



INFORME DE PUBLICACIONES 2013-2017 POR LÍNEA DE INVESTIGACIÓN

INTELIGENCIA COMPUTACIONAL Y OPTIMIZACIÓN AVANZADA

- a) Artículos publicados en extenso en revistas de prestigio internacional, con arbitraje estricto

2013

1. **Himer Avila-George, Jose Torres-Jimenez, Loreto Gonzalez-Hernandez^D, Vicente Hernández.** Metaheuristic approach for constructing functional test-suites. *IET Software*. 2013, 7(2):104-117.
2. **Nelson Rangel-Valdez^D and Jose Torres-Jimenez.** Constraint models for the bandwidth minimization problem. *Scientific Research and Essays*. 2013, 8(37):1775-1779.
3. **Charles J. Colbourn and Jose Torres-Jimenez.** Profiles of covering arrays of strength two. *Journal of Algorithms and Computation*. 2013, Vol. 44, pp. 31-59.
4. **Mario Garza-Fabre^D, 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*. 2013, 28(5):868-889.

2015

1. **Gonzalez-Hernandez, Loreto.** New bounds for mixed covering arrays in t-way testing with uniform strength. *Information and Software Technology*, Volumen: 59 Páginas: 17-32, 2015.
2. **Nelson Rangel-Valdez, Jose Hugo Barron-Zambrano^D, Cesar Torres-Huitzil, Jose Torres-Jimenez,** An efficient FPGA architecture for integer n-th root computation, *International Journal of Electronics*, 2015. Vol. 102, No. 10, 1675-1694.
3. Marcela Quiroz-Castellanos, Laura Cruz-Reyes, Jose Torres-Jimenez, Claudia Gómez S., Héctor J. Fraire Huacujaa, Adriana C.F. Alvim, A grouping genetic algorithm with controlled gene transmission for the bin packing problem, *Computers & Operations Research* Volume 55, March 2015, Pages 52–64
4. **Bernal, J., Torres-Jimenez, J.,** SAGRAD: A Program for Neural Network Training with Simulated Annealing and the Conjugate Gradient Method, *Journal of Research of the National Institute of Standards and Technology*, Vol. 120, 113-128, June 17, 2015
5. **Jose Torres-Jimenez, Idelfonso Izquierdo-Marquez^D, Raghu N. Kacker, D. Richard Kuhn,** Tower of covering arrays, *Discrete Applied Mathematics*, Volumes 190, pp. 141-146, 2015.
1. **Jose Torres-Jimenez, Idelfonso Izquierdo-Marquez^D, Alberto Garcia-Robledo^D,**



- Aldo Gonzalez-Gomez^M, Javier Bernal, Raghu N. Kacker**, A dual representation simulated annealing algorithm for the bandwidth minimization problem on graphs. *Information Sciences*, Volume 303, 2015, Pages 33-49, 2015.
- Eduardo Rodriguez-Tello, Hillel Romero-Monsivais^M, Gabriel Ramírez-Torres and Frederic Lardeux**, Tabu Search for the Cyclic Bandwidth Problem, *Computers & Operations Research*, 57:17-32, 2015.
 - Mario Garza-Fabre^D, Eduardo Rodriguez-Tello and Gregorio Toscano-Pulido**. Constraint-Handling Through Multi-Objective Optimization: the Hydrophobic-Polar Model for Protein Structure Prediction, *Computers & Operations Research*, 53:128-153, 2015.
 - Eduardo Rodriguez-Tello, Jin-Kao Hao and Hillel Romero-Monsivais^M**. Boosting the Performance of Metaheuristics for the MinLA Problem Using a More Discriminating Evaluation Function. *Tehnicki Vjesnik - Technical Gazette*, 22(1):11-24, University of Osijek, Croatia, February 2015.
 - Mario Garza-Fabre^D, 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(2):405-422, 2015.
 - Javier Rubio-Loyola, Gregorio Toscano-Pulido, Marinos Charalambides, Marisol Magaña-Aguilar^M, Joan Serrat George Pavlou, Hiram Galeana-Zapién**. Business-driven policy optimization for service management, *International Journal of Network Management*, Volume 25, No. 2, Páginas: 113–140, 2015.

2016

- Oliver Schütze, Christian Domínguez-Medin, Nareli Cruz-Cortés, 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*, Vol. 48, No. 9, pp. 1593-1617. Taylor Francis, Jan 2016.
- Gregorio Toscano, Ricardo Landa, Giomara Lárraga^D**, and Guillermo Leguizamón, On the use of stochastic ranking for parent selection in differential evolution for constrained optimization, *Soft Computing* (2016), doi:10.1007/s00500-016-2073-6, Springer.
- Alan Díaz-Manríquez, **Gregorio Toscano**, and Carlos A. Coello Coello, Comparison of metamodeling techniques in evolutionary algorithms, *Soft Computing* (2016), DOI:10.1007/s00500-016-2140-z, Springer.
- Alan Díaz-Manríquez, **Gregorio Toscano**, Jose Hugo Barron-Zambrano, and Edgar Tello-Leal, “A Review of Surrogate Assisted Multiobjective Evolutionary Algorithms,” *Computational Intelligence and Neuroscience*, vol. 2016, Article ID 9420460, 14 pages, 2016. doi:10.1155/2016/9420460.
- Alan Díaz-Manríquez, **Gregorio Toscano**, Jose Hugo Barron-Zambrano, and Edgar Tello-Leal1, R2-Based Multi/Many-Objective Particle Swarm Optimization, *Computational Intelligence and Neuroscience*, vol. 2016, Article ID 1898527, 10 pages, 2016. doi:10.1155/2016/1898527.
- Oliver Schütze, Sergio Alvarado, Carlos Segura, **Ricardo Landa**. Gradient subspace



approximation: a direct search method for memetic computing. *Soft Computing* (2016). DOI 10.1007/s00500-016-2187-x.

7. J. C. Elizondo Leal; **J. G. Ramirez Torres**; **E. Rodriguez Tello**; J. R. Martinez Angulo. Multi-robot Exploration Using Self-Biddings under Constraints on Communication Range. *IEEE Latin America Transactions*, 14(2):971-982, DOI: 10.1109/TLA.2016.7437248, IEEE Press, February 2016.
8. **Torres-Jimenez, Jose**, Avila-George, Himer, **Izquierdo-Marquez, Idelfonso^D**, A two-stage algorithm for combinatorial testing, *Optimization Letters*, 2016, pp. 1-13. doi:10.1007/s11590-016-1012-x.
9. **Torres-Jimenez, Jose**, **Izquierdo-Marquez, Idelfonso^D**, Construction of non-isomorphic covering arrays, *Discrete Mathematics, Algorithms and Applications*, Vol. 8, No. 2 (2016) 1650033 (24 pages). DOI: 10.1142/S1793830916500336

2017

1. **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* 2017: 1-16
2. **Jose Carlos Perez-Torres and Jose Torres-Jimenez**. A graph-based postoptimization approach for covering arrays. *Quality and Reliability Engineering International* 2017: 1-10
3. **Jose Torres-Jimenez and Arturo Rodriguez-Cristerna**. Metaheuristic post-optimization of the NIST repository of covering arrays. *Transactions on Intelligence Technology* 2017: 31-38
4. **Jose Torres-Jimenez, Idelfonso Izquierdo-Marquez, Daniel Ramirez-Acuna and Rene Peralta**. Near-optimal algorithm to count occurrences of subsequences of a given length. *Discrete Mathematics, Algorithms and Applications* 2017 9(3): 10
5. **Jose Torres-Jimenez, Jose Carlos Perez-Torres and Gildardo Maldonado-Martinez**. hClique: An exact algorithm for maximum clique problem in uniform hypergraphs. *Discrete Mathematics Algorithms and Applications* 2017 9(6): 14

b) Artículos publicados en extenso en otras revistas especializadas, con arbitraje

Ninguno en el periodo 2013 a 2017.

c) Publicados en extenso en memorias de congresos internacionales, con arbitraje estricto

2013



1. **Carlos Ansótegui, Idelfonso Izquierdo^M, Felip Manyá, José Torres Jiménez.** A Max-SAT-Based Approach to Constructing Optimal Covering Arrays. *Congreso Internacional de la Asociación Catalana de Inteligencia Artificial 2013*, Ciudad de Vic, Barcelona España, 23, 24 y 25 de octubre de 2013, pp. 51-59.

IEEE Conference on Evolutionary Computation (CEC'2013). Cancún, Quintana Roo, México, Junio 2013, IEEE Press.

1. **Alan Díaz-Manríquez^D, Gregorio Toscano-Pulido and Ricardo Landa-Becerra.** A Hybrid Local Search Operator for Multiobjective Optimization. pp. 173-180.
2. **Ricardo Landa, Carlos A. Coello Coello and Gregorio Toscano-Pulido.** Goal-constraint: Incorporating preferences through an evolutionary epsilon-constraint based method. pp. 741-747.
3. **Alan Díaz-Manríquez^D, Gregorio Toscano-Pulido, Carlos A. Coello Coello, Ricardo Landa-Becerra.** A Ranking Method Based on the R2 indicator for Many-Objective Optimization. pp. 1523-1530.
4. **Alan Díaz-Manríquez^D, Gregorio Toscano-Pulido and Ricardo Landa-Becerra.** On the use of a BSP Tree to create local surrogate models. pp. 2540-2547.
5. **Mario Garza-Fabre^D, Gregorio Toscano-Pulido and Eduardo Rodríguez-Tello.** Handling Constraints in the HP Model for Protein Structure Prediction by Multiobjective Optimization. pp. 2728-2735.

2014

1. **Vázquez-Ortiz K. E.^M, Richer J.-M., Lesaint D. and Rodriguez-Tello E.** A Bottom-Up Implementation of Path-Relinking for Phylogenetic Reconstruction Applied to Maximum Parsimony. *Proceedings of the IEEE Symposium Series on Computational Intelligence 2014*. Orlando, FL, USA, December 9-12, IEEE Press, 2014, pp. 157-163, ISBN: 978-1-4799-4468-2.
2. **Pedro Reta^M, Ricardo Landa.** Feature Selection for Problem Decomposition on High Dimensional Optimization. *2014 IEEE Symposium Series on Computational Intelligence*. Orlando, Florida, E.E.U.U., 9 a 12 de diciembre, 2014, pp. 298–304.
3. **Arturo Rodriguez-Cristerna^D, Jose Torres-Jimenez, W. Gómez, W. C. A. Pereira.** Construction of mixed covering arrays using a combination of simulated annealing and variable neighborhood search. *3rd International Conference dedicated to Variable Neighborhood Search*. Djerba, Túnez, 8 a 11 de octubre, 2014: 1-8.

2015

1. **A. Rodriguez-Cristerna^D, J. Torres-Jimenez, W. Gómez, W. C. A. Pereira.** Construction of mixed covering arrays using a combination of simulated annealing and variable neighborhood search, *The 3rd International Conference on Variable Neighborhood Search (VNS'14), Electronic Notes in Discrete Mathematics*, 2015, 47: 109–116.
2. **D. Richard Kuhn, Raghu N. Kacker, Yu Lei, and Jose Torres-Jimenez,** Equivalence



Class Verification and Oracle-free Testing Using Two-layer Covering Arrays, 2015 *IEEE Eighth International Conference on Software Testing, Verification and Validation Workshops (ICSTW)*, 13-17 April 2015, Graz, Austria. 4 páginas.

3. **Jose Torres-Jimenez, Idelfonso Izquierdo-Marquez^D, Aldo Gonzalez-Gomez^M, and Himer Avila-George**, A Branch & Bound Algorithm to Derive a Direct Construction for Binary Covering Arrays, G. Sidorov and S.N. Galicia-Haro (Eds.): 14th Mexican International Conference on Artificial Intelligence, MICAI 2015, Cuernavaca, Mexico, 25-31 Oct. 2015. Part I, LNAI 9413, pp. 158–177. Cuernavaca, Morelos, México, Octubre 25-31, 2015. *Advances in Artificial Intelligence and Soft Computing*, LNCS 9413.

2016

1. **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), IEEE Press, Vancouver, Canada, 24-29 July 2016. pp. 4358-4365.

2017

1. **Kalyanmoy Deb , Rayan Hussein , Proteek Roy and Gregorio Toscano**. *Classifying Metamodeling Methods for Evolutionary Multi-objective Optimization: First Results*. p. 160–175. *9th International Conference on Evolutionary Multi-Criterion Optimization - Volume 10173. EMO 2017* 2017-03-19 - 2017-03-22 Münster, Germany.

d) **Publicados en extenso en memorias de congresos locales, con arbitraje.**

2016

1. A.O. Flores Olivas, L. C. González Gurrola, **E. Rodriguez Tello**. *Aceleración en GPU de un algoritmo de Evolución Diferencial para el Problema de Inferencia en Redes Reguladoras de Genes*. Memorias del Encuentro Nacional de Ciencias de la Computación (ENC 2016). Chihuahua, México, noviembre 14–16 de 2016, pp. 126–129, ISBN: 978-607-9424-94-7.

e) **Capítulos de investigación original en extenso en libros especializados publicados por una casa editorial reconocida.**

2013



1. **Loreto Gonzalez-Hernandez, Jose Torres-Jimenez and Nelson Rangel-Valdez.** MiTS in depth: an analysis of distinct Tabu Search configurations for Constructing Mixed Covering Arrays. *Artificial Intelligence, Evolutionary Computing and Metaheuristics*. Yang, Xin-She (Ed): Springer, Berlin, Heidelberg, Vol.427, pp. 371-402, 2013.
2. **Arturo Rodriguez-Cristerna^D and Jose Torres-Jimenez.** A Genetic Algorithm for the Problem of Minimal Brauer Chains. *Recent Advances on Hybrid Intelligent Systems*. O. Castillo et al. (Eds.): Springer Berlin Heidelberg, Vol. 451, pp. 481-500, 2013
3. **Arturo Rodriguez-Cristerna^D and Jose Torres-Jimenez.** A Genetic Algorithm for the Problem of Minimal Brauer Chains for Large Exponents. *Soft Computing Applications in Optimization, Control, and Recognition, STUDEFUZZ 294*, P. Melin, O. Castillo (Eds.): Springer Berlin Heidelberg, pp.27-51, 2013

2016

1. **Jose Torres-Jimenez** and Himer Avila-George. Search-Based Software Engineering to Construct Binary Test-Suites. J. Mejia et al. (eds.), *Trends and Applications in Software Engineering: Advances in Intelligent Systems and Computing 405*, pp 201-212 (12 páginas), 2016.

f) **Libros especializados que cubran el trabajo del investigador, publicados por una casa editorial reconocida.**

1. **Avila-George Himer, Torres-Jimenez Jose,** Construction of Test-Suites, LAP Lambert Academic Publishing (April 8, 2015), ISBN-10: 3659625728.

g) **Reportes finales de un paquete de desarrollo tecnológico**

Ninguno en el periodo 2013 a 2017.

h) **Reportes de diseño, innovación y desarrollo de nuevos productos o procesos.**

Ninguno en el periodo 2013 a 2017.

i) **Reportes de técnicos finales de asesorías industriales.**

Ninguno en el periodo 2013 a 2017.

j) **Patentes Otorgadas**

Ninguna en el periodo 2013 a 2017.

k) **Desarrollos educativos y sociales**



Ninguno en el periodo 2013 a 2017.

l) Divulgación Científica

1. **Torres-Jimenez J., Rodriguez-Cristerna A^D.**, Diseño automático de pruebas funcionales, Komputer Sapiens Año VI, Vol. II. Mayo 2014, pp. 18-22

m) Programas de computación con derechos de autor

2013

1. Jesús Antonio Del Río Portilla (25%), Silvia Melbi Gaona Jiménez (40%), Juan Manuel Hurtado Ramírez (10%), Eduardo Arturo Rodríguez Tello (25%). Diseño e implementación de un programa para la actualización de docentes de nivel medio superior en las áreas de físico-matemáticas y naturales. Consiste de 28 códigos de cómputo, 2 instructivos y 5 diseños instruccionales publicados en línea. Desarrollado para la Secretaría de Educación del Estado de Morelos. Número de Registro: 03-2013-102810223000-01, 7 de noviembre de 2013.