proc. of the Doctoral Symposium on Engineering Stochastic Local Search Algorithms (SLS-DS 2009). IRIDIA, Université Libre de Bruxelles, Brussels, Belgium, Technical Report TR/IRIDIA/2009-024.

THESES

3. **M. A. Montes de Oca** (2011). Incremental Social Learning in Swarm Intelligence Systems. Ph.D. thesis, Université Libre de Bruxelles, Brussels, Belgium.
2. **M. A. Montes de Oca** (2006). On the Performance of Particle Swam Optimizers. Memoire de Diplôme d'Études Approfondies. Université Libre de Bruxelles, Brussels, Belgium.
1. **M. A. Montes de Oca** (2005). Effects on clustering quality of direct and indirect communication among agents in ant-based clustering algorithms. Master's thesis. Instituto Tecnológico y de Estudios Superiores de Monterrey, Monterrey, N.L., Mexico.

WORK IN PROGRESS

2. M. Dorigo, M. Birattari, S. Garnier, H. Hamann, **M. A. Montes de Oca**, C. Solnon, and T. Stützle (Eds.) (2015). Special issue on papers presented at ANTS 2014. *Swarm Intelligence*. To appear.
1. **M. A. Montes de Oca**, L. Rossi. Dynamics of a Consensus Model with Hysteresis.

OTHERS

5. **M. A. Montes de Oca** (2013). Social Reinforcement For Collective Decision-Making Over Time. In *Extended Abstracts Compilation of the 1st Multidisciplinary Conference on Reinforcement Learning and Decision Making*. Princeton, NJ, USA. pp. 138 – 142.
4. M. Dorigo, M. Birattari, R. O'Grady, L. M. Gambardella, F. Mondada, D. Floreano, S. Nolfi, T. Baaboura, M. Bonani, M. Brambilla, A. Brutschy, D. Burnier, A. Campo, A. Christensen, A. Decugnière, G. Di Caro, F. Ducatelle, E. Ferrante, J. Martinez Gonzales, J. Guzzi, V. Longchamp, S. Magnenat, N. Mathews, **M. A. Montes de Oca**, C. Pinciroli, G. Pini, P. Rétornaz, F. Rey, J. Roberts, F. Rochat, V. Sperati, T. Stirling, A. Stranieri, T. Stützle, V. Trianni, E. Tuci , A. E. Turgut, and F. Vaussard (2011). Swarmanoid, The Movie. AAAI-11 Video Proc. 2011. [**Best video award**]
3. A. Brutschy, **M. A. Montes de Oca**, and C. Pinciroli (2009). ANTS 2008. KI - Zeitschrift Künstliche Intelligenz 23(2). 2009. pp. 64.



2. **M. A. Montes de Oca**, T. Stützle, M. Birattari, and M. Dorigo (2006). On the Performance Analysis of Particle Swarm Optimisers. AISB Quarterly Issue 124. The Society for the Study of Artificial Intelligence and Simulation of Behaviour. Brighton, United Kingdom. Autumn/Winter 2006. pp. 6-7.

1. **M. A. Montes de Oca**, L. Garrido, and J. L. Aguirre (2005). A first approach to study the effects of direct information exchange between agents in ant-based clustering. Abstract compilation. In *Proc. of the 35th Research and Technological Development Congress. Tecnológico de Monterrey*. Monterrey, N.L. México. January 2005.

#### INVITED TALKS AND LECTURES

##### KEYNOTES

Keynote lecture at the *Taller de Robótica* of the Center for Optics Research, Aguascalientes, Mexico. November 5, 2014. Hosted by Luis A. Diaz-Torres.

Keynote lecture at the International Conference on Evolutionary Computation Theory and Practice (ECTA- 2011), Paris, France. October 25, 2011. Hosted by Agostinho Rosa and Joaquim Filipe.

##### SEMINARS

Invited talk at the School of Informatics and Computing, Indiana University, Bloomington, IN, USA. March 7, 2013. Hosted by Johan Bollen.

Invited talk at the Department of Mathematical Sciences, University of Delaware, Newark, DE, USA. September 20, 2011. Hosted by Richard Braun, Petr Plechac and Pak-Wing Fok.

Invited talk at the *Instituto de Investigaciones en Matemáticas Aplicadas y en Sistemas (IIMAS), Universidad Nacional Autónoma de México (UNAM)*, Mexico City, Mexico. August 12, 2010. Hosted by Carlos Gershenson.

#### PROFESSIONAL SERVICE

##### EDITORIAL BOARD MEMBERSHIPS

**Swarm Intelligence**, 2012 – To date

**Frontiers in Robotics and AI: Computational Intelligence**, 2014 – To date

##### CONFERENCE ORGANIZATION AND EDITORIAL COMMITTEE MEMBERSHIPS

Technical program chair on Particle Swarm Optimization for the International Conference on Swarm Intelligence (**ANTS** 2014), Brussels, Belgium.

Co-chair of the track on “Ant Colony Optimization and Swarm Intelligence” for the Genetic and Evolutionary Computation Conference (**GECCO** 2014), Vancouver, Canada.

Local arrangements co-chair for the International Conference on Ant Colony Optimization and Swarm Intelligence (**ANTS** 2008), Brussels, Belgium.

REFEREEING FOR INTERNATIONAL JOURNALS

AI Communications (2010, 2015, **2 times**), Applied Soft Computing (2012, 2014, **2 times**), Computer Physics Communications (2011, **1 time**), Computers & Industrial Engineering (2006, 2009, 2011, **3 times**), Computers & Mathematics with Applications (2012, **1 time**), Discrete Dynamics in Nature and Society (2012, **1 time**), Engineering Applications of Artificial Intelligence (2014, **1 time**), European Journal of Operational Research (2008, **1 time**), Evolutionary Computation (2009, **1 time**), IEEE Transactions on Aerospace and Electronic Systems (2011, **1 time**), IEEE Transactions on Autonomous and Adaptive Systems (2010, **1 time**), IEEE Transactions on Autonomous Mental Development (2009, **1 time**), IEEE Transactions on Biomedical Engineering (2010, **1 time**), IEEE Transactions on Evolutionary Computation (2006–2013, **25 times**), IEEE Transactions on Neural Networks and Learning Systems (2012, **1 time**), IEEE Transactions on Robotics (2012, **1 time**), IEEE Transactions on Systems, Man and Cybernetics – Part B: Cybernetics (2006,2009, **4 times**), IEEE Transactions on Wireless Communications (2011, **1 time**), Information Sciences (2011–2012, **2 times**), International Journal of Advanced Robotic Systems (2013–2014, **2 times**), International Journal of Computational Intelligence Research (2007, **1 time**), International Journal of Machine Learning and Cybernetics (2013–2014, **2 times**), International Journal of Swarm Intelligence Research (2011, **1 time**), International Transactions in Operational Research (2013, **1 time**), Journal of Global Optimization (2011, **1 time**), Journal of Intelligent Manufacturing (2008, **1 time**), Journal of Parallel and Distributed Computing (2012, **1 time**), Journal of Zhejiang University-SCIENCE A (2008,**1 time**), Machine Learning (2010, **1 time**),Mathematical Problems in Engineering (2013, **1 time**), Natural Computing (2008, **1 time**), Neural Computing & Applications (2009, **1 time**), Paladyn. Journal of Behavioral Robotics (2012, **1 time**), Soft Computing (2010–2011, **7 times**), Structural Engineering and Mechanics (2009, **1 time**), and Swarm Intelligence (2007–2014, **49 times**).

PROGRAM COMMITTEE MEMBERSHIPS

**MOD** 2016 – International Workshop on Machine learning, Optimization and Big Data

**COMPLEXIS** 2016 – International Conference on Complex Information Systems.

**WCCI** 2016 – IEEE World Congress on Computational Intelligence.

**SAB** 2016 – International Conference on Simulation of Adaptive Behavior: From Animals to Animals 14.

**GECCO** 2016 – Genetic and Evolutionary Computation Conference, track “Ant Colony Optimization and Swarm Intelligence”.

**PPSN** 2016 – International Conference on Parallel Problem Solving From Nature.

**IBICA** 2015 – International Conference on Innovations in Bio-Inspired Computing and Applications.

**LION** 9 (2015) – Learning and Intelligent Optimization Conference.

**ECAI** 2014 – European Conference on Artificial Intelligence.

**PPSN** 2014 – International Conference on Parallel Problem Solving From Nature.

**CEC** 2014 – IEEE Congress on Evolutionary Computation.

**LION** 8 (2014) – Learning and Intelligent Optimization Conference.

**MIBISOC** 2013 – International Conference on Medical Imaging using Bio-inspired and Soft computing.

**GECCO** 2013 – Genetic and Evolutionary Computation Conference, track “Ant Colony Optimization and Swarm Intelligence”.

**CEC** 2013 – IEEE Congress on Evolutionary Computation.

**IJCAI** 2013 – International Joint Conference in Artificial Intelligence.

**LION 7** (2013) – Learning and Intelligent Optimization Conference.  
**SAC 2013** – ACM Symposium on Applied Computing, Computational Intelligence and Video and Image Analysis.  
**PPSN 2012** – International Conference on Parallel Problem Solving From Nature.  
**ANTS 2012** – International Conference on Swarm Intelligence.  
**CISIS 2012** – International Conference on Complex, Intelligent, and Software Intensive Systems, track on Socially Inspired Complex Systems..  
**GECCO 2012** – Genetic and Evolutionary Computation Conference, track “Ant Colony Optimization and Swarm Intelligence” .  
**SAC 2012** – ACM Symposium on Applied Computing, Computational Intelligence and Video and Image Analysis.  
**GECCO 2011** – Genetic and Evolutionary Computation Conference, track “Ant Colony Optimization and Swarm Intelligence” .  
**LION 5** (2011) – Learning and Intelligent Optimization Conference.  
**SAC 2011** – ACM Symposium on Applied Computing, Computational Intelligence and Signal and Image Analysis.  
**ANTS 2010** – International Conference on Swarm Intelligence.  
**GECCO 2010** – Genetic and Evolutionary Computation Conference, track “Ant Colony Optimization and Swarm Intelligence” .  
**SAC 2010** – ACM Symposium on Applied Computing, Computational Intelligence and Image Analysis.  
**GECCO 2009** – Genetic and Evolutionary Computation Conference, track “Ant Colony Optimization and Swarm Intelligence” .  
**SAC 2009** – ACM Symposium on Applied Computing, Computational Intelligence and Image Analysis.  
**GECCO 2007** – Genetic and Evolutionary Computation Conference, track “Ant Colony Optimization and Swarm Intelligence” .

REFEREEING FOR SCIENCE & TECHNOLOGY AGENCIES

**Austrian Science Fund (FWF)** – One project, 2014.

LANGUAGES Spanish (Native speaker), English (Fluent), French (Intermediate level, can hold conversations).

SKILLS AND EXPERTISE Research, Teaching, Computer Science, Artificial Intelligence, Computational Intelligence, Multi-Agent Systems, Collective Intelligence, Swarm Intelligence, Self-Organization, Algorithms, Optimization, Continuous Optimization, Particle Swarm Optimization, Ant Colony Optimization, Evolutionary Computation, Data Clustering, Statistics, Simulations, Programming, R, Matlab, Maple, Bash, C, C++, Java, LaTeX, Linux.