

CURRICULUM VITAE

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Academic Degrees

- BSc in Civil Engineering, Universidad Autónoma de Chiapas, 1985–1990. Degree awarded in 1991 with the thesis “Analysis of Grid Structures using a personal computer (stiffness method)” (*summa cum laude*).
- Master of Science in Computer Science, Tulane University, New Orleans, Louisiana, EUA, 1991–1993. Degree awarded in December, 1993.
- PhD in Computer Science, Tulane University, New Orleans, Louisiana, EUA, 1993–1996. Degree awarded in May, 1996, with the thesis entitled “An Empirical Study of Evolutionary Techniques for Multiobjective Optimization in Engineering Design”. Advisor: Dr. Alan D. Christiansen.

Most Relevant Publications

Monographic Books

1. Carlos A. Coello Coello, David A. Van Veldhuizen and Gary B. Lamont, *Evolutionary Algorithms for Solving Multi-Objective Problems*, Kluwer Academic Publishers, New York, USA, May 2002, ISBN 0-3064-6762-3.
2. Carlos A. Coello Coello, Gary B. Lamont and David A. Van Veldhuizen, *Evolutionary Algorithms for Solving Multi-Objective Problems*, Springer, New York, USA, Second Edition, ISBN 978-0-387-33254-3, September 2007.

Edited Books

1. Carlos A. Coello Coello and Gary B. Lamont (eds), *Applications of Multi-Objective Evolutionary Algorithms*, World Scientific, Singapore, 2004, ISBN 981-256-106-4.
2. Carlos Artemio Coello Coello, Satchidananda Dehuri and Susmita Ghosh (editors), *Swarm Intelligence for Multi-objective Problems in Data Mining*, Springer, Berlin/Heidelberg, 2009, ISBN: 978-3-642-03624-8.
3. Carlos A. Coello Coello, Clarisse Dhaenens and Laetitia Jourdan (editors), *Advances in Multi-Objective Nature Inspired Computing*, Springer, Berlin/Heidelberg, 2010, ISBN: 978-3-642-11217-1.

Edited Proceedings

1. Eckart Zitzler, Kalyanmoy Deb, Lothar Thiele, Carlos A. Coello Coello & David Corne (editors), *Evolutionary Multi-Criterion Optimization. First International Conference, EMO 2001*, Springer-Verlag, Berlin, Lecture Notes in Computer Science, Vol. 1993, March 2001, ISBN 3-540-41745-1.
2. Carlos A. Coello Coello, Arturo Hernández Aguirre and Eckart Zitzler (Editors), *Evolutionary Multi-Criterion Optimization. Third International Conference, EMO 2005*, Springer-Verlag, Berlin, Lecture Notes in Computer Science Vol. 3410, March 2005, ISBN 3-540-24983-4.
3. Carlos A. Coello Coello (Editor), *Learning and Intelligent Optimization, 5th International Conference, LION5*, Springer, Lecture Notes in Computer Science Vol. 6683, January 2011, ISBN 978-3-642-25565-6.
4. Oliver Schütze, Carlos A. Coello Coello, Alexandru-Adrian Tantar, Emilia Tantar, Pascal Bouvry, Pierre Del Moral and Pierrick Legrand (editors), *EVOLVE - A Bridge between Probability, Set Oriented Numerics, and Evolutionary Computation II*, Springer, Advances in Intelligent Systems and Computing Vol. 175, Berlin, Germany, 2012, ISBN 978-3-642-31519-0.
5. Carlos A. Coello Coello, Vincenzo Cutello, Kalyanmoy Deb, Stephanie Forrest, Giuseppe Nicosia and Mario Pavone (Eds.), *Parallel Problem Solving from Nature - PPSN XII, 12th International Conference*, Springer, Lecture Notes in Computer Science Vol. 7491, Taormina, Italy, September 1-5, 2012, ISBN 978-3-642-32936-4.
6. Carlos A. Coello Coello, Julie Greensmith, Natalio Krasnogor, Pietro Liò, Giuseppe Nicosia and Mario Pavone (Eds), *Artificial Immune Systems, 11th International Conference, ICARIS 2012*, Springer, Lecture Notes in Computer Science Vol. 7597, Taormina, Italy, August 28-31, 2012, ISBN 978-3-642-33756-7.
7. Ying Tan, Yuhui Shi and Carlos A. Coello Coello (Eds), *Advances in Swarm Intelligence, 5th International Conference, ICSI 2014*, Springer, Lecture Notes in Computer Science Vols. 8794 and 8795, Hefei, China, October 17-20, 2014 (2 volumes).
8. António Gaspar-Cunha, Carlos Henggeler Antunes and Carlos Coello Coello (Eds.), *Evolutionary Multi-Criterion Optimization, 8th International Conference, EMO 2015*, Springer, Lecture Notes in Computer Science Vols. 9018 and 9019, Guimarães, Portugal, March 29–April 1, 2015 (2 volumes).

Book Chapters

1. Ian C. Parmee, Carlos A. Coello Coello and Andrew H. Watson, “Data Representations for Evolutionary Computation”, in H. Cartwright, (Editor), *Intelligent Data Analysis in Science*, Chapter 5, pp. 95–122, Oxford University Press, UK, 2000, ISBN 0-19-850233-8.
2. Carlos A. Coello Coello, “Evolutionary Multi-Objective Optimization: A Critical Review”, in Ruhul Sarker, Masoud Mohammadian and Xin Yao (Editores), *Evolutionary Optimization*, Chapter 5, pp. 117–146, Kluwer Academic Publishers, Boston, USA, February 2002, ISBN 0-7923-7654-4.
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4. Carlos A. Coello Coello and Carlos E. Mariano Romero, “Evolutionary Algorithms and Multiple Objective Optimization”, in Xavier Gandibleux & Matthias Ehrgott (editors), *Multiple Criteria Optimization. State of the Art Annotated Bibliographic Survey*, Chapter 6, pp. 277–331, Kluwer’s International Series in Operations Research and Management Science, Volume 52, Kluwer Academic Publishers, Norwell, Massachusetts, USA, June 2002, ISBN 1-4020-7128-0.
5. Carlos A. Coello Coello, “Evolutionary Multiobjective Optimization: Current and Future Challenges”, in Jose Benitez, Oscar Cordon, Frank Hoffmann and Rajkumar Roy (editors), *Advances in Soft Computing—Engineering, Design and Manufacturing*, Chapter 24, pp. 243–256, Springer-Verlag, Berlin, Germany, September 2003, ISBN 1-85233-755-9.
6. Ricardo Landa Becerra and Carlos A. Coello Coello, “A Cultural Algorithm for Solving the Job-Shop Scheduling Problem”, in Yaochu Jin (editor) *Knowledge Incorporation in Evolutionary Computation*, Chapter 3, pp. 37–55, Studies in Fuzziness and Soft Computing, Vol. 167, Springer, Berlin, Germany, 2005, ISBN 3-540-22902-7.
7. Dragan Cvetkovic and Carlos A. Coello Coello, “Human Preferences and Their Applications in Evolutionary Multi-Objective Optimization”, in Yaochu Jin (editor) *Knowledge Incorporation in Evolutionary Computation*, Chapter 22, pp. 479–502, Studies in Fuzziness and Soft Computing, Vol. 167, Springer, Berlin, Germany, 2005, ISBN 3-540-22902-7.
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9. Carlos A. Coello Coello, "Recent Trends in Evolutionary Multiobjective Optimization", in Ajith Abraham, Lakhmi Jain and Robert Goldberg (editors), *Evolutionary Multiobjective Optimization: Theoretical Advances And Applications*, Chapter 2, pp. 7–32, Springer-Verlag, London, UK, 2005, ISBN 1-85233-787-7.
10. Efrén Mezura-Montes and Carlos A. Coello Coello, "Use of Multiobjective Optimization Concepts to Handle Constraints in Genetic Algorithms", in Ajith Abraham, Lakhmi Jain and Robert Goldberg (editors), *Evolutionary Multiobjective Optimization: Theoretical Advances And Applications*, Chapter 10, pp. 229–254, Springer-Verlag, London, UK, 2005, ISBN 1-85233-787-7.
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12. Margarita Reyes Sierra and Carlos A. Coello Coello, "A Study of Techniques to Improve the Efficiency of a Multi-Objective Particle Swarm Optimizer", in Shengxiang Yang, Yew Soon Ong and Yaochu Jin (editors), *Evolutionary Computation in Dynamic and Uncertain Environments*, Chapter 12, pp. 269–296, Springer, Berlin, Germany, 2007, ISBN 978-3-540-49772-1.
13. Leticia Cagnina, Susana C. Esquivel and Carlos A. Coello Coello, "Hybrid Particle Swarm Optimizers in the Single Machine Scheduling Problem: An Experimental Study", in Keshav Dahal, Kay Chan Tan and Peter Cowling (editors), *Evolutionary Scheduling*, Chapter 6, pp. 143–164, Springer-Verlag, Berlin, Germany, 2007, ISBN 3-540-48582-1.
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15. Efrén Mezura-Montes, Edgar A. Portilla-Flores, Carlos A. Coello Coello, Jaime Alvarez-Gallegos and Carlos A. Cruz-Villar, "An Evolutionary Approach to Solve a Novel Mechatronic Multiobjective Optimization Problem", in Patrick Siarry and Zbigniew Michalewicz (editors), *Advances in Metaheuristic Methods for Hard Optimization*, Chapter 16, pp. 329–351, Springer, Berlin, Germany, 2008, ISBN 978-3-540-72959-4.
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21. El-Ghazali Talbi, Sanaz Mostaghim, Tatsuya Okabe, Hisao Ishibuchi, Günter Rudolph and Carlos A. Coello Coello, "Parallel Approaches for Multi-objective Optimization", in Jürgen Branke, Kalyanmoy Deb, Kaisa Miettinen and Roman Slowinski (editors), *Multiobjective Optimization. Interactive and Evolutionary Approaches*, Chapter 13, pp. 349–372, Springer, Lecture Notes in Computer Science Vol. 5252, Berlin, Germany, 2008, ISBN 978-3-540-88907-6.
22. Antonio López Jaimes and Carlos A. Coello Coello, "Multi-Objective Evolutionary Algorithms: A Review of the State-of-the-Art and some of their Applications in Chemical Engineering", in Rangaiah Gade Pandu (editor), *Multi-Objective Optimization Techniques and Applications in Chemical Engineering*, Chapter 3, pp. 61–90, World Scientific, Singapore, 2009, ISBN 978-981-283-651-9.
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29. Luis V. Santana-Quintero, Alfredo Arias Montaña and Carlos A. Coello Coello, “A Review of Techniques for Handling Expensive Functions in Evolutionary Multi-Objective Optimization”, in Yoel Tenne and Chi-Keong Goh (editors), *Computational Intelligence in Expensive Optimization Problems*, Chapter 2, pp. 29–59, Springer, Berlin, Germany, 2010, ISBN 978-3-642-10700-9.
30. Carlos A. Coello Coello, Clarisse Dhaenens and Laetitia Jourdan, “Multi-Objective Combinatorial Optimization: Problematic and Context”, in Carlos A. Coello Coello, Clarisse Dhaenens and Laetitia Jourdan (editors), *Advances in Multi-Objective Nature Inspired Computing*, pp. 1–21, Springer, Berlin, Studies in Computational Intelligence Vol. 272, 2010, ISBN 978-3-642-11217-1.
31. Julio Barrera and Carlos A. Coello Coello, “Test Function Generators for Assessing Performance of PSO Algorithms in Multimodal Optimization”, in Bijaya Ketan Panigrahi, Yuhui Shi and Meng-Hiot Lim (editors), *Handbook on Swarm Intelligence - Concepts, Principles and Applications*, Chapter 4, pp. 89–117, Springer-Verlag, Berlin, Germany, 2011, ISBN 978-3-642-17389-9. (**Outstanding Chapter Award**)
32. Carlos A. Coello Coello, “Fundamentals of Evolutionary Multi-Objective Optimization”, in Bogdan M. Wilamowski and J. David Irwin (Editors), *Industrial Electronics Handbook. Intelligent Systems*, Second Edition, Chapter 25, pp. 25-1–25-11, CRC Press, Boca Raton, Florida, USA, 2011, ISBN 978-1-4398-0283-0.
33. Alfredo Arias Montaña, Carlos A. Coello Coello and Efrén Mezura-Montes, “Evolutionary Algorithms Applied to Multi-Objective Aerodynamic Shape Optimization”, in Slawomir Koziel and Xin-She Yang (editors), *Computational Optimization, Methods and Algorithms*, Chapter 10, pp. 211–240, Springer, Berlin, Germany, 2011, ISBN 978-3-642-20858-4.
34. Guillermo Leguizamón and Carlos A. Coello Coello, “Multi-Objective Ant Colony Optimization: A Taxonomy and Review of Approaches”, in Satchidananda Dehuri, Susmita Ghosh and Sung Bae Cho (editors), *Integration of Swarm Intelligence and Artificial Neural Network*, Chapter 3, pp. 67–94, World Scientific, Singapore, 2011, ISBN 978-981-4280-14-3.
35. Mohsen Davarynejad, Jos Vrancken, Jan van den Berg, and Carlos A. Coello Coello, “A Fitness Granulation Approach for Large-Scale Structural Design Optimization”, in Raymond Chiong, Thomas Weise and Zbigniew Michalewicz (editors), *Variants of Evolutionary Algorithms for Real-World Applications*, pp. 245–280, Springer, Berlin, 2011, ISBN 978-3-642-23423-1.
36. Luis Gerardo de la Fraga and Carlos A. Coello Coello, “A Review of Applications of Evolutionary Algorithms in Pattern Recognition”, in Patrick S.P. Wang (editor), *Pattern Recognition, Machine Intelligence and Biometrics*, pp. 3–28, Higher Education Press, Beijing and Springer-Verlag, Berlin, 2011, ISBN 978-3-642-22406-5.
37. Guillermo Leguizamón and Carlos A. Coello Coello, “An Introduction to the Use of Evolutionary Computation Techniques for Dealing with ECG Signals”, in Adam Gacek and Witold Pedrycz (editors), *ECG Signal Processing, Classification and Interpretation: A Comprehensive Framework of Computational Intelligence*, Chapter 6, pp. 135–153, Springer, London, 2012, ISBN 978-0-85729-867-6.
38. Victoria S. Aragón, Susana C. Esquivel and Carlos A. Coello Coello, “Artificial Immune System for Solving Dynamic Constrained Optimization Problems”, in Enrique Alba, Amir Nakib and Patrick Siarry (editors), *Metaheuristics for Dynamic Optimization*, pp. 225–263, Springer, Berlin, Germany, 2013, ISBN 978-3-642-30664-8.
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46. Saúl Zapotecas-Martínez, Adriana Lara and Carlos A. Coello Coello, “Hybridizing MOEAs with Mathematical-Programming Techniques”, in Raghu Nandan Sengupta, Aparna Gupta and Joydeep Gupta (Editors), *Decision Sciences. Theory and Practice*, CRC Press, Boca Raton, Florida, 2017. ISBN 978-1-4665-6430-5.
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¹I.F. = Impact factor according to the version of the *Journal Citations Report* released in the year in which the paper was published.

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289. Amín V. Bernabé Rodríguez, Carlos A. Coello Coello, “An Ensemble of S-energy Based Mating Restrictions for Multi-Objective Evolutionary Algorithms”, in *2021 IEEE Symposium Series on Computational Intelligence (SSCI’2021)*, IEEE Press, Orlando, Florida, USA, 4-7 December 2021. ISBN 978-1-7281-9048-8/21.
290. Rihab Said, Maha Elarbi, Slim Bechikh, Carlos A. Coello Coello, Lamjed Ben Said, “Cost-sensitive Classification Tree Induction as a Bi-level Optimization Problem”, in *Proceedings of the Genetic and Evolutionary Computation Conference Companion (GECCO’2022)*, pp. 284–287, ACM Press, Boston, Massachusetts, USA, July 9-13, 2022, ISBN 978-1-4503-9268-6.
291. Rihab Said, Maha Elarbi, Slim Bechikh, Carlos A. Coello Coello, Lamjed Ben Said, “Interval-based Cost-sensitive Classification Tree Induction as a Bi-level Optimization Problem”, in *2022 IEEE Congress on Evolutionary Computation (CEC’2022)*, IEEE, Padua, Italy, 18-23 July, 2022, ISBN 978-1-6654-6708-7.
292. Diana Cristina Valencia-Rodríguez and Carlos A. Coello Coello, “Multi-Objective Evolutionary Algorithm Based on the Linear Assignment Problem and the Hypervolume Approximation using Polar Coordinates (MOEA-LAPCO)”, in Günter Rudolph, Anna V. Kononova, Hernán Aguirre, Pascal Kerschke, Gabriela Ochoa and Tea Tušar (Editors), *Parallel Problem Solving from Nature — PPSN XVII, 17th International Conference, PPSN 2022, Part II*, pp. 221–233, Springer. Lecture Notes in Computer Science Vol. 13399, Dortmund, Germany, September 10-14, 2022, ISBN 978-3-031-14720-3.
293. Daniel Doblas, Antonio J. Nebro, Manuel López-Ibáñez, José García-Nieto and Carlos A. Coello Coello, “Automatic Design of Multi-objective Particle Swarm Optimizers”, in Marco Dorigo, Heiko Hamann, Manuel López-Ibáñez, José García-Nieto, Andries Engelbrecht, Carlo Pinciroli, Volker Strobelt and Christian Camacho-Villalón (Editors), *Swarm Intelligence, 13th International Conference, ANTS 2022, Málaga, Spain, November 2-4, 2022, Proceedings*, pp. 28–40, Springer. Lecture Notes in Computer Science Vol. 13491, ISBN 978-3-031-20175-2.
294. Ashraf M. Abdelbar, Thomas Humphries, Jesús Guillermo Falcón-Cardona and Carlos A. Coello Coello, “An Extension of the iMOACO_R Algorithm Based on Layer-Set Selection”, in Marco Dorigo, Heiko Hamann, Manuel López-Ibáñez, José García-Nieto, Andries Engelbrecht, Carlo Pinciroli, Volker Strobelt and Christian Camacho-Villalón (Editors), *Swarm Intelligence, 13th International Conference, ANTS 2022, Málaga, Spain, November 2-4, 2022, Proceedings*, pp. 266–274, Springer. Lecture Notes in Computer Science Vol. 13491, ISBN 978-3-031-20175-2.
295. Diana Cristina Valencia Rodríguez, Carlos A. Coello Coello, “A Novel Performance Indicator Based on the Linear Assignment Problem”, in Michael Emmerich, André Deutz, Hao Wang, Anna V. Kononova, Boris Naujoks, Ke Li, Kaisa Miettinen and Iryna Yevseyeva (Editors), *Evolutionary Multi-Criterion Optimization, 12th International Conference, EMO 2023*, pp. 348–360, Springer. Lecture Notes in Computer Science Vol. 13970, Leiden, The Netherlands, March 20-24, 2023. ISBN 978-3-031-27249-3.
296. Ved Prakash, Sumit Mishra, Carlos A. Coello Coello, “On the Computational Complexity of Efficient Non-dominated Sort Using Binary Search”, in Michael Emmerich, André Deutz, Hao Wang, Anna V. Kononova, Boris Naujoks, Ke Li, Kaisa Miettinen and Iryna Yevseyeva (Editors), *Evolutionary Multi-Criterion Optimization, 12th International Conference, EMO 2023*, pp. 419–432, Springer. Lecture Notes in Computer Science Vol. 13970, Leiden, The Netherlands, March 20-24, 2023. ISBN 978-3-031-27249-3.
297. Amín V. Bernabé Rodríguez, Carlos A. Coello Coello, “Designing Scalarizing Functions Using Grammatical Evolution”, in *Proceedings of the 2023 Genetic and Evolutionary Computation Conference Companion*, pp. 2004–2012, ACM Press, July 15-19, 2023, Lisbon, Portugal. ISBN 979-8-4007-0120-7.
298. Carlos Coello Coello, Marko Durasevic, Domagoj Jakobovic, Marina Krcek, Luca Mariot, Stjepan Picek, “Modeling Strong Physically Unclonable Functions with Metaheuristics”, in *Proceedings of the 2023 Genetic and Evolutionary Computation Conference Companion*, pp. 719–722, ACM Press, July 15-19, 2023, Lisbon, Portugal. ISBN 979-8-4007-0120-7.

299. Rihab Said, Slim Bechikh, Carlos A. Coello Coello, Lamjed Ben Said, “Solving the Discretization-based Feature Construction Problem using Bi-level Evolutionary Optimization”, in *2023 IEEE Congress on Evolutionary Computation (CEC’2023)*, IEEE, Chicago, Illinois, USA, 2-5 July 2023. ISBN 979-8-3503-1458-8.
300. Kaoutar Senhaji, Carlos A. Coello Coello, José Antonio Lozano, “An Improved Version of MMOEA/DC Based on Alternative Clustering Definitions”, in *2023 IEEE Congress on Evolutionary Computation (CEC’2023)*, IEEE, Chicago, Illinois, USA, 2-5 July 2023. ISBN 979-8-3503-1458-8.

Courses Taught

- **An Introduction to Evolutionary Computation** (MSc level). 48 hours. It has been taught 20 times at CINVESTAV-IPN since 2001.
- **An Introduction to Evolutionary Multiobjective Optimization** (PhD level). 48 hours. It has been taught 9 times at CINVESTAV-IPN since 2001.
- **Programming Languages** (MSc level). 48 hours. It has been taught 4 times at CINVESTAV-IPN since 2001.
- **Engineering Optimization** (MSc level). 48 hours. It has been taught 4 times at CINVESTAV-IPN since 2001.
- Has taught short courses in Spain, England, Argentina, Chile, India, Bolivia, Colombia, Slovenia and USA.
- Has taught tutorials at the major conferences in evolutionary computation: the *IEEE Congress on Evolutionary Computation*, the *Genetic and Evolutionary Computation Conference* and *Parallel Problem Solving from Nature*. Has also been tutorial speaker at the *First International Conference on Evolutionary Multi-Criterion Optimization* held in Zurich, Switzerland, in 2001, and at the *IEEE Swarm Intelligence Symposium*, held in Indianapolis, USA, in 2003.

Theses Supervised

- Has supervised 22 PhD theses (18 at CINVESTAV-IPN, 1 at the Instituto Nacional de Astrofísica, Óptica y Electrónica and 3 at the Universidad Nacional de San Luis, in Argentina). Six of the PhD theses that he has supervised at CINVESTAV-IPN have received awards.
- Has supervised 49 Masters theses (one of them from the University of Nantes, in France). Four of the Masters theses that he has supervised have received awards.
- Has supervised 8 BSc theses.
- Currently supervises 3 PhD theses at CINVESTAV-IPN.

Editorial Activities

1. **Editor-in-Chief** of the *IEEE Transactions on Evolutionary Computation*, 2021–date.
2. **Associate Editor** of the international journal *IEEE Transactions on Emerging Topics in Computational Intelligence* (IEEE Press), 2020–date.
3. **Associate Editor** of the international journal *IEEE Transactions on Evolutionary Computation* (IEEE Press), 2003–2020.
4. **Associate Editor** of the international journal *Evolutionary Computation (MIT Press)*, ISSN 1063-6560/05, 2005–date.
5. **Associate Editor** of the international journal *Soft Computing (Springer)*, ISSN 1432-7643, 2008–2012.
6. **Associate Editor** of the international journal *Pattern Analysis & Applications (Springer)*, ISSN 1433-7541, 2007–date.
7. **Associate Editor** of the international journal *Journal of Heuristics (Springer)*, ISSN 1381-1231, 2006–2012.
8. **Associate Editor** of the international journal *Computational Optimization and Applications, (Springer)*, ISSN 0926-6003, 2006–date.
9. **Associate Editor** of the international journal *Evolutionary Intelligence, (Springer)*, ISSN: 1864-5909, 2018–date.
10. Member of the Editorial Board of the international journal *Engineering Optimization (Taylor & Francis)*, ISSN 0305-215X, 2004–date.
11. Member of the Editorial Board of the international journal *Memetic Computing (Springer)*, ISSN 1865-9284, 2008–date.

12. Member of the Advisory Board of the *International Journal of Computational Intelligence Research*, published by *The International Computational Intelligence Society*, ISSN 0974-1259, 2018–date.
13. Member of the Advisory Board of the *Natural Computing Book Series* from Springer, 2018–date.
14. Member of the Advisory Board of the *Springer Book Series on “Genetic and Evolutionary Computation”*, 2018–date.
15. Guest Editor of the *IEEE Transactions on Evolutionary Computation* for a special issue on *Evolutionary Multi-Objective Optimization*. The special issue was published as number 2 of the volume 7 (April 2003).
16. Guest Editor of the *European Journal of Operational Research*, for a special issue in *Evolutionary Multi-Objective Optimization*. The special issue was published as number 3 of the volume 181 (16 September 2007).
17. Guest Editor of the journal *IEEE Transactions on Evolutionary Computation* for a special issue on *Differential Evolution*. The special issue was published as number 1 of the volume 15 (February 2011).
18. Guest Editor of the journal *Soft Computing. A Fusion of Foundations, Methodologies and Applications* for a special issue in *Evolutionary Computation on General Purpose Graphics*. The special issue was published as number 2 of the volume 16 (February 2012).
19. Guest Editor of the journal *Soft Computing* for a special issue in *Evolutionary Computing and Complex Systems*. The special issue was published as number 6 of the volume 17 (June 2013).
20. Guest Editor of the journal *Annals of Mathematics and Artificial Intelligence* for a special issue containing extended versions of the best papers presented at the LION 5 conference. The special issue was published as number 4 of the volume 68 (August 2013).
21. Guest Editor of the journal *IEEE Transactions on Evolutionary Computation* for a special issue in *Advances in Multiobjective Evolutionary Algorithms for Data Mining*. The special issue was published as number 1 of the volume 18 (February 2014).
22. Technical reviewer for over 50 international journals and member of the scientific program of over 100 international conferences, including all the major evolutionary computation conferences.

Conferences and Special Sessions Organization

- General Chair of the *Third International Conference on Evolutionary Multi-Criterion Optimization (EMO’2005)*, which took place in Guanajuato, México, from 9 to 11 March, 2005.
- *Track Chair* in the area *Evolutionary Multi-Objective Optimization* at the *2006 Genetic and Evolutionary Computation Conference (GECCO’2006)*, Seattle, Washington, USA, 8-12 July, 2006.
- Organizer of a special session on “evolutionary multiobjective optimization”, at the *Congress on Evolutionary Computation* in the years 2000 (San Diego, California, USA), 2004 (Portland, Oregon, USA), 2005 (Edinburgh, Scotland, UK) and 2010 (Barcelona, Spain).
- *Special Sessions Chair* at the *2006 IEEE Congress on Evolutionary Computation (CEC’2006)*, Vancouver, Canada, 16-21 July, 2006.
- Member of the *EMO Steering Committee*, since 2008. This committee decides the location of the *International Conference on Evolutionary Multi-Criterion Optimization*, which takes place every two years.
- General Chair of the *IEEE Symposium on Computational Intelligence in Multicriteria Decision-Making* in the years 2007 (Honolulu, Hawaii, USA), 2009 (Nashville, Tennessee, USA) and 2011 (Paris, France).
- Technical Co-Chair of the *2009 IEEE Congress on Evolutionary Computation*, Trondheim, Norway, 2009.
- Program Co-Chair of the *2010 IEEE Congress on Evolutionary Computation*, Barcelona, Spain, 2010.
- *Track Chair* in the area *Evolutionary Multi-Objective Optimization* at the *2011 Genetic and Evolutionary Computation Conference (GECCO’2011)*, Dublin, Ireland, 12-16 July, 2011.
- *Technical Program Committee Chair* of the international conference *Learning and Intelligent Optimization (LION 5)*, Rome, Italy, 17-21 January, 2011.
- Technical Co-Chair of the *2012 IEEE Congress on Evolutionary Computation*, Brisbane, Australia, 2012.
- General Chair of the *2013 IEEE Congress on Evolutionary Computation*, Cancún, México, 2013.
- Program Chair of the *2014 IEEE Congress on Evolutionary Computation*, Beijing, China, 2014.
- Technical Co-Chair of the *2016 IEEE Congress on Evolutionary Computation*, Vancouver, Canada, 2016.
- Program Chair of the *2017 IEEE Congress on Evolutionary Computation*, San Sebastián, Spain, 2017.

- Program Chair of the *2017 Symposium Series on Computational Intelligence (SSCI'2017)*, Honolulu, Hawaii, USA, 2017.
- Technical Co-Chair of the *2018 IEEE Congress on Evolutionary Computation*, Rio de Janeiro, Brazil, 2018.
- Program Chair of the *2019 IEEE Congress on Evolutionary Computation*, Wellington, New Zealand, 2019.
- General Chair of the *2020 Genetic and Evolutionary Computation Conference (GECCO'2020)*, Cancún, México, 8-12 July, 2020.
- Program Chair of the *2020 IEEE Symposium Series on Computational Intelligence (SSCI'2020)*, Canberra, Australia, 1-4 December, 2020.
- Program Co-Chair of the *2021 IEEE Symposium Series on Computational Intelligence (SSCI'2021)*, Orlando, Florida, USA, 4-7 December, 2021.

IEEE Committees

1. Member-at-Large for *IEEE CIS VP Membership Committee*, 2005.
2. Member of the *IEEE CIS Outstanding Dissertation Award Subcommittee* of the *IEEE Computational Intelligence Society*, 2007.
3. Member of the *IEEE Computational Intelligence Society Nominations Committee*, 2008 and 2012.
4. Member of the *IEEE Computational Intelligence Society Awards Committee*, 2009, 2010, 2011 and 2012.
5. Vice-Chair of the *Evolutionary Computation Technical Committee (ECTC)* of the *IEEE Computational Intelligence Society*, 2009.
6. Member of the *IEEE CIS Continuing Education Sub-Committee*, 2009, 2010.
7. Chair of the *Evolutionary Computation Technical Committee (ECTC)* of the *IEEE Computational Intelligence Society*, 2010 and 2011.
8. Member of the *Nominations Committee* of the *IEEE Computational Intelligence Society*, 2012 and 2013.
9. Chair of the *Distinguished Lecturers Program* of the *IEEE Computational Intelligence Society*, 2014 and 2015.
10. IEEE Press Liason for the *IEEE Computational Intelligence Society* in a book series co-edited by Wiley, 2016, 2017, 2018 and 2019.
11. Member of the *Administrative Committee* of the *IEEE Computational Intelligence Society*, 2016-2018.
12. Vice-President for Member Activities of the *IEEE Computational Intelligence Society*, 2019-2020.

Funding

1. **Principal Investigator** of the project entitled “**Técnicas Alternativas para el Manejo de Restricciones usando Algoritmos Evolutivos**” (*Alternative Techniques for Handling Constraints using Evolutionary Algorithms*). Funding Agency: CONACyT (Ref. I-29870 A). Amount: \$100,000 Mexican Pesos (\approx \$10,000 US dollars). Period: January–December 1999.
2. **Principal Investigator** of the project entitled “**Optimización Evolutiva Multiobjetivo Aplicada al Diseño de Circuitos Combinatorios**” (*Evolutionary Multiobjective Optimization Applied to the Design of Combinational Circuits*). Funding Agency: CINVESTAV-IPN (Ref. JIRA'2001/08). Amount \$200,000 Mexican Pesos (\approx \$20,000 US dollars). Period: April–December 2001.
3. **Principal Investigator** of the project entitled “**Estudio y Desarrollo de Técnicas Avanzadas de Manejo de Restricciones para Algoritmos Evolutivos en el Contexto de Optimización Numérica**” (*Study and Development of Advanced Constraint-Handling Techniques for Evolutionary Algorithms in the Context of Numerical Optimization*). Funding Agency: NSF-CONACyT (Ref. 32999-A). Amount: \$465,212 Mexican Pesos (\approx \$47,000 US dollars). Period: October 16, 2000 – October 15, 2002.
4. **Principal Investigator** of the project entitled “**Nuevos Paradigmas en Optimización Evolutiva Multiobjetivo**” (*New Paradigms in Evolutionary Multiobjective Optimization*). Funding Agency: CONACyT (Ref. 34201-A). Amount: \$429,456 Mexican Pesos (\approx \$43,000 US dollars). Period: October 16, 2000 – December 31, 2003.
5. **Principal Investigator** of the bilateral project (Mexico-Chile) entitled “**Diseño de Algoritmos Culturales para Problemas de Optimización Restringidos**” (*Design of Cultural Algorithms for Constrained Optimization Problems*). Funding Agency: CONACyT (Refs. J200.686/2004 and J110.331/2005). Amount: \$26,400 Mexican Pesos (\approx \$2,400 US dollars). Period: November 2004 – November 2006.
6. **Principal Investigator** of the project entitled “**Artificial Immune Systems for Multiobjective Optimization**”. Funding Agency: NSF-CONACyT (Ref. 42435-Y). Amount: \$696,894 Mexican Pesos (\approx \$60,500 US dollars). Period: April 2004 – March 2007.

7. **Principal Investigator** of the project entitled “**Técnicas Avanzadas de Optimización Evolutiva Multiobjetivo**” (*Advanced Evolutionary Multiobjective Optimization Techniques*). Funding Agency: CONACyT (Ref. 45683). Amount: \$656,327 Mexican Pesos (\approx \$60,000 US dollars). Period: July 2005 – June 2008.
8. **Principal Investigator** of the project entitled “**Escalabilidad y Nuevos Esquemas Híbridos en Optimización Evolutiva Multiobjetivo**” (*Scalability and New Hybrid Schemes in Evolutionary Multiobjective Optimization*). Funding Agency: CONACyT (Ref. 103570). \$593,170 Mexican Pesos (\approx \$44,600 US dollars). Period: March 2010 – February 2013.
9. **Principal Investigator** of the bilateral project (Mexico-India) entitled “**Development of efficient many-objective optimization techniques with parallel computing and objective reduction**”. Funding Agency: CONACyT (Ref. J000.0378). Amount: \$492,400 Mexican Pesos (\approx \$37,200 US dollars). Period: August 6, 2009 – September 30, 2012.
10. **Principal Investigator** of the bilateral project (Mexico-Chile) entitled “Estrategias para la selección de componentes de algoritmos bio-inspirados” (*Strategies for selecting components of bio-inspired algorithms*). Funding Agency: CONACyT (Ref. B330.261). Amount: \$108,000 Mexican Pesos (\approx \$8,175 US dollars). Period: 2011 – 2014.
11. **Principal Investigator** of the project entitled “Nuevos Paradigmas Algorítmicos en Optimización Evolutiva Multi-Objetivo” (*New Algorithmic Paradigms in Evolutionary Multi-Objective Optimization*) Funding Agency: CONACyT (Ref. 221551). Amount: \$899,900 Mexican Pesos (\approx \$63,000 US dollars). Period: 2014 – 2017 (extended to 2019).
12. **Principal Investigator** of the bilateral project (Mexico-Chile) entitled “Mejorando automáticamente el Proceso de Búsqueda de Algoritmos Evolutivos con Multiobjetivo” (*Automatic Improvement of the Search Process of Multi-Objective Evolutionary Algorithms*). Funding Agency: CONACyT (Ref. 248722). Amount: \$173,200 Mexican Pesos (\approx \$11,900 US dollars). Period: 2015 – 2017.
13. **Principal Investigator** of the project entitled “Esquemas de Selección Alternativos para Algoritmos Evolutivos Multi-Objetivo” (*Alternative selection schemes for multi-objective evolutionary algorithms*). Funding Agency: CONACyT (Fronteras de la Ciencia. Ref. 1920). Amount: \$1,210,148.00 Mexican Pesos (\approx \$63,700 US dollars). Period: 2018 – 2020.
14. **Principal Investigator** of the project entitled “Nuevos Esquemas de Selección para Algoritmos Evolutivos Multi-Objetivo Basados en Indicadores de Desempeño” (*New Selection Schemes for Indicator-Based Multi-Objective Evolutionary Algorithms*). Funding Agency: SEP-Cinvestav (Application No. 4). Amount \$305,000 Mexican Pesos (\approx \$14,500 US dollars). Period: 2019–2021.

External Reviewer of PhD Theses

1. External reviewer of a PhD thesis from the University of Valladolid, Spain, October 2000.
2. External reviewer of a PhD thesis from the Polytechnical University of Cataluña, Barcelona, Spain, 2005.
3. External reviewer of a PhD thesis from the University of Las Palmas de Gran Canaria, Spain, 2005.
4. External reviewer of a PhD thesis from the National University of the South, Bahía Blanca, Argentina, 2005.
5. External reviewer of a PhD thesis from *Luleå University of Technology*, Luleå, Sweden, 2006.
6. External reviewer of a PhD thesis from *Tel Aviv University*, Israel, 2006.
7. External reviewer of two PhD theses from the *University of New South Wales at the Australian Defence Force Academy*, Canberra, Australia, 2007 and 2009.
8. External reviewer of four PhD theses from *Nanyang Technological University*, Singapore, 2006, 2009, 2010 and 2011.
9. External reviewer of one PhD thesis from the *National University of Singapore*, Singapore, 2009.
10. External reviewer of one PhD thesis from *Swinburne University of Technology*, Victoria, Australia, 2008.
11. External reviewer of one PhD thesis from *The University of Western Australia*, Australia, 2010.
12. External reviewer of one Masters thesis from the *University of Pretoria*, South Africa, 2010.
13. External reviewer of one PhD thesis from the University of Málaga, Spain, March 2011.
14. External reviewer of one PhD thesis from the *University of Jyväskylä*, Finland, 2011.
15. External reviewer of three PhD theses from *The University of Adelaide*, Australia, 2013, 2015 and 2020.
16. External reviewer of one PhD thesis from *The University of Pretoria*, South Africa, 2017.

External Reviewer of Awards and Promotion Applications

1. External referee of the *Shanti Swarup Bhatnagar Prize*, in 2010. This is the most important award granted by the government of India to researchers under the age of 45.
2. External referee of the *Young Scientist Award* granted by the *Technological Research Council (TUBITAK)* from Turkey, 2010.
3. External reviewer of a request for promotion to **Professor** from the *Department of Mathematics and Computer Science* of the *University of Missouri–St. Louis*, St. Louis, Missouri, USA, 2010.
4. External evaluator of a tenure-track application from *Shinshu University*, Nagano, Japan, 2010.
5. External evaluator of a tenure-track application from the *Ort Braude College of Engineering*, Israel, 2010.
6. External evaluator of a tenure-track application from the *University of Texas at El Paso*, USA, 2011.
7. External evaluator of a habilitation request for a promotion to **Professor** from the *University of Münster*, Germany, 2012.
8. External evaluator of a request for promotion to **Professor** from the *Department of Electrical & Computer Engineering* from *Portland State University*, Portland, Oregon, USA, 2012.
9. External evaluator of a request for promotion to **Associate Professor** from the *School of Engineering and Information Technology*, of the *University of New South Wales*, Sydney, Australia, 2013.
10. External evaluator of a tenure-track application from the *Department of Computer Science* of the *University of Ioannina*, Greece, 2013.
11. External evaluator of two requests for promotion to **Professor** from the *Department of Computer Science* of the *University of Georgia*, Georgia, Atlanta, USA, 2013 and 2016.
12. External evaluator of an application for a position of *Professor* at the *Department of Computer Science* of the *City University of Hong Kong*, Hong Kong, 2013.
13. External evaluator of two requests for promotion to **Professor** from the *School of Engineering and Information Technology*, of the *University of New South Wales*, Sydney, Australia, 2015 and 2016.
14. External evaluator of the performance of Italian universities and research institutes during the period 2004–2010, invited by *The National Agency for the Evaluation of Universities and Research Institutes*, 2012 and 2016.
15. External evaluator of a request for promotion to **Associate Professor** from the *University College Dublin*, Ireland, 2013.
16. Evaluation of performance of two researchers requested by the *South Africa's National Research Foundation*, 2015.
17. Has been invited to propose candidates for the prestigious *Kyoto Prize* in the category *Advanced Technology*, 2017.
18. External evaluator of an application for entering the *Indian National Science Academy*, India, 2016.
19. External evaluator of a request for promotion to **Associate Professor** from the *University of Exeter*, UK, 2016.
20. External evaluator of a request for promotion to **Associate Professor** from the *University of Pretoria*, South Africa, 2016.
21. External evaluator of a request for promotion to **Professor**, Nanyang Technological University, Singapore, 2017.
22. External evaluator of a request for promotion to **Research Director** from the *Fonds de la Recherche Scientifique*, Belgium, 2017.
23. External evaluator of a request for promotion to **Associate Professor** from the *Victoria University of Wellington*, New Zealand, 2018.
24. External evaluator of a request for promotion to **Professor** from the *Victoria University of Wellington*, New Zealand, 2020.
25. External evaluator of a request for promotion to **Associate Professor** from the *University of Otago*, New Zealand, 2020.
26. External evaluator of a request for promotion to **Professor** from the *University of Melbourne*, Australia, 2020.
27. External evaluator of a request for promotion to **Professor** from the *Jordan University of Science and Technology*, Jordan, 2020.

Reviewer of Books and Journal Proposals

1. Reviewer of one proposal for publishing a book with *Springer-Verlag*, London, 2002.
2. Reviewer of two proposals for publishing books with *Springer-Verlag*, Germany, 2006.
3. Reviewer of one proposal for publishing a book with *Cambridge University Press*, UK, 2007.
4. Reviewer of one proposal for publishing a book with *Wiley*, USA, 2008.
5. Reviewer of a proposal for publishing a new journal on swarm and evolutionary computation with *Elsevier*, The Netherlands, 2010.

Professional Experience

- Teacher Assistant, Computer Science Department, Tulane University, New Orleans Louisiana, USA, 1994–1995.
- Lecturer of the course “Symbolic Computing” (CPSC 319), Computer Science Department, Tulane University, New Orleans, Louisiana, USA, Fall 1995.
- Postdoctoral Fellow, Computer Science Department, Tulane University, New Orleans, Louisiana, USA, June–August 1996. Project: *Use of Genetic Algorithms in Combinational Circuit Design*.
- Assistant Professor, Computer Science Department, DePauw University, Greencastle, Indiana, USA, August 1996–June 1997.
- Adjunct Professor, Computer Science Department, ITESM Campus Edo. de México, August–November 1997.
- Visiting Professor, Masters Program in Computer Science, Universidad Autónoma Metropolitana, Unidad Azcapotzalco, México, D. F., México, October 1997–February 1998.
- *Senior Research Fellow*, Engineering Design Centre, University of Plymouth, Plymouth, Devon, UK, February–September 1998.
- Researcher, LANIA, Xalapa, Veracruz, México, November 1998–December 2000.
- Investigador CINVESTAV 3B (Assistant Professor), CINVESTAV-IPN, Departamento de Ingeniería Eléctrica, Sección de Computación, January 2001–March 2004.
- Investigador CINVESTAV 3D (Associate Professor), CINVESTAV-IPN, Departamento de Ingeniería Eléctrica, Sección de Computación, April 2005–March 2009.
- Investigador CINVESTAV 3E (Professor), CINVESTAV-IPN, Departamento de Computación, April 2009–March 2010.
- Investigador CINVESTAV 3F (Professor with distinction),² CINVESTAV-IPN, April 2010–date.
- Chair of the Computer Science Department at CINVESTAV-IPN, August 2006–August 2014.
- Adjunct Director for the Computer Science Area of the Unité Mixte Internationale (UMI) LAFMIA 3175 CNRS, located at CINVESTAV-IPN, 2008–2018.
- Visiting Professor, *Basque Center for Applied Mathematics*, Spain, 2021–2023.

Consultancy

1. Technical consultant for the Mexican Consulate in New Orleans, Louisiana, USA, from November 1992 to April 1995.
2. Member of the *Scientific Advisory Board* of the company *SolveIT Software*, Australia, since 2005.
3. External consultant of the project “Industrial Innovation by Multiobjective Design Exploration”, developed by the *Japan Aerospace Exploration Agency* (JAXA), 2012–2016.
4. *International Advisor* of the *Memetic Computing Lab* (McLab) at the *School of Computer Science* of the *China University of Geosciences*, Wuhan, China, 2014–date.
5. *Scientific Advisor* of the company *Complexica*, Adelaide, Australia, 2015–date.
6. *Senior Advisor* of the *Hunan Zixing AI Research Institute* from China, from June 27, 2017 to June 27, 2020.
7. Member of the **Foundation Advisory Board** of *The International AIQT Foundation*, which aims to establish a highly competitive (international-level) research center in artificial intelligence and quantum technology, Davos, Switzerland, 2020–date.

Invited Talks

1. **Keynote speaker** at the *2023 10th International Conference on Soft Computing & Machine Intelligence*, 25–26 November, 2023. This was an online conference.
2. **Keynote speaker** at the *Workshop on Frontiers in Evolutionary Optimization and Decision Making*, Northeastern University, Shenyang, China, 16 August, 2023.
3. **Keynote speaker** at the *2023 Academic Forum on Dynamic Evolutionary Optimization Theory and Applications (DEOTA 2023)*, Shenyang, China, 14–16 August, 2023.

²*Investigador CINVESTAV 3F* is the highest possible category at CINVESTAV-IPN and is an honorary category for which evidence of high international impact is required. There are no more than 30 researchers (out of 656) at CINVESTAV-IPN who are 3F. Dr. Coello is one of the only two 3F Researchers within the “Technology” division of CINVESTAV-IPN which currently has over 200 researchers.

4. **Plenary speaker** at the *1st International Conference on Artificial Intelligence and Machine Learning Applications (AIMLA 2022)*, Tiruchengode, Namakkal, India, 27-28 May, 2022. This talk was delivered virtually because of the COVID-19 crisis.
5. **Plenary speaker** at the *11th International Conference on Soft Computing for Problem Solving (SocProS 2022)*, Himachal Pradesh, India, 14-15 May, 2022. This talk was delivered virtually because of the COVID-19 crisis.
6. **Keynote speaker** at the *2022 6th International Conference on Intelligent Systems, Metaheuristics & Swarm Intelligence*, Seoul, South Korea, 9-10 April, 2022. This talk was delivered virtually because of the COVID-19 crisis.
7. **Keynote speaker** at the *13th International Joint Conference on Computational Intelligence (IJCCI'2021)*, 25-27 October, 2021. This was an online conference.
8. **Plenary speaker** at the *15th Summer Safety and Reliability Seminar and Workshop*, Ciechocinek, Polonia, 5-12 September, 2021. This talk was delivered virtually because of the COVID-19 crisis.
9. **Plenary Speaker** at the *2021 IEEE Congress on Evolutionary Computation (CEC'2021)*, Kraków, Poland, 28 June - 1 July, 2021. This talk was delivered virtually because of the COVID-19 crisis.
10. **Invited Speaker** at the *First International Conference on Innovations in Software Architecture and Computational Systems (ISACS'2021)*, Kolkata, India, 2-3 April, 2021. This talk was delivered virtually because of the COVID-19 crisis.
11. **Invited Speaker** at the conference *Computational Intelligence in Communications and Business Analytics (CICBA-2021)*, Visva-Bharati University, India, 7-9 January, 2021. This talk was delivered virtually because of the COVID-19 crisis.
12. **Keynote Speaker** at the *2nd African Symposium and 3rd Tyan International Thematic Virtual Workshop on Big Data, Analytics, and Machine Intelligence*, Nigeria, 3-4 December, 2020. This talk was delivered virtually because of the COVID-19 crisis.
13. **Keynote Speaker** at the *First International Conference on Cutting-Edge Technologies in Computing and Communication Engineering (IC4E-2020)*, Kurukshetra, India, November 6-7, 2020. This talk was delivered virtually because of the COVID-19 crisis.
14. **Keynote Speaker** at the *3rd IEEE Colombian Conference on Applications in Computational Intelligence*, Bogota, Colombia, 7 August 2020. This talk was delivered virtually because of the COVID-19 crisis.
15. **Plenary speaker** at the *2020 IEEE World Congress on Computational Intelligence*, Glasgow, Scotland, 22 July 2020. This talk was delivered virtually because of the COVID-19 crisis.
16. **Invited speaker** at the *XXII International Symposium on Mathematical Methods Applied to the Sciences*, San José, Costa Rica, 25-28 February, 2020.
17. **Invited speaker** at the *25th International Conference on Soft Computing (MENDEL 2019)*, Brno, Czech Republic, 10-12 July, 2019.
18. **Keynote speaker** at the *2019 International Seminar on Theoretical Computer Science*, Kunming, China, 25-28 July, 2019.
19. **Plenary speaker** at the *2018 IEEE Latin-American Conference on Computational Intelligence (2018 IEEE LA-CCI)*, Guadalajara, México, 7-9 November, 2018.
20. **Plenary speaker** at the *Conferencia de la Asociación Española para la Inteligencia Artificial 2018 (CAEPIA 2018)*, Granada, Spain, 23-26 October, 2018.
21. **Invited speaker** at the *Workshop on Multi-Objective Optimisation*, Shenzhen, China, 20-22 August, 2018.
22. **Invited speaker** at the *6th International Conference on the Theory and Practice of Natural Computing (TPNC'2017)*, Prague, Czech Republic, December 18-20, 2017.
23. **Keynote speaker** at the *30th Australasian Joint Conference on Artificial Intelligence (AI'17)*, Melbourne, Australia, 19-20 August, 2017.
24. **Keynote speaker** at the *2017 AI Hunan Summit Forum*, Changsha, China, 29-30 June, 2017.
25. **Keynoter speaker** at the *2016 Symposium on Search-Based Software Engineering (SSBSE'2016)*, Raleigh, North Carolina, USA, 8-10 October, 2016.
26. **Keynote speaker** at the *International IOSO Users Conference*, Moscow, Russia, 10-13 de July, 2016.
27. **Plenary speaker** at the *10th International Workshop on Hybrid Metaheuristics (HM 2016)*, Plymouth, UK, 8-10 June, 2016.
28. **Invited speaker** at the *Ezra's Round Table Seminar* of the Systems Engineering Program, at the College of Engineering of Cornell University, Ithaca, New York, October 30, 2015.
29. **Keynote speaker** at the *2nd Latin American Congress on Computational Intelligence & 12o Congresso Brasileiro de Inteligência Computacional (LA-CCI & CBIC 2015)*, Curitiba, Brazil, 14-16 October, 2015.

30. **Invited speaker** at the *IEEE CIS 2015 Summer School on Multi-Objective Optimization and Decision Making* Hefei, China, 6-8 July, 2015.
31. **Keynote speaker** at the international conference *Evolve 2015*, Iași, Romania, 18-24 June, 2015.
32. **Plenary speaker** at the *2015 IEEE Congress on Evolutionary Computation (CEC'2015)*, Sendai, Japan, 25-28 May, 2015.
33. **Keynote speaker** at the *11th IEEE International Conference on Networking, Sensing and Control (ICNSC14)*, Miami, Florida, USA, 7-9 April, 2014.
34. **Invited speaker** at the *Third International Symposium on Computing in Science and Engineering (ISCSE 2013)*, Izmir, Turkey, 24-25 October, 2013.
35. **Invited speaker** at the *Tenth International Conference on Evolutionary and Deterministic Methods for Design, Optimization and Control with Applications to Industrial and Societal Problems (EUROGEN 2013)*, La Palma de Gran Canaria, Spain, 7-9 October, 2013.
36. **Plenary speaker** during the *Third International Conference on Swarm Intelligence (ICSI'2012)*, Shenzhen, China, 17–20 June, 2012.
37. **Keynote speaker** at the *International Conference on Swarm Evolutionary and Memetic Computing (SEMCCO 2011)*, Visakhapatnam, India, 19-21 December, 2011.
38. **Invited speaker** (under the *Distinguished Visitor Program* of the *IEEE Computer Society*) at the Universidad del Valle, La Paz, Bolivia, 6 September 2011.
39. **Keynote speaker** at the *XVIII International Congress of Electronic, Electrical and Systems Engineering (INTERCON 2011)*, Lima, Peru, 9-12 August 2011.
40. **Plenary speaker** at the *2010 Online Conference on Soft Computing in Industrial Applications*, 15-27 November, 2010.
41. **Keynote speaker** at the *Inverse Problems, Design and Optimization Symposium, IPDO-2010*, João Pessoa, Brasil, 25-27 August, 2010.
42. **Keynote speaker** at the *International Conference on Computer Science, Communication & Information Technology*, Nanded, India, 9–11 January, 2010.
43. **Invited speaker** at the *Multiobjective Optimisation Workshop*, organized by *CSIRO Energy Technology*, Newcastle, Australia, September 2009.
44. **Plenary speaker** at the *9th International Conference on Intelligent Systems Design and Applications (ISDA'09)*, Pisa, Italy, November–December, 2009.
45. **Invited speaker** at the *2nd International Seminar on New Issues in Artificial Intelligence*, University Carlos III of Madrid, Colmenarejo, Spain, February, 2009.
46. **Plenary speaker** at the *VI IEEE Latin-American Summer School on Computational Intelligence*, Santiago, Chile, December, 2008.
47. **Plenary speaker** at the *International Conference on Neural Network and Genetic Algorithm in Materials Science and Engineering*, Kolkata, India, 9–11 January, 2008.
48. **Invited speaker** at the *2006 Congress on Evolutionary Computation (CEC'2006)*, Vancouver, Canada, 16–21 July, 2006.
49. **Keynote speaker** at the *XIII Latinamerican Conference on Operations Research (CLAIO)*, Montevideo, Uruguay, 27–30 November 2006.
50. **Invited speaker** at the *2006 IEEE Congress on Evolutionary Computation*, Vancouver, Canada, 21–26 July, 2006.
51. **Keynote speaker** at the *Seventh International Conference on Adaptive Computing in Design and Manufacture*, 25–27 April, 2006.
52. **Invited speaker** at the *International Seminar on Computational Intelligence 2005*, Mexico City, Mexico, 17–18 October, 2005.
53. **Keynote speaker** at the *XI ELAVIO (XI Latin American Summer Workshop on Operations Research)*, Villa de Leyva, Colombia, 25–29 July, 2005.
54. **Keynote speaker** at the *Fifth International Conference on Hybrid Intelligent Systems (HIS'2005)*, Rio de Janeiro, Brazil, 6–9 November 2005.
55. **Keynote speaker** at the *8th Joint Conference on Information Sciences (JCIS'2005)*, Salt Lake, Utah, USA, 21–26 July, 2005.
56. **Keynote speaker** at the *International Workshop on Biometric Technologies (BT'2004)*, Calgary, Canada, 22–23 June, 2004.
57. **Keynote speaker** at the *First Spanish Conference on Evolutionary and Bio-inspired Algorithms*, Mérida, Spain, February 2002.

External Reviewer of Grant Proposals

1. External evaluator of grant proposals for the *Fonds zur Förderung der Wissenschaftlichen Forschung*, Austria, 2001.
2. External evaluator of grant proposals for the *Basic Research Grant Programme*, Ireland, 2002.
3. External evaluator of grant proposals for the *Council of Physical Sciences of the Netherlands Organization for Scientific Research (NWO)*, Netherlands, 2005.
4. External evaluator of grant proposals for the *Swiss National Science Foundation*, Switzerland, 2005.
5. External evaluator of grant proposals for the *Comisión Nacional de Investigación Científica y Tecnológica*, Chile, 2006.
6. External evaluator of grant proposals for the *European Research Council*, which is located in Brussels, Belgium, for the period 2009-2013.
7. In-Site external evaluator of a research project funded with \$699,189 euros. This project was sponsored by *Science Foundation Ireland*, and was located at the *University of Limerick*, Ireland, 2009.
8. External evaluator of grant proposals for the *Natural Sciences and Engineering Research Council of Canada (NSERC)*, Canada, 2011 and 2019.
9. External evaluator of grant proposals for the *Engineering and Physical Sciences Research Council (EPSRC)*, England, 2012.
10. External evaluator of grant proposals for the *Portuguese Foundation for Science and Technology*, Portugal, 2012.
11. External evaluator of grant proposals for the *Marsden Fund Council / Royal Society of New Zealand*, New Zealand, 2012 and 2016.
12. External evaluator of grant proposals for *COST - European Cooperation in Science and Technology*, Brussels, Belgium, 2013.
13. External evaluator of grant proposals for the *Fonds de la Recherche Scientifique - FNRS*, Belgium, 2013.
14. External evaluator of grant proposals for the *Israel Science Foundation*, Israel, 2013.
15. External evaluator of grant proposals for the *Austrian Science Fund (FWF)*, Austria, 2014, 2015 and 2016.
16. External evaluator of a bilateral project for the *Research Foundation - Flanders (Fonds Wetenschappelijk Onderzoek - Vlaanderen, FWO)*, Belgium, 2018.
17. External evaluator of grant proposals for the *National Research Foundation (NRF)*, South Africa, 2016 and 2020.
18. External evaluator of grant proposals for the *National Science Centre Poland*, Poland, 2016 and 2020.
19. External evaluator of grant proposals for the *Czech Science Foundation*, Czech Republic, 2020.

Awards

1. **Edgeworth-Pareto Award 2024**, from the *International Society on Multi-Criteria Decision Making*. Delivered in Hammamet, Tunisia, on June 6th, 2024 during the *27th International Conference on Multi-Criteria Decision Making*. The award consists of a plaque.
2. **Cronica Prize 2023 in Science and Technology** granted by the *Crónica* Newspaper on October 18th, 2023 in a ceremony that took place in Mexico City. The award consisted of a diploma and a sculpture.
3. **Outstanding Contribution Award** granted by the *ACM Special Interest Group on Evolutionary Algorithms (SIGEVO)* on July 19th, 2023 in Lisbon, Portugal, during the *2023 Genetic and Evolutionary Computation Conference (GECCO'2023)*. The award consisted of a diploma plus a honorarium of \$1,000 US dollars.
4. Elected member of **El Colegio Nacional** on January 9th, 2023. The entrance ceremony took place on May 5th, 2023. He is the first computer scientist to join “El Colegio Nacional”, which is the most prestigious institution in Mexico. This institution has a fixed number of seats (40) and groups the most important musicians, architects, painters, writers and scientists of Mexico. Former and current members of “El Colegio Nacional” include Nobel Prize recipients (e.g., Octavio Paz and Mario Molina) and Princess of Asturias Award recipients (e.g., Bolívar Zapata, Eduardo Matos, Pablo Rudomín).
5. **2021 IEEE Computational Intelligence Society Evolutionary Computation Pioneer Award** for “contributions to evolutionary multi-objective optimization and constraint-handling techniques.” The award consists of a plaque plus a honorarium of \$2,500 US dollars.
6. **2019 Luis Elizondo Award** in the category **Science and Technology**. This award was delivered in November 14, 2019 at the Pabellón La Carreta of the Instituto Tecnológico y de Estudios Superiores de Monterrey Campus Monterrey. The award consists of a diploma, a sculpture and a check for \$13,000 US dollars.

7. **2016 The World Academy of Sciences (TWAS) Award** in *Engineering Sciences* for “pioneering contributions to the development of new algorithms based on bio-inspired metaheuristics for solving single- and multi-objective optimization problems.” The award was delivered in November, 2018 at the *28th General Meeting of the Third World Academy of Sciences*, in Trieste, Italy. The award consists of a plaque and a check for \$15,000 US dollars.
8. **Best Paper Award** from the *Evolutionary Multiobjective Optimization track* at the *2016 Genetic and Evolutionary Computation Conference (GECCO'2016)*, held in Denver, Colorado, USA, in July, 2016.
9. **IEEE Transactions on Evolutionary Computation Outstanding Paper Award for 2012 (bestowed in 2015)**. This award was granted to the paper entitled “Using the Averaged Hausdorff Distance as a Performance Measure in Evolutionary Multi-Objective Optimization”, which was co-authored by Xavier Esquivel, Adriana Lara López and Oliver Schütze. The award was delivered by the President of the IEEE Computational Intelligence Society at the *2015 IEEE Congress on Evolutionary Computation*, in May, 2015. The award consists of a diploma and a check for \$1,000 US dollars.
10. **2013 IEEE Kiyo Tomiyasu Award** “for pioneering contributions to single- and multiobjective optimization techniques using bioinspired metaheuristics.” The award was delivered by the President-elect 2014 of the IEEE, and consisted of a bronze medal, a diploma and a check for \$10,000 US dollars. This is one of the prestigious *IEEE Technical Field Awards* (the most important awards granted by the Institute of Electrical and Electronics Engineers (IEEE)). Dr. Coello is the first Latinamerican researcher to receive this award, since its inception in 2001.
11. **IEEE Transactions on Evolutionary Computation Outstanding Paper Award for 2010 (bestowed in 2013)**. This award was granted to the paper entitled “HCS: A New Local Search Strategy for Multiobjective Evolutionary Algorithms”, which was co-authored by Adriana Lara López, Oliver Schütze and Gustavo Sánchez. This is the first time that Latin American authors receive this important award, granted to the best paper published in the *IEEE Transactions on Evolutionary Computation* during the year 2010. The award was delivered by the Editor-in-Chief of the *IEEE Transactions on Evolutionary Computation* during the *2013 IEEE Congress on Evolutionary Computation*, at the awards banquet which took place on June 22nd, 2013 in Cancún, México. The award consisted of a diploma and a check for \$1,000 US dollars.
12. **National Award to the Socio-Humanistic, Scientific and Technological Research UASLP 2012**, granted by the Universidad Autónoma de San Luis Potosí, México. This award was delivered on December 11th, 2012 by the Dean of the Universidad Autónoma de San Luis Potosí in a ceremony held at Centro Cultural Universitario Bicentenario of the Universidad Autónoma de San Luis Potosí. The award consisted of a diploma, a silver medal and a check for \$120,000 Mexican pesos.
13. **2012 National Medal of Science and Arts** in the area of *Physical, Mathematical and Natural Sciences*. This is the most important award that a mexican scientist can obtain in his/her country, and is granted by the Presidency of Mexico. The award consisted of a diploma, a gold medal and a check for \$650,000 Mexican pesos and was delivered by the President of Mexico, Felipe Calderón Hinojosa in November, 2012. This was only the second time in which a computer scientist received this award, since its inception, in 1945, and Dr. Coello is the first to obtain it in “exact sciences”.
14. **Scopus Award Mexico 2012 in Engineering**. This award was granted by *Elsevier* and the *Mexican Council for Science and Technology* for having the highest number of publications and citationions in the area, in the last 5 years. Dr. Coello is the first mexican computer scientist to receive this award, since its inception, in 2007. The award consisted of a diploma and a sculpture.
15. **Ciudad Capital: Heberto Castillo 2011 Award in Basic Science** in the category of scientists who are 45 years old or less. This award is granted by the government of Mexico City upon the recommendation of the Institute of Science and Tecnology of Mexico City. The award consisted of a silver medal and a check for \$200,000 Mexican pesos. The award was delivered by the Major of Mexico City, Marcelo Ebrard Casaubón in November, 2011.
16. **Outstanding chapter award**, granted by the editorial board of the book entitled *Handbook of Swarm Intelligence-Concepts, Principles and Application*, published by *Springer* in January 2011. The award consisted of a check for \$100 US dollars.
17. **IEEE Fellow** (since January 2011) for “contributions to multi-objective optimization and constraint-handling techniques”. Dr. Coello is one of the few (less than 10) experts in evolutionary computation in the world who are IEEE Fellows.
18. **Medal to the Scientific Merit**, granted by the *Asamblea Legislativa del Distrito Federal* (Mexico City’s congressmen). The award consists of a diploma and a gold medal and it was delivered in October, 2010.
19. **2007 National Research Award** in the area of *exact sciences*. This award is granted by the Mexican Academy of Science to researchers under the age of 40 who have shown an outstanding performance, and is the most prestigious scientific award granted in Mexico to young scientists. The award consisted of a diploma and a check for \$50,000 Mexican pesos and was delivered by the President of Mexico, Felipe Calderón Hinojosa in October, 2007. Dr. Coello is the only computer scientist who has received this award, since its inception, in 1961.
20. **Best Paper Award** at the international conference *Artificial Evolution 2009 (EA' 2009)*, held in Strasbourg, France in October, 2009.

21. **Best Paper Award** from the *Evolutionary Multiobjective Optimization track* at the *2008 Genetic and Evolutionary Computation Conference (GECCO'2008)*, held in Atlanta, Georgia, USA, in July, 2008.
22. **Best Paper Award** from the *Evolutionary Multiobjective Optimization track* at the *2007 Genetic and Evolutionary Computation Conference (GECCO'2007)*, held in London, UK, in July, 2007.
23. **Best Paper Award** in the category “Novel Smart Engineering System Design Award” at the international conference *Artificial Neural Networks in Engineering (ANNIE'2001)*, held in St. Louis, Missouri, USA, in November 2001.
24. Full scholarship (tuition and board) from the Secretaría de Educación Pública (Mexican’s Ministry of Education) to pursue MSc and PhD studies in Computer Science at *Tulane University*, New Orleans, Louisiana, USA, 1991–1996.
25. Presidential Award Medal *Diario de México* for being one of the best undergraduate students of Mexico, 1990. The award consisted of a medal.

Impact

- Dr. Coello has had 6 of his papers in the *Hot Papers List* of the *ISI Web of Science* for being the most highly cited in the last 10 years. Some of the algorithms developed by Dr. Coello have been discussed in detail by other authors in monographs, PhD theses and conference papers.
- According to his record in *Google Scholar*³, the total number of citations to the publications of Dr. Coello is **74,041**, although this figure includes self-citations and citations to unpublished manuscripts and to proceedings and books that he has edited.
- According to *Scopus*, he has **31,033** citations, excluding self-citations and citations from his co-authors. According to *Clarivate Analytics* (formerly known as the *ISI Web of Science*), he has **31,998** citations, excluding self-citations.
- His **h-index** is of **105**, according to *Google Scholar*, **76** according to *Scopus* and **70** according to *Clarivate Analytics* (as of June 25th, 2024).
- Listed as one of the **300 most highly cited scientists in the world** (in *Computer Science*) by *Elsevier* for the *ShanghaiRanking’s Global Ranking of Academic Subjects 2016* (as of March 2017).
- Ranked **357** in the world and **1** in Mexico in the *10th Edition of the Guide2Research 2024 Ranking of Top 1000 Scientists in the field of Computer Science and Electronics* from May 2024. This ranking is based on the h-index metric provided by *Google Scholar* and includes only scientists with an h-index of at least 40 and a considerable number of research papers indexed on DBLP. The full world ranking is available at: <http://www.guide2research.com/scientists>

Professional Societies

- Member of *Sigma Xi, The Scientific Research Society*, 2004–date.
- Member of the Advisory Board of the *Hispanic-American Fuzzy Systems Association (HAFSA)*, 2004–date.
- Member of the Mexican Academy of Science (since 2002). *Elect Secretary* during the period 2019-2021.
- Member of the Advisory Board of Science and Technology of CONACyT (the mexican equivalent of the *National Science Foundation*), 2000-2002.
- National Researcher Level **3** (National System of Researchers), since 2005. Level 3 is the highest possible. There are only 17 computer scientists in Mexico with this level in area VIII (formerly area VII) of the National System of Researchers. From them, Dr. Coello is the only one who received this distinction under the age of 40.
- Member of “Upsilon Pi Epsilon” (UPE).
- Member of the “Association for Computing Machinery” (ACM).
- Founding Member of the *Mexican Society of Operations Research* (SMIO for its acronym in Spanish) since 2011.
- Founding Member of the *Mexican Academy of Computing*, since 2015. *Treasurer* during the period 2015-2017. *Vicepresident* during the period 2018-2020. *President* during the period 2021-2023.
- Member of the *Scientific Advisory Board of the Presidency of Mexico*, since January 2013.
- Member of the Executive Board of the ACM Special Interest Group on Evolutionary Computation (ACM SIGEVO) since 2017.
- Member of the Executive Board of the *International Society on Multiple Criteria Decision Making* since 2019.

³See: <http://scholar.google.com/citations?user=oJMnjNYAAAAJ&hl=en>