Gregorio **TOSCANO-PULIDO**

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SUMMARY

Assistant Professor of Computer Science with more than 20 years of academic, research, and software-development experience in evolutionary computation, multi-objective optimization, machine learning, and large-scale decision-support systems. Co-developed early multi-objective particle-swarm and micro-genetic algorithms, and has received more than 9,000 Google Scholar citations and three best-paper awards. Recent work combines scalable optimization, artificial intelligence, and cloud systems for environmental, biomedical, and autonomous-systems applications.

PROFESSIONAL ACHIEVEMENTS AND HIGHLIGHTS

- **Research Excellence and Impact**
  - More than 9,000 Google Scholar citations and more than 70 peer-reviewed publications.
  - Recipient of three best-paper awards at IEEE CEC 2022, MCPR 2022, and EA 2009.
  - Ranked fourth among computer-science researchers in Mexico in a 2015 scientometric study covering 1989–2014.
  - Co-developed early multi-objective particle-swarm and micro-genetic algorithms.
- **Project Leadership and Development**
  - Led or co-led eight funded research projects and two industry consulting projects.
  - Designed a scalable optimization system for problems with more than 3 million variables and 10,000 constraints, supporting hundreds of users.
  - Developed multi-objective optimization and AI-assisted decision-support tools for Chesapeake Bay watershed management.
  - Organized and led the Tamaulipas State Programming Contest (Tamcoder) for more than 10 years, attracting about 200 students annually.
- **Teaching and Academic Leadership**
  - More than 20 years of university teaching and graduate research supervision.
  - Supervised or co-supervised five completed PhD dissertations and nine completed MSc theses; currently advises four PhD students.
  - Senior Member of IEEE and ACM, and Regular Member of the Mexican Academy of Computing.
- **Technical Proficiency and Innovation**
  - Develops optimization algorithms and decision-support systems in C++, Python, and cloud-native environments.
  - Built production research infrastructure with AWS Fargate, Kubernetes, Docker, CI/CD, Ansible, Django, and AWS S3.

EDUCATION

CINVESTAV-IPN[1] *2002-2005*
PH.D. IN ELECTRICAL ENGINEERING (COMPUTER SCIENCE)
• Dissertation: On the Use of Self-Adaptation and Elitism for Multiobjective Particle Swarm Optimization

UNIVERSIDAD VERACRUZANA *1999–2001*
M.SC. IN ARTIFICIAL INTELLIGENCE
• Dissertation: Micro-Genetic Algorithm for Multiobjective Optimization (in Spanish)

INSTITUTO TECNOLÓGICO DE MÉRIDA *1994–1999*
B.ENG. IN COMPUTER SYSTEMS ENGINEERING

ACADEMIC AND PROFESSIONAL EXPERIENCE

THE CATHOLIC UNIVERSITY OF AMERICA *2024–Present / U.S.A.*
ASSISTANT PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE
•Conduct interdisciplinary research in optimization, machine learning, biomedical computing, quantum computing, and autonomous systems. •Serve as PI or co-PI on four internal seed projects totaling $178,000. •Teach undergraduate and graduate computer-science courses and advise four PhD students.

IEEE TRANSACTIONS ON EVOLUTIONARY COMPUTATION *2021–2025/ U.S.A.*
MANAGING EDITOR

•Managed initial screening and editorial workflows for approximately 2,000 submissions while ensuring compliance with journal scope and publication ethics. •Coordinated authors, reviewers, the Editorial Board, and the publisher; scheduled accepted articles and supported policy and special-issue planning.

Michigan State University / U.S. Environmental Protection Agency *2021–2024 / U.S.A.*

Research Associate

•Designed C++ multi-objective optimization methods to reduce pollutant loads in the Chesapeake Bay watershed. •Built scalable services using AWS Fargate, Kubernetes, Docker, CI/CD, Ansible, Redis, RabbitMQ, Django, and AWS S3. •Developed a queued optimization platform supporting hundreds of users and problems with more than 3 million variables and 10,000 constraints. •Integrated machine learning and retrieval-augmented language models into tools for scenario analysis and decision support. •Communicated results to EPA scientists and collaborators and mentored contractors and fellows.

Cinvestav-IPN *2006–2024 / Mexico*

Assistant Professor / Investigador 2C (2006–2014); Associate Professor / Investigador 3A–3C (2014–2024)

•Conducted research in evolutionary computation, multi-objective optimization, machine learning, and their applications. •Served as PI on four funded research projects and supervised five completed PhD dissertations and nine completed MSc theses. •Developed and taught graduate computer-science courses and contributed to academic service and program development. •Founded and led the Tamcoder state programming contest for more than 10 years.

Michigan State University *2015–2016 / U.S.A.*

Research Scholar (Sabbatical Leave)

•Conducted research on multi-objective optimization algorithms during a sabbatical leave. •Presented results at professional conferences and internal seminars and contributed to manuscripts and research reports.

Universidad Autónoma de Nuevo León *2005–2006 / Mexico*

Associate Professor

•Conducted research, mentored undergraduate students, taught courses, and presented results at professional forums.

Universidad Veracruzana *2000–2001/ Mexico*

Network Administrator

•Installed and administered NIS, NFS, DNS, email, and web servers; monitored networks and maintained GNU/Linux, Solaris, and SunOS workstations.

Skills

Programming Languages	C | C++ | Python | LaTeX | Bash | JavaScript | Scheme | R | Go | Rust | Julia
Software Development	Programming Paradigms | CI/CD | RabbitMQ | Redis | AWS S3 | AWS Fargate
Frameworks & Libraries	Web2Py | Django | Jupyter | NumPy | Pandas
Machine Learning	Scikit-learn | PyTorch | TensorFlow | fastai | OpenCV
Infrastructure & Configuration	Virtualization (Proxmox) | Docker | Docker Compose | Kubernetes | LXC | AWS
Tools & Debuggers	Git | GDB | Electric Fence | Valgrind

Funded Projects and Consulting

Led or co-led eight funded research projects: four internal seed projects at The Catholic University of America and four projects supported by Mexican federal and state science agencies. Responsibilities included project design, team coordination, research delivery, and reporting.

- **CUA Seed Project (2026)**: Inverse Prediction of Viscoelastic Behavior of Engineered Tissues Using Deep Learning, Evolutionary Algorithms, and Atomic Force Microscopy. Role: Principal Investigator. Co-PIs: Christopher Raub (CUA) and Santiago Solares (CUA). Sponsor: The Catholic University of America (Seed Fund). Period: 10/2025–09/2026. Total Costs: $47,000. Effort: 0.5 person-months (≈4% FTE). Description: Develops an end-to-end computational and experimental workflow integrating deep learning and evolutionary algorithms to extract bias-free viscoelastic spectra from AFM datasets within seconds.
- **CUA Seed Project (2026)**: Development of Electronic Structure Calculation Methods Suitable for Quantum Computing. PI: Santiago Solares (CUA). Co-PI: Daniel Sierra. Role: Co-Principal Investigator. Sponsor: The Catholic University of America (Seed Fund). Period: 09/2025–08/2026. Total Costs: $47,000. Effort: 0.5 person-months (≈4% FTE). Description: Develops quantum-computing-ready electronic structure algorithms using reduced Hamiltonian mappings, variational ansätze, and AI-enhanced quantum error correction.

- **CUA Seed Project (2025)**: Predicting Antidepressant Toxicity in Gut Microbiota Using Deep and Reinforcement Learning. PI: John Choy (CUA). Role: Co-Principal Investigator. Sponsor: The Catholic University of America (Seed Fund). Period: 10/2025–09/2026. Total Costs: $47,000. Effort: 0.5 person-months (≈4% FTE). Description: Applies deep learning, reinforcement learning, and evolutionary multi-objective hyperparameter search to characterize and predict toxicity of antidepressants across bacterial species.
- **CUA Seed Project (2025)**: Learning to Navigate. PI: Jeffrey W. Herrmann (CUA). Role: Co-Principal Investigator. Sponsor: The Catholic University of America (Seed Fund). Period: 09/2025–08/2026. Total Costs: $37,000. Effort: 0.5 person-months (≈4% FTE). Description: Investigates robust navigation for autonomous robots by developing and evaluating algorithm portfolios optimized for small, resource-limited platforms.
- **SEP-Cinvestav Project 262 (2019-2021)**: Led the application of multi-objective evolutionary computing with an automatic decision-making approach, tackling three practical problems.
- **CONACyT Project 105060 (2010-2013)**: Focused on Hybrid Evolutionary Algorithms for Dynamic and Many-objective Problems.
- **COTACyT Project 107408 (2010)**: Developed a Circuitry-Specific Computer for Automatic Fingerprint Recognition.
- **CONACyT Project 90548 (2009-2010)**: Worked on Hybrid Evolutionary Algorithms for Multi-objective Optimization.

Selected Software Systems

- Developed a researcher-performance evaluation platform for Cinvestav-IPN with more than 600 users and integrations with Web of Science and Scopus.
- Designed and implemented a web simulation platform for metal-furnace manufacturing and high-temperature thermodynamic analysis for Nutec Bickley S.A. de C.V.
- Created a Zoom-integrated conference-management platform for sessions and attendees.
- Developed the contest arena for Tamcoder and a membership-management system for the Mexican Academy of Computing.

Industry Consulting Projects

Led two consulting projects with Distribuidora Infovic S.A. de C.V. focused on home-automation and multimedia systems.

- **INPYM-138326 (2010)**: Developed a computational system for Domotics and Multimedia, integrating technology and user convenience.
- **Product and Services Improvement Project (2011)**: Improved Domotics's user interface and service offerings, emphasizing user experience and technology integration.

Honors and Awards

- Senior Member of IEEE.
- Senior Member of ACM.
- Regular Member of the Mexican Academy of Computing.
- Fourth-most-cited researcher in computer science in Mexico according to "Scientometric mapping of computer science research in Mexico" published in 2015.
- Best Paper Award, IEEE Congress on Evolutionary Computation (CEC 2022), Padua, Italy, July 2022.
- Best Paper Award, XIV Mexican Conference on Pattern Recognition (MCPR 2022), Ciudad Juárez, Mexico, June 2022.
- Best Paper Award, 9th International Conference on Artificial Evolution (EA 2009), Strasbourg, France, October 2009.
- Level I member of Mexico's National System of Researchers (SNI), 2007–2009 and 2015–2024.
- Best PhD Dissertation Award, ANIEI National Dissertation Contest, Mexico.
- Second Place, Best MSc Thesis, ANIEI National Dissertation Contest, Mexico.
- Second place at the *XII National Creativity Contest*, in October 1998.
- First place at the *National Youth Contest of Science and Technology* in September 1996.

Academic Activities

Teaching

Taught Stochastic Processes and Operations Research at the undergraduate level. Courses delivered at CINVESTAV-IPN at the graduate level.

- AI/CSC/DA 446/546: Natural Language Processing (Fall 2025, 3 credit hours)
- CSC 113B: Computational Biosciences Institute (Summer 2025, 3 credit hours)
- CSC 406/506: Introduction to Secure Computing (Spring 2025, 3 credit hours)
- CSC/DA 124: Introduction to Computer Programming with Python (Spring 2025, 3 credit hours)
- CSC 113: Introduction to Computer Programming with MATLAB (Fall 2024, 3 credit hours)
- Advanced Metaheuristics (T2-2017*, T2-2018)
- Computational Intelligence (T1-2012, T3-2012, T1-2015*, T1-2017, T1-2018, T1-2019, T1-2020)
- Engineering Optimization (T2-2009*, T3-2014)
- Introduction to Engineering and Computing Technologies (T3-2016, T3-2018, T3-2019)
- Introduction to Evolutionary Computing (T2-2007, T1-2008, T1-2009, T1-2010, T2-2011, T1-2013, T2-2014, T2-2015)
- Introduction to Optimization (T3-2016, T3-2017, T3-2018, T1-2018)
- Machine Learning (T1-2012*)
- Mobile Computing (T2-2008, T2-2009)
- Programming Languages (T1-2007, T3-2007, T3-2008, T3-2009, T3-2010, T3-2011, T2-2013, T3-2014)
- Programming Technologies (T3-2017)
- Research Seminar (T2-2008*, T3-2008, T2-2010, T2-2013, T3-2013, T1-2019, T2-2019)
- Selected Topics in Evolutionary Computing (T1-2011*, T1-2015)
- Selected Topics in Artificial Intelligence (T2-2019)

where T1 refers to trimester 1 (January-April), T2 refers to trimester 2 (May-August), T3 refers to trimester 3 (September-December), and courses with a * mark were given at a Ph.D. level. Additionally, short courses on Computational Intelligence were taught at various institutions in Mexico, Colombia, and Argentina.

Theses Supervised

Supervised or co-supervised five completed PhD dissertations and nine completed MSc theses; currently advises four PhD students.

- PhD
    1. Mohammed Golam Kaisar Hossain Bhuyan (Spring 2026–Present)
    2. Ravi Kumar Thippsetty (Fall 2025–Present)
    3. Grace Connors (Fall 2025–Present)
    4. Sara Albuainain (Fall 2025–Present)
    5. Mario Garza Fabre (co-supervised with Dr. Eduardo Rodríguez-Tello). On the Use of Alternative Evaluation Schemes in Metaheuristics to Handle the Main Search Difficulties Involved with the Prediction of Protein Structures under the HP Model. Defended May 13, 2014.
    6. Alan Díaz Manríquez. On the use of Surrogate Models as Informed Operators to Improve the Efficiency of Multi-objective Evolutionary Algorithms in Expensive Problems. Defended with success on June 2, 2014.
    7. Giomara Lárraga Maldonado (Co-supervised with Dr. Ricardo Landa Becerra). Generation and Quality Assessment of Regions of Interest in Multi-Objective Evolutionary Algorithms. Defended with success on June 18, 2019.
    8. Auraham Sinhué Camacho García (Co-supervised with Dr. Ricardo Landa Becerra). On the Use of Formulations to Solve Many-Objective Optimization Problems. Defended with success on February 28, 2020.
    9. Samuel Omar Tovias Alanis (Co-supervised with Dr. Wilfrido Gómez Flores). Estrategias de Selección de Instancias Mediante Optimización Global y Multiobjetivo para Problemas de Aprendizaje Supervisado (in Spanish). Defended with success on December 15, 2022 .
- MSc
    1. Mario Garza Fabre. Many-objective Optimization through Evolutionary Algorithms (in Spanish). Defended with success on September 28, 2009.
    2. Alan Díaz Manríquez. Optimization of Dynamic Multiobjective Problems using Evolutionary Algorithms (in Spanish). Defended with success on November 6, 2009.
    3. Angelina Jane Reyes Medina. On the use of Computational Statistics for Parameter Tuning on Evolutionary Algorithms (in Spanish). Defended with success on December 18, 2009.
    4. Jorge Sebastian Hernández Domínguez. A Study on the Mechanisms of two Multi-objective Evolutionary Algorithms. Defended with success on December 8, 2011.
    5. Gerardo Montemayor García. On the Use of Surrogate Models in Multiobjective Evolutionary Algorithms. Defended December 9, 2011.

6. Auraham Sinhué Camacho García. Study of Hybrid Schemes for the Simultaneous use of Different Formulations of a Multi-objective Optimization Problem. Defended with success on December 10, 2014.
7. Giomara Lárraga Maldonado (Co-supervised with Dr. Ricardo Landa Becerra). Incorporating Preferences through an Evolutionary ε-Constraint Based Method. Defended with success on December 11, 2014.
8. Feliciana Martinez Martinez. Use of Scalarizing Functions and Multiple Reference Points in Multi-objective Evolutionary Algorithms. Defended with success on February 29, 2016.
9. Daniel Rafael Torres Avalos (Co-supervised with Dr. Eduardo Rodriguez-Tello). New Multi-Objective Optimization Reformulations for Solving the Maximum Parsimony Problem. Defended with success on December 8, 2017.

Publications and Academic Impact

Published more than 70 peer-reviewed works, primarily in evolutionary multi-objective optimization. A 2015 scientometric study of Mexican computer-science research from 1989 to 2014 ranked him fourth by citations. His work has received more than 9,000 citations on Google Scholar.

1. Sergio Sarmiento-Rosales, Víctor Adrián Sosa Hernández, Raúl Monroy, and Gregorio Toscano Pulido, "An Offline Analysis of Pareto Archiving Strategies in Multi-Objective Neural Architecture Search for Super-Resolution Image Restoration: Toward Improved Post-Search Decision Making," *IEEE Access* 14 (2026): 156204–156227, https://doi.org/10.1109/ACCESS.2026.3741539
2. Hoda S. Razavi, A. Pouyan Nejadhashemi, Kalyanmoy Deb, Gregorio Toscano, Timothy Harrigan, and Lewis Linker, "Artificial Intelligence, Optimization, and Modeling Techniques in Water Resource Management: Interconnections and Emerging Synergies," *Water Environment Research* 98, no. 1 (2026): e70246, https://doi.org/10.1002/wer.70246
3. Ian Kropp, A. Pouyan Nejadhashemi, Prakash K. Jha, Elijah Spinner, and Gregorio Toscano Pulido, "Integrating interactive decision making into evolutionary multiobjective agricultural optimization," *Computers and Electronics in Agriculture* 242 (2026): 111359, ISSN: 0168-1699, https://doi.org/10.1016/j.compag.2025.111359
4. Hoda S. Razavi, Gregorio Toscano, A. Pouyan Nejadhashemi, Kalyanmoy Deb, and Lewis Linker, "Next-generation techniques for parameter reduction for BMP multiobjective optimization in watershed planning," *Environmental Modelling & Software* 193 (2025): 106651, ISSN: 1364-8152, https://doi.org/10.1016/j.envsoft.2025.106651
5. Kalyanmoy Deb, A. Pouyan Nejadhashemi, Gregorio Toscano, Hoda Razavi, and Lewis Linker, "Leveraging innovization and transfer learning to optimize best management practices in large-scale watershed management," *Environmental Modelling & Software* 180 (2024): 106161, ISSN: 1364-8152, https://doi.org/10.1016/j.envsoft.2024.106161
6. Ricardo Landa, David Tovias-Alanis, and Gregorio Toscano, "Optimization of Deep Neural Networks Using a Micro Genetic Algorithm," *AI* 5, no. 4 (2024): 2651–2679, ISSN: 2673-2688, https://doi.org/10.3390/ai5040127, https://www.mdpi.com/2673-2688/5/4/127
7. Gregorio Toscano-Pulido, Hoda Razavi, A. Pouyan Nejadhashemi, Kalyanmoy Deb, and Lewis Linker, "Large-Scale Multiobjective Optimization for Watershed Planning and Assessment," *IEEE Transactions on Systems, Man, and Cybernetics: Systems* 54, no. 6 (2024): 3471–3483, https://doi.org/10.1109/TSMC.2024.3361679
8. Gregorio Toscano, A. Pouyan Nejadhashemi, Kalyanmoy Deb, Hoda Razavi, and Lewis Linker, "Advancing Watershed Management: A Multiobjective Optimization and Multicriteria Decision-Making Platform," in *iEMSs 2024 Biennial Conference* (2024)
9. A. Pouyan Nejadhashemi, Gregorio Toscano, Kalyanmoy Deb, Hoda Razavi, and Lewis Linker, "Water Resources Management: A Comprehensive Analysis of Elements, Interconnections, and Emerging Synergies," in *iEMSs 2024 Biennial Conference* (2024)
10. Hoda Razavi, Gregorio Toscano, A. Pouyan Nejadhashemi, Kalyanmoy Deb, and Lewis Linker, "Innovative Ranking Methods for Parameter Size Reduction in Large Scale Multi-Objective Optimization Problem," in *iEMSs 2024 Biennial Conference* (2024)
11. Gregorio Toscano, Hoda Razavi, A. Pouyan Nejadhashemi, Kalyanmoy Deb, and Lewis Linker, "Utilizing Innovization to Solve Large-Scale Multi-Objective Chesapeake Bay Watershed Problem," in *2023 IEEE Congress on Evolutionary Computation (CEC)* (2023), 1–8, https://doi.org/10.1109/CEC53210.2023.10254161
12. Gregorio Toscano, Juan Hernández-Suárez, Julian Blank, Pouyan Nejadhashemi, and Kalyanmoy Deb, "Large-scale Multi-objective Optimization for Water Quality in Chesapeake Bay Watershed," in *2022 IEEE Congress on Evolutionary Computation (CEC'2022)*, ed. Alessandro Sperduti and Marco Gori General Co-Chairs of IEEE WCCI 2022, (**Best paper award)** (Padua, Italy: IEEE Press, July 2022), 1–9, https://doi.org/10.1109/CEC55065.2022.9870286
13. Samuel Omar Tovias-Alanis, Wilfrido Gómez-Flores, and Gregorio Toscano-Pulido, "Evolutionary Instance Selection Based on Preservation of the Data Probability Density Function," *Computación y Sistemas* 26, no. 2 (April 2022): 853–866, ISSN: 2007-9737, https://doi.org/10.13053/CyS-26-2-4255

14. Samuel Omar Tovias-Alanis, Wilfrido Gómez-Flores, Gregorio Toscano-Pulido, and Juan Humberto Sossa-Azuela, "Learning Dendrite Morphological Neurons Using Linkage Trees for Pattern Classification," in *Pattern Recognition. MCPR 2022*, ed. Osslan Osiris Vergara-Villegas, Vianey Guadalupe Cruz-Sánchez, Juan Humberto Sossa-Azuela, Jesús Ariel Carrasco-Ochoa, José Francisco Martínez-Trinidad, and José Arturo Olvera-López, (**Best paper award)** (Springer. LNCS Vol. 13264, 2022), 105–115, ISBN: 978-3-031-07750-0, https://doi.org/10.1007/978-3-031-07750-0_10
15. Juan Hernández-Suárez, Gregorio Toscano, Pouyan Nejadhashemi, and Kalyanmoy Deb, "Development of an Efficient Optimization Framework for Improving Water Quality in the Chesapeake Bay Watershed," in *American Geophysical Union Fall Meeting 2021 (AGU-2021)* (New Orleans, Louisiana, December 2021)
16. Samuel Tovias-Alanis, Wilfrido Gomez-Flores, and Gregorio Toscano-Pulido, "Instance Selection Based on Linkage Trees," in *18th International Conference on Electrical Engineering, Computing Science and Automatic Control (CCE)*, CCE 2021 (Mexico City, Mexico: IEEE, 2021), 1–6, https://doi.org/10.1109/CCE53527.2021.9633116
17. Miguel Santiago-Duran, J.L. Gonzalez-Compean, André Brinkmann, Hugo G. Reyes-Anastacio, Jesus Carretero, Raffaele Montella, and Gregorio Toscano-Pulido, "A gearbox model for processing large volumes of data by using pipeline systems encapsulated into virtual containers," *Future Generation Computer Systems* 106 (May 2020): 304–319, ISSN: 0167-739X, https://doi.org/10.1016/j.future.2020.01.014
18. Auraham Camacho, Gregorio Toscano, Ricardo Landa, and Hisao Ishibuchi, "Indicator-Based Weight Adaptation for Solving Many-Objective Optimization Problems," in *10th International Conference on Evolutionary Multi-Criterion Optimization*, EMO 2019 (East Lansing, U.S.A: Springer-Verlag New York, Inc., 2019), 216–228, https://doi.org/10.1007/978-3-030-12598-1_18
19. Ricardo Landa, Giomara Larraga, and Gregorio Toscano, "Use of a Goal-constraint-based Approach for Finding the Region of Interest in Multi-objective Problems," *Journal of Heuristics* 25, no. 1 (February 2019): 107–139, ISSN: 1381-1231, https://doi.org/10.1007/s10732-018-9387-8
20. Kalyanmoy Deb, Rayan Hussein, Proteek Roy, and Gregorio Toscano, "A Taxonomy for Metamodeling Methods for Evolutionary Multi-Objective Optimization," *IEEE Transactions on Evolutionary Computation* 23, no. 1 (February 2019): 104–116, ISSN: 1089-778X, https://doi.org/10.1109/TEVC.2018.2828091
21. Javier Rubio-Loyola, Christian Aguilar-Fuster, Gregorio Toscano-Pulido, Rashid Mijumbi, and Joan Serrat, "Enhancing Metaheuristic-based Online Embedding in Network Virtualization Environments," *IEEE Transactions on Network and Service Management* 15, no. 1 (March 2018): 200–216, ISSN: 1932-4537, https://doi.org/10.1109/TNSM.2017.2742666
22. Kalyanmoy Deb, Rayan Hussein, Proteek Roy, and Gregorio Toscano, "Classifying Metamodeling Methods for Evolutionary Multi-objective Optimization: First Results," in *9th International Conference on Evolutionary Multi-Criterion Optimization - Volume 10173*, EMO 2017 (Münster, Germany: Springer-Verlag New York, Inc., 2017), 160–175, ISBN: 978-3-319-54156-3, https://doi.org/10.1007/978-3-319-54157-0_12
23. Alan Diaz-Manriquez, Gregorio Toscano, and Carlos A. Coello Coello, "Comparison of Metamodeling Techniques in Evolutionary Algorithms," *Soft Computing* 21, no. 19 (October 2017): 5647–5663, ISSN: 1433-7479, https://doi.org/10.1007/s00500-016-2140-z
24. Gregorio Toscano, Ricardo Landa, Giomara Larraga, and Guillermo Leguizamon, "On the use of stochastic ranking for parent selection in differential evolution for constrained optimization," *Soft Computing* 21, no. 16 (August 2017): 4617–4633, ISSN: 1432-7643, https://doi.org/10.1007/s00500-016-2073-6
25. Gregorio Toscano and Kalyanmoy Deb, "Study of the Approximation of the Fitness Landscape and the Ranking Process of Scalarizing Functions for Many-objective Problems," in *2016 IEEE Congress on Evolutionary Computation (CEC'2016)*, ed. Kay Chen Tan and General Co-Chair of IEEE WCCI 2016 (Vancouver, Canada: IEEE Press, July 2016), 4358–4365, https://doi.org/10.1109/CEC.2016.7744344
26. Alan Diaz-Manriquez, Gregorio Toscano, Jose Hugo Barron-Zambrano, and Edgar Tello-Leal, "R2-Based Multi/Many-Objective Particle Swarm Optimization," article ID 1898527, *Computational Intelligence and Neuroscience* 2016 (May 2016), ISSN: 1687-5265, https://doi.org/10.1155/2016/1898527
27. Alan Diaz-Manriquez, Gregorio Toscano, Jose Hugo Barron-Zambrano, and Edgar Tello-Leal, "A Review of Surrogate Assisted Multiobjective Evolutionary Algorithms," article ID 9420460, *Computational Intelligence and Neuroscience* 2016 (May 2016), ISSN: 1687-5265, https://doi.org/10.1155/2016/9420460
28. Oliver Schutze, Christian Dominguez-Medina, Nareli Cruz-Cortes, Luis Gerardo de la Fraga, Jian-Qiao Sun, Gregorio Toscano, and Ricardo Landa, "A Scalar Optimization Approach for Averaged Hausdorff Approximations of the Pareto Front," *Engineering Optimization* 48, no. 9 (2016): 1593–1617, ISSN: 0305-215X, https://doi.org/10.1080/0305215X.2015.1124872
29. Mario Garza-Fabre, Gregorio Toscano-Pulido, and Eduardo Rodriguez-Tello, "Multi-objectivization, Fitness Landscape Transformation and Search Performance: A Case of Study on the HP model for Protein Structure Prediction," *European Journal of Operational Research* 243, no. 2 (June 2015): 405–422, ISSN: 0377-2217, https://doi.org/10.1016/j.ejor.2014.06.009
30. Javier Rubio-Loyola, Gregorio Toscano-Pulido, Marinos Charalambides, Marisol Magaña-Aguilar, Joan Serrat-Fernández, George Pavlou, and Hiram Galeana-Zapién, "Business-driven policy optimization for service management," *International Journal of Network Management* 25, no. 2 (2015): 113–140, ISSN: 1099-1190, https://doi.org/10.1002/nem.1886

31. Mario Garza-Fabre, Eduardo Rodriguez-Tello, and Gregorio Toscano-Pulido, "Constraint-handling through multi-objective optimization: The hydrophobic-polar model for protein structure prediction," *Computers & Operations Research* 53 (January 2015): 128–153, ISSN: 0305-0548, https://doi.org/10.1016/j.cor.2014.07.010
32. Ricardo Landa, Carlos A. Coello Coello, and Gregorio Toscano-Pulido, "Goal-constraint: Incorporating Preferences Through an Evolutionary ϵ-constraint Based Method," in *2013 IEEE Congress on Evolutionary Computation (CEC'2013)* (Cancun, Mexico: IEEE Press, June 2013), 741–747, ISBN: 978-1-4799-0454-9, https://doi.org/10.1109/CEC.2013.6557642
33. Mario Garza-Fabre, Gregorio Toscano-Pulido, and Eduardo Rodriguez-Tello, "Handling Constraints in the HP Model for Protein Structure Prediction by Multiobjective Optimization," in *2013 IEEE Congress on Evolutionary Computation (CEC'2013)* (Cancun, Mexico: IEEE Press, June 2013), 2728–2735, ISBN: 978-1-4799-0454-9, https://doi.org/10.1109/CEC.2013.6557899
34. Alan Diaz-Manriquez, Gregorio Toscano-Pulido, and Ricardo Landa-Becerra, "On the use of a BSP Tree to create local surrogate models," in *2013 IEEE Conference on Evolutionary Computation (CEC'13)* (Cancún, México: IEEE Press, June 2013), 2540–2547, ISBN: 978-1-4799-0454-9, https://doi.org/10.1109/CEC.2013.6557875
35. Alan Diaz-Manriquez, Gregorio Toscano-Pulido, Carlos A. Coello Coello, and Ricardo Landa-Becerra, "A Ranking Method Based on the $R2$ Indicator for Many-Objective Optimization," in *2013 IEEE Congress on Evolutionary Computation (CEC'2013)* (Cancún, México: IEEE Press, June 2013), 1523–1530, ISBN: 978-1-4799-0454-9, https://doi.org/10.1109/CEC.2013.6557743
36. Alan Diaz-Manriquez, Gregorio Toscano-Pulido, and Ricardo Landa-Becerra, "A Hybrid Local Search Operator for Multiobjective Optimization," in *2013 IEEE Congress on Evolutionary Computation (CEC'2013)* (Cancún, México: IEEE Press, June 2013), 173–180, ISBN: 978-1-4799-0454-9, https://doi.org/10.1109/CEC.2013.6557568
37. Mario Garza-Fabre, Eduardo Rodriguez-Tello, and Gregorio Toscano-Pulido, "Comparative Analysis of Different Evaluation Functions for Protein Structure Prediction Under the HP Model," *Journal of Computer Science and Technology* 28, no. 5 (2013): 868–889, ISSN: 1000-9000, https://doi.org/10.1007/s11390-013-1384-7
38. Jorge Sebastian Hernandez-Dominguez, Gregorio Toscano-Pulido, and Carlos A. Coello Coello, "A Multi-objective Particle Swarm Optimizer Enhanced with a Differential Evolution Scheme," in *Artificial Evolution, 10th International Conference, Evolution Artificielle (EA 2011)*, ed. Jin-Kao Hao, Pierrick Legrand, Pierre Collet, Nicolas Monmarche, Evelyne Lutton, and Marc Schoenauer (Angers, France: Springer. LNCS Vol. 7401, October 2012), 169–180, ISBN: 978-3-642-35532-5, https://doi.org/10.1007/978-3-642-35533-2_15
39. Alan Diaz-Manriquez, Gregorio Toscano-Pulido, and Ricardo Landa-Becerra, "A Surrogate-Based Intelligent Variation Operator for Multiobjective Optimization," in *10th International Conference, Evolution Artificielle (EA 2011)*, ed. Jin-Kao Hao, Pierrick Legrand, Pierre Collet, Nicolas Monmarché, Evelyne Lutton, and Marc Schoenauer (Angers, France: Springer. LNCS Vol. 7401, October 2012), 13–24, ISBN: 978-3-642-35532-5, https://doi.org/10.1007/978-3-642-35533-2_2
40. Mario Garza-Fabre, Eduardo Rodriguez-Tello, and Gregorio Toscano-Pulido, "An Improved Multiobjectivization Strategy for HP Model-Based Protein Structure Prediction," in *Parallel Problem Solving from Nature - PPSN XII, 12th International Conference*, ed. Carlos A. Coello Coello, Vincenzo Cutello, Kalyanmoy Deb, Stephanie Forrest, Giuseppe Nicosia, and Mario Pavone (Taormina, Italy: Springer. LNCS Vol. 7492, September 2012), 82–92, ISBN: 978-3-642-32963-0, https://doi.org/10.1007/978-3-642-32964-7_9
41. Ricardo Landa, Yazmin Rojas, and Gregorio Toscano-Pulido, "An Approach for Estimating Separability and Its Application on High Dimensional Optimization," in *Proceedings of the 14th Annual Conference on Genetic and Evolutionary Computation (GECCO '12)* (Philadelphia, USA: ACM, July 2012), 951–958, ISBN: 978-1-4503-1177-9, https://doi.org/10.1145/2330163.2330295
42. Mario Garza-Fabre, Gregorio Toscano-Pulido, and Eduardo Rodriguez-Tello, "Locality-Based Multiobjectivization for the HP Model of Protein Structure Prediction," in *Proceedings of the 14th Annual Conference on Genetic and Evolutionary Computation (GECCO '12)* (Philadelphia, USA: ACM Press, July 2012), 473–480, ISBN: 978-1-4503-1177-9, https://doi.org/10.1145/2330163.2330231
43. Mario Garza-Fabre, Eduardo Rodriguez-Tello, and Gregorio Toscano-Pulido, "Multiobjectivizing the HP Model for Protein Structure Prediction," in *Evolutionary Computation in Combinatorial Optimization, 12th European Conference (EvoCOP 2012)*, ed. Jin-Kao Hao and Martin Middendorf (Malaga, Spain: Springer. LNCS Vol. 7245, April 2012), 182–193, ISBN: 978-3-642-35532-5, https://doi.org/10.1007/978-3-642-29124-1_16
44. Mario Alberto Villalobos-Arias, Gregorio Toscano Pulido, and Carlos A. Coello Coello, "A new mechanism to maintain diversity in multiobjective metaheuristics," *Optimization* 61, no. 7 (2012): 823–854, ISSN: 0233-1934, https://doi.org/10.1080/02331934.2010.534476
45. Gerardo Montemayor-Garcia and Gregorio Toscano-Pulido, "A Study of Surrogate Models for their use in Multiobjective Evolutionary Algorithms," in *2011 8th International Conference on Electrical Engineering, Computing Science and Automatic Control* (Merida City, Mexico: IEEE, October 2011), 1–6, https://doi.org/10.1109/ICEEE.2011.6106655
46. Jorge S. Hernandez Dominguez and Gregorio Toscano Pulido, "A Comparison on the Search of Particle Swarm Optimization and Differential Evolution on Multi-Objective Optimization," in *2011 IEEE Congress on Evolutionary Computation (CEC'2011)* (New Orleans, Louisiana, USA: IEEE Service Center, June 2011), 1978–1985, ISBN: 978-1-4244-7835-4, https://doi.org/10.1109/CEC.2011.5949858

47. Mario Garza-Fabre, Eduardo Rodriguez-Tello, and Gregorio Toscano-Pulido, "Comparing Alternative Energy Functions for the HP Model of Protein Structure Prediction," in *2011 IEEE Congress on Evolutionary Computation (CEC'2011)* (New Orleans, Louisiana, USA: IEEE Service Center, June 2011), 1972–1979, ISBN: 978-1-4244-7835-4, https://doi.org/10.1109/CEC.2011.5949902
48. Mario Garza-Fabre, Carlos A. Coello Coello Gregorio Toscano-Pulido, and Eduardo Rodriguez-Tello, "Effective Ranking + Speciation = Many-Objective Optimization," in *2011 IEEE Congress on Evolutionary Computation (CEC'2011)* (New Orleans, Louisiana, USA: IEEE Service Center, June 2011), 2115–2122, ISBN: 978-1-4244-7835-4, https://doi.org/10.1109/CEC.2011.5949876
49. Alan Diaz-Manriquez, Gregorio Toscano-Pulido, and Wilfrido Gomez-Flores, "On the Selection of Surrogate Models in Evolutionary Optimization Algorithms," in *2011 IEEE Congress on Evolutionary Computation (CEC'2011)* (New Orleans, Louisiana, USA: IEEE Service Center, June 2011), 2143–2150, ISBN: 978-1-4244-7835-4, https://doi.org/10.1109/CEC.2011.5949881
50. Gregorio Toscano-Pulido, Angelina Reyes-Medina, and Jose Ramirez-Torres, "A Statistical Study of the Effects of Neighborhood Topologies in Particle Swarm Optimization," in *Studies in Computational Intelligence*, ed. Kurosh Madani, António Correia, Agostinho Rosa, and Joaquim Filipe, vol. 343, Studies in Computational Intelligence (Springer Berlin / Heidelberg, 2011), 179–192, https://doi.org/10.1007/978-3-642-20206-3_12
51. Martin Nava-Ortiz, Wilfrido Gómez-Flores, Arturo Diaz-Perez, and Gregorio Toscano-Pulido, "Evaluation of Binarization Algorithms for Camera-Based Devices," in *Pattern Recognition. MCPR 2011*, ed. J.F. Martinez-Trinidad, J.A. Carrasco-Ochoa, C. Ben-Youssef Brants, and Hancock E.R. (Springer. LNCS Vol. 6718, 2011), 164–173, ISBN: 978-3-642-21586-5, https://doi.org/10.1007/978-3-642-21587-2_18
52. Alan Diaz-Manriquez, Gregorio Toscano Pulido, and Ricardo Landa Becerra, "A Long-term Memory Approach for Dynamic Multiobjective Evolutionary Algorithms," in *International Joint Conference on Computational Intelligence 2011 (ECTA-FCTA)*, ed. Agostinho C. Rosa, Janusz Kacprzyk, Joaquim Filipe, and António Dourado Correia (SciTePress, October 2011), 333–337, ISBN: 978-989-8425-83-6, http://dblp.uni-trier.de/db/conf/ijcci/ijcci2011-2.html
53. Jose Gabriel Ramirez-Torres, Gregorio Toscano-Pulido, Apolinar Ramirez-Saldivar, and Arturo Hernandez-Ramirez, "A Complete Closed-Form Solution to the Inverse Kinematics Problem for the P2Arm Manipulator Robot," in *2010 IEEE Electronics, Robotics and Automotive Mechanics Conference* (September 2010), 372–377, https://doi.org/10.1109/CERMA.2010.50
54. Mario Garza Fabre, Gregorio Toscano Pulido, and Carlos A. Coello Coello, "Two Novel Approaches for Many-Objective Optimization," in *2010 IEEE Congress on Evolutionary Computation (CEC'2010)*, ed. Hisao Ishibuchi et al. (Barcelona, Spain: IEEE Press, July 2010), 4480–4487, https://doi.org/10.1109/CEC.2010.5585930
55. Mario Garza-Fabre, Gregorio Toscano Pulido, and Carlos A. Coello Coello, "Alternative Fitness Assignment Methods for Many-Objective Optimization Problems," in *Artificial Evolution, 9th International Conference, Evolution Artificielle, EA 2009*, ed. P. Collet, N. Monmarché, P. Legrand, M. Schoenauer, and E. Lutton, (**Best paper award)** (Strasbourg, France: Springer. LNCS, Vol. 5975, 2010), 146–157, ISBN: 978-3-642-14155-3, https://doi.org/10.1007/978-3-642-14156-0_13
56. Alan Diaz-Manriquez, Gregorio Toscano Pulido, and Jose Gabriel Ramirez-Torres, "Handling Dynamic Multiobjective Problems with Particle Swarm Optimization," in *Second International Conference on Agents and Artificial Intelligence, ICAART*, ed. Joaquim Filipe, Ana Fred, and Bernadette Sharp (Valencia, Spain, January 2010), 337–342
57. Mario Garza Fabre, Gregorio Toscano Pulido, and Carlos A. Coello Coello, "Ranking Methods for Many-Objective Problems," in *MICAI 2009: Advances in Artificial Intelligence. 8th Mexican International Conference on Artificial Intelligence*, ed. Arturo Hernández Aguirre, Raúl Monroy Borja, and Carlos Alberto Reyes Garcia (Guanajuato, México: Springer. LNAI Vol. 5845, November 2009), 633–645, ISBN: 978-3-642-05257-6, https://doi.org/10.1007/978-3-642-05258-3_56
58. Angelina Jane Reyes Medina, Gregorio Toscano-Pulido, and Jose Gabriel Ramirez Torres, "A Comparative Study of Neighborhood Topologies for Particle Swarm Optimizers," in *IJCCI 2009: Proceedings of the International Joint Conference on Computational Intelligence*, ed. Dourado, A and Rosa, A and Madani, K (Av. D Manuel L, 27A 2 Esquerdo, Setubal, 2910-595, PORTUGAL: Inst Syst & Technol Informat, Control & Communication; Int Fuzzy Syst Assoc, INSTICC-INST, 2009), 152–159, ISBN: 978-989-674-014-6
59. Ezra Federico Parra-Gonzalez, Gabriel Ramirez-Torres, and Gregorio Toscano-Pulido, "A New Object Path Planner for the Box Pushing Problem," in *2009 Electronics, Robotics and Automotive Mechanics Conference (CERMA)* (IEEE, September 2009), 119–124, ISBN: 978-0-7695-3799-3, https://doi.org/10.1109/CERMA.2009.54
60. Ezra Federico Parra-Gonzalez, Gabriel Ramirez-Torres, and Gregorio Toscano-Pulido, "Motion Planning for Cooperative Multi-robot Box-Pushing Problem," in *Advances in Artificial Intelligence (IBERAMIA 2008)*, ed. H. Geffner, R. Prada, I. Machado Alexandre, and N. David (Lisbon, Portugal: Springer, LNCS vol 5290, 2008), 382–391, ISBN: 978-3-540-88309-8, https://doi.org/10.1007/978-3-540-88309-8_39
61. Juan C. Elizondo-Leal, Gabriel Ramirez-Torres, and Gregorio Toscano Pulido, "Multi-robot Exploration and Mapping Using Self Biddings and Stop Signals," in *Mexican International Conference in Artificial Intelligence (MICAI 2008)*, ed. E.F. Morales A. Gelbukh (Springer. LNCS vol 5317, 2008), 615–625, ISBN: 978-3-540-88636-5, https://doi.org/10.1007/978-3-540-88636-5_59

62. Juan C. Elizondo-Leal, Gabriel Ramirez-Torres, and Gregorio Toscano Pulido, "Multi-robot Exploration and Mapping Using Self Biddings," in *Advances in Artificial Intelligence (IBERAMIA 2008)*, ed. H. Geffner, R. Prada, I. Machado Alexandre, and N. David (Lisbon, Portugal: Springer. LNCS vol 5290, 2008), 392–401, https://doi.org/10.1007/978-3-540-88309-8_40
63. Israel Vite-Silva, Nareli Cruz-Cortes, Gregorio Toscano-Pulido, and Luis G. de la Fraga, "Optimal Triangulation in 3D Computer Vision Using a Multi-objective Evolutionary Algorithm," in *Applications of Evolutionary Computing. EvoWorkshops 2007: EvoCOMNET, EvoFIN, EvoIASP, EvoINTERACTION, EvoMUSART, EvoSTOC and EvoTRANSLOG*, ed. Mario Giacobini et al. (Valencia, Spain: Springer. LNCS vol. 4448, April 2007), 330–339, ISBN: 978-3-540-71804-8, https://doi.org/10.1007/978-3-540-71805-5_36
64. Oliver Schutze, El Ghazali Talbi, Gregorio Toscano Pulido, Carlos Coello Coello, and L. V. Santana-Quintero, "A Memetic PSO Algorithm for Scalar Optimization Problems," in *2007 IEEE Swarm Intelligence Symposium*, ed. Yuhui Shi and Marco Dorigo (Honolulu, Hawaii, USA, April 2007), 128–134, ISBN: 1-4244-0708-7, https://doi.org/10.1109/SIS.2007.368036
65. Gregorio Toscano-Pulido, Carlos A. Coello Coello, and Luis Vicente Santana-Quintero, "EMOPSO: A Multi-Objective Particle Swarm Optimizer with Emphasis on Efficiency," in *Evolutionary Multi-Criterion Optimization, 4th International Conference, EMO 2007*, ed. Shigeru Obayashi, Kalyanmoy Deb, Carlo Poloni, Tomoyuki Hiroyasu, and Tadahiko Murata (Matshushima, Japan: Springer. LNCS Vol. 4403, March 2007), 272–285, ISBN: 978-3-540-70927-5, https://doi.org/10.1007/978-3-540-70928-2_23
66. Carlos A. Coello Coello and Gregorio Toscano Pulido, "Multiobjective Structural Optimization using a Micro-Genetic Algorithm," *Structural and Multidisciplinary Optimization* 30, no. 5 (November 2005): 388–403, ISSN: 1615-147X, https://doi.org/10.1007/s00158-005-0527-z
67. Mario Alberto Villalobos-Arias, Gregorio Toscano Pulido, and Carlos A. Coello Coello, "A Proposal to Use Stripes to Maintain Diversity in a Multi-Objective Particle Swarm Optimizer," in *2005 IEEE Swarm Intelligence Symposium (SIS'05)*, ed. P. Arabshahi and A. Martinoli (Pasadena, California, USA: IEEE Press, June 2005), 22–29, https://doi.org/10.1109/SIS.2005.1501598
68. Carlos A. Coello Coello, Gregorio Toscano Pulido, and Efrén Mezura Montes, "Current and Future Research Trends in Evolutionary Multiobjective Optimization," in *Information Processing with Evolutionary Algorithms: From Industrial Applications to Academic Speculations*, ed. Manuel Graña, Richard Duro, Alicia d'Anjou, and Paul P. Wang (Springer-Verlag, 2005), 213–231, ISBN: 978-1-85233-866-4, https://doi.org/10.1007/1-84628-117-2_15
69. Gregorio Toscano Pulido and Carlos A. Coello Coello, "A Constraint-handling Mechanism for Particle Swarm Optimization," in *Proceedings of the 2004 Congress on Evolutionary Computation (IEEE Cat. No.04TH8753)*, ed. Xin Yao et al., vol. 2 (June 2004), 1396–1403 Vol.2, ISBN: 0-7803-8515-2, https://doi.org/10.1109/CEC.2004.1331060
70. Gregorio Toscano Pulido and Carlos A. Coello Coello, "Using Clustering Techniques to Improve the Performance of a Particle Swarm Optimizer," in *Genetic and Evolutionary Computation–GECCO 2004. Proceedings of the Genetic and Evolutionary Computation Conference. Part I*, ed. Kalyanmoy Deb et al. (Seattle, Washington, USA: Springer-Verlag, LNCS Vol. 3102, June 2004), 225–237, ISBN: 978-3-540-22344-3, https://doi.org/10.1007/978-3-540-24854-5_20
71. Carlos A. Coello Coello, Gregorio Toscano Pulido, and Maximino Salazar Lechuga, "Handling Multiple Objectives With Particle Swarm Optimization," *IEEE Transactions on Evolutionary Computation* 8, no. 3 (June 2004): 256–279, ISSN: 1089-778X, https://doi.org/10.1109/TEVC.2004.826067
72. Carlos A. Coello Coello, Gregorio Toscano Pulido, and Arturo Hernandez Aguirre, "Multi-Objective Evolutionary Algorithms for Structural Optimization," in *Computational Fluid and Solid Mechanics 2003. Proceedings of the Second MIT Conference on Computational Fluid and Solid Mechanics*, ed. K.J. Bathe, vol. 2 (The Netherlands: Elsevier, June 2003), 2244–2248, https://doi.org/10.1007/s00158-005-0527-z
73. Gregorio Toscano Pulido and Carlos A. Coello Coello, "The Micro Genetic Algorithm 2: Towards Online Adaptation in Evolutionary Multiobjective Optimization," in *Evolutionary Multi-Criterion Optimization. Second International Conference, EMO 2003*, ed. Carlos M. Fonseca, Peter J. Fleming, Eckart Zitzler, Kalyanmoy Deb, and Lothar Thiele (Faro, Portugal: Springer. LNCS. Volume 2632, April 2003), 252–266, https://doi.org/10.1007/3-540-36970-8_18
74. Carlos A. Coello Coello and Gregorio Toscano Pulido, "Multiobjective Optimization using a Micro-Genetic Algorithm," in *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO'2001)*, ed. Lee Spector, Erik D. Goodman, Annie Wu, W.B. Langdon, Hans-Michael Voigt, Mitsuo Gen, Sandip Sen, Marco Dorigo, Shahram Pezeshk, Max H. Garzon, and Edmund Burke (San Francisco, California: Morgan Kaufmann Publishers, 2001), 274–282, ISBN: 1-55860-774-9
75. Carlos A. Coello Coello and Gregorio Toscano Pulido, "A Micro-Genetic Algorithm for Multiobjective Optimization," in *First International Conference on Evolutionary Multi-Criterion Optimization*, ed. Eckart Zitzler, Kalyanmoy Deb, Lothar Thiele, Carlos A. Coello Coello, and David Corne (Springer-Verlag. LNCS No. 1993, 2001), 126–140, ISBN: 978-3-540-44719-1, https://doi.org/10.1007/3-540-44719-9_9