

PRODUCTIVIDAD ACADÉMICA DEL DOCTORADO EN SISTEMAS INTELIGENTES

A continuación, se presenta una lista de productos generados (publicaciones en revistas listadas en el reporte Journal Citation Report - JCR) dentro de cada una de las líneas de investigación desde el 2014, año de inicio de operación del programa. Los nombres de los profesores del núcleo básico, profesores asociados y estudiantes aparecen en negritas.

Profesores del núcleo académico básico: *Roberto Rosas-Romero, Vicente Alarcón-Aquino, Oleg Starostenko-Basarab, Jorge Rodríguez-Asomoza, Rocío Salazar-Varas, Juan-Antonio Díaz García, Juan Horacio Espinoza Rodríguez, Gibran Etcheverry Doger, Michael William Smith, Zobeida Jezabel Guzmán Zavaleta, Maxim Ivanov Todorov, Mireya Paredes López.*

Profesores asociados: *Roger Z. Ríos-Mercado, Dolores-Edwiges Luna-Reyes, José-Alfredo Sánchez-Huitrón.*

Estudiantes: *Omar López-Rincón, Héctor-Miguel Camarillo-Abad, Lizbeth Peralta-Malvárez, María-Gabriela Sandoval-Esquivel, Luis-Oswaldo Valencia-Rosado, Gabriel Solana-Lavalle.*

Línea de Investigación - Sistemas Biomédicos

G. Solana-Lavalle, J. C. Galán-Hernández, R. Rosas-Romero, "Automatic Parkinson disease detection at early stages as pre-diagnosis tool by using classifiers and a small set of vocal features", [Biocybernetics and Biomedical Engineering](#), vol. 40, no. 1, pp. 505-516, 2020 ([paper](#)).

E. Guevara, J. A. Flores-Castro, K. Peng, D. K. Nguyen, F. Lesage, P. Pouliot, **R. Rosas-Romero,** "Prediction of epileptic seizures using fNIRS and machine learning", [Journal of Intelligent & Fuzzy Systems](#), vol. 38, no. 2, pp. 2055-2068, vol. 38, no. 2, 2020 ([paper](#)).

Alejandro Lopez-Rincón, Cesar Cantu, **Gibran Etcheverry,** Rogelio Soto, Shingo Shimoda, "Function based brain modeling and simulation of an ischemic region in post-stroke patients using the bidomain", [Journal of Neuroscience Methods](#), vol. 331, 2020.

R. Rosas-Romero, E. Guevara, K. Peng, D. K. Nguyen, F. Lesage, P. Pouliot, E. W. Lima-Saad, "Prediction of epileptic seizures with convolutional neural networks and functional near-infrared spectroscopy signals", [Computers in Biology and Medicine](#), vol. 111, no. 103355, 2019 ([paper](#)).

Rocío Salazar-Varas, Roberto A. Vazquez, "[Evaluating the effect of the cutoff frequencies during the pre-processing stage of motor imagery EEG signals classification](#)", *Biomedical Signal Processing and Control*, vol. 54, 2019.

Rocío Salazar-Varas, Roberto A. Vazquez, "[Facing high EEG signals variability during classification using fractal dimension and different cutoff frequencies](#)", *Computational Intelligence and Neuroscience*, 2019.

M. Ríos-Ramírez, **Juan-Horacio Espinoza-Rodríguez,** J. C. Ruiz-Suárez, H. Mercado-Uribe, "[The effect of green light on the motility of mouse sperm at two different temperatures](#)", *Photochemical & Photobiological Sciences*, vol. 18, no. 12, pp. 2893-2900, 2019.

E. Juárez-Guerra, **V. Alarcon-Aquino,** P. Gómez-Gil, J. M. Ramírez-Cortés, E. S. García-Treviño, "**A new Wavelet-based neural network for classification of epileptic-related states using EEG**", *Journal of Signal Processing Systems*, 2019 ([pdf](#)).

J. Hernández-Capistrán, J. Martínez-Carballido, **R. Rosas-Romero**, "False positive reduction by an annular model as a set of few features for microcalcification detection to assist early diagnosis of breast cancer", [Journal of Medical Systems](#), vol. 42, no. 134, pp. 1-9, 2018 ([paper](#)).

Rocío Salazar-Varas, Roberto A. Vázquez, "Evaluating spiking neural models in the classification of motor Imagery EEG signals using short calibration sessions", *Applied Soft Computing*, 67, 2018.

L. Peralta-Malvárez, **O. López-Rincón**, E. D. Rojas-Velázquez, **L. O. Valencia-Rosado**, **R. Rosas-Romero**, **G. Etecheverry**, "Newborn cry nonlinear features extraction and classification", [Journal of Intelligent & Fuzzy Systems](#), vol. 34, no. 5, pp. 3281-3289, 2018 ([paper](#)).

José A. Gaxiola-Tirado, **Rocío Salazar-Varas**, Dania Gutiérrez, "Using the partial directed coherence to assess functional connectivity in electroencephalography data for brain-computer interfaces", *IEEE Transactions on Cognitive and Developmental Systems*, pp. 2379-8920, 2017.

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Alvaro Costa, **Rocío Salazar-Varas**, Andrés Ubeda, José M. Azorín, "Characterization of artifacts produced by gel displacement on non-invasive brain-machine interfaces during ambulation", *Frontiers in Neuroscience*, 10 (30), 2016.

Rocío Salazar-Varas, Á. Costa, E. Iáñez, A. Úbeda, E. Hortal, J. M. Azorín, "[Analyzing EEG signals to detect unexpected obstacles during walking](#)", *Journal of neuroengineering and rehabilitation*, vol. 12, no. 1, 2015.

Rocío Salazar-Varas, David Gutiérrez, "[An optimized feature selection and classification method for using electroencephalographic coherence in brain-computer interfaces](#)", *Biomedical Signal Processing and Control*, vol. 18, pp. 11-18, 2015.

R. Rosas-Romero, J. Martínez-Carballido, J. Hernández-Capistrán, L. J. Uribe-Valencia, "A method to assist in the diagnosis of early diabetic retinopathy: Image processing applied to detection of microaneurysms in fundus images", [Computerized Medical Imaging and Graphics](#), vol. 44, pp. 41-53, 2015 ([paper](#)).

R. Rosas-Romero, H. D. Tagare, "Segmentation of endocardium in ultrasound images based on sparse representation over learned redundant dictionaries", [Journal of Engineering Applications of Artificial Intelligence](#), vol. 29, pp. 201-210, 2014 ([paper](#)).

Línea de Investigación - Procesamiento de Señales

J. E. Garcia-Bracamonte, J. M. Ramirez-Cortes, J. de Jesus Rangel-Magdalen, P. Gomez-Gil, H. Peregrina-Barreto and **V. Alarcon-Aquino**, "An approach on MCSA-based fault detection using independent component analysis and neural networks", *IEEE Transactions on Instrumentation and Measurement*, vol. 68, no. 5, 2019 ([pdf](#)).

J. C. Sánchez-Díaz, J. M. Ramírez-Cortés, P. Gómez-Gil, P. Rodríguez-Montero, **V. Alarcón-Aquino**, and J. P. Escamilla Ambrosio, "[Bernoulli-Euler finite-element modelling of vibration modes on axisymmetric containers for level measurement](#)", *IEEE Latin America Transactions*, vol. 17, no. 2, pp. 330-337, 2019 ([pdf](#)).

O. Starostenko-Basarab, C. Pérez-Cruz, **V. Alarcón-Aquino**, **R. Rosas-Romero**, "Real-time facial expression recognition using local appearance-based descriptors", [Journal of Intelligent & Fuzzy Systems](#), vol. 36, no. 5, pp. 5037-5049, 2019 ([paper](#)).

E. S. Garcia-Trevino, V. Alarcon-Aquino, J. A. Barria, "The radial wavelet frame density estimator", *Computational Statistics & Data Analysis Volume 130, Pages 111-139, 2019* ([pdf](#)).

Omar Lopez-Rincon, Oleg Starostenko-Basarab, "[Music visualization based on spherical projection with adjustable metrics](#)", IEEE Access, vol. 7, pp. 140344-140354, 2019.

Arizbeth Pérez, Tatyana Poznyak, Isaac Chairez, Z. Jezabel Guzmán-Zavaleta, Mariel Alfaro-Ponce, "[Influence of sodium sulfate on the direct red 28 degradation by ozone in a wastewater recycling process: A stoichiometric and novel image analysis](#)", *Ozone: Science & Engineering*, 2019.

Z. Jezabel Guzman-Zavaleta, Claudia Feregrino-Urbe, "[Partial-copy detection of non-simulated videos using learning at decision level](#)", *Multimedia Tools and Applications*, vol. 78, no. 2, 2019.

R. Rosas-Romero, O. López-Rincón, O. Starostenko-Basarab, "Fully automatic alpha matte extraction using artificial neural networks", [Neural Computing & Applications](#), 2019 ([paper](#)).

J. C. Galan-Hernandez, V. Alarcon-Aquino, O. Starostenko-Basarab, J. M. Ramirez-Cortes, Pilar Gomez-Gil, "Wavelet-based frame video coding algorithms using fovea and SPECK", *Engineering Applications of Artificial Intelligence*, Vol. 69, Pages 127–136, 2018 ([pdf](#)).

L. A. González-Mondragón, L. J. Quintero-Rodríguez, A. G. Correa-Mena, J. Rodríguez-Asomoza, A. García-Juárez, A. L. Leal-Cruz, I. E. Zaldívar-Huerta, "[Tuning of the free spectral range of a fiber optic Notch filter using a dispersive link](#)", *Laser Science*, 2018.

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R. Rosas-Romero, A. Díaz-Torres, G. Etcheverry-Doger, "Forecasting of stock return prices with sparse representation of financial time series over redundant dictionaries", [Expert Systems with Applications](#), vol. 57, pp. 37-48, 2016 ([paper](#)).

I. E. Zaldívar-Huerta, A. G. Correa-Mena, P. Hernández-Nava, A. García-Juárez, Jorge Rodríguez-Asomoza, Min Won Lee. "Demonstration and experimental evaluation of a bi-directional 10-GHz microwave photonic filter". *Optics & Laser Technology*, 2016.

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D. Rico-Aniles, J. M. Ramirez-Cortes, J. Rangel-Magdaleno, P. Gomez-Gil, H. Peregrina-Barreto and V. Alarcon-Aquino, "MATLAB and FPGA-based interactive tool for exploring concepts on compressed sensing", *Computer Applications in Engineering Education, Volume 23, Issue 6, pages 921–930, November 2015* ([pdf](#)).

O. Starostenko-Basarab, C. Cruz-Perez, F. Uceda-Ponga, and V. Alarcon-Aquino, "Breaking text-based CAPTCHAs with variable word and character orientation", *Pattern Recognition, Vol. 48, No. 4, 2015* ([pdf](#)).

G. Castro-Muñoz, J. Martínez-Carballido, R. Rosas-Romero, "A human action recognition approach with a novel reduced feature set based on the natural domain knowledge of the human figure", [Journal of Signal Processing: Image Communication](#), vol. 30, pp. 190-205, 2015 ([paper](#)).

R. Rosas-Romero, "Remote detection of forest fires from video signals with classifiers based on K-SVD learned dictionaries", [Journal of Engineering Applications of Artificial Intelligence](#), vol. 33, pp. 1-11, 2014 ([paper](#)).

V. Alarcon-Aquino, J. M. Ramirez-Cortes, P. Gomez-Gil, O. Starostenko, Y. Garcia-Gonzalez, "Network intrusion detection using self-recurrent Wavelet Neural Networks with multidimensional radial wavelons", *Information Technology and Control*, Vol. 43, No. 4, 2014 ([pdf](#)).

J. M. Ramirez-Cortes, V. Alarcon-Aquino, P. Gomez-Gil, A. Diaz-Mendez, M. Ibarra, I. Garcia, "Interactive educational tool for compensators design in MATLAB using frequency response analysis", *Computer Applications in Engineering Education*, 22: 699–707, 2014 ([pdf](#)).

Línea de Investigación - Inteligencia Artificial

María-Gabriela Sandoval-Esquivel, Juan-Antonio Díaz-García, Roger Z. Ríos-Mercado, "An improved exact algorithm for a territory design problem with p-center-based dispersion minimization", *Expert Systems with Applications*, vol. 146, pp. 113-150, 2020.

Miguel A. Goberna, Juan Enrique Martínez-Legaz, Maxim Ivanov Todorov, "[On farthest Voronoi cells](#)", *Linear Algebra and its Applications*, vol. 583, pp. 306-322, 2019.

Juan Enrique Martínez-Legaz, Vera Roshchina, Maxim Ivanov Todorov, "[On the structure of higher order voronoi cells](#)", *Journal of Optimization Theory and Applications*, vol. 183, no. 1, pp. 24-49, 2019.

Hector-Miguel Camarillo-Abad, José-Alfredo Sánchez-Huitrón, Oleg Starostenko-Basarab, María-Gabriela Sandoval-Esquivel, "[A basic tactile language to support leader-follower dancing](#)", *Journal of Intelligent & Fuzzy Systems*, vol. 36, no. 5, pp. 5011-5022, 2019.

Mireya Paredes, Graham Riley, Mikel Luján, "[Exploiting parallelism and vectorisation in breadth-first search for the Intel Xeon Phi](#)", *IEEE Transactions on Parallel and Distributed Systems*, vol. 31, no. 1, pp. 111-128, 2019.

A. N. Iusem, Maxim Ivanov Todorov, "[On OM-decomposable sets](#)", *Computational and Applied Mathematics*, vol. 37, no. 3, pp. 2837-2844, 2018.

Juan-Antonio Díaz-García, Dolores-Edwiges Luna-Reyes, "GRASP with path relinking for the manufacturing cell formation problem considering part processing sequence", *Journal of the Operational Research Society*, vol. 69, no. 9, pp. 1493-1511, 2018.

Martha-Selene Casas-Ramírez, José-Fernando Camacho-Vallejo, Juan-Antonio Díaz-García, Dolores-Edwiges Luna-Reyes, "A bi-level maximal covering location problem", *Operational Research: an International Journal*, 2017.

Alberto Ferrer, Miguel A. Goberna, Enrique González-Gutiérrez, Maxim Ivanov Todorov, "[A comparative note on the relaxation algorithms for the linear semi-infinite feasibility problem](#)", *Annals of Operations Research*, vol. 258, no. 2, pp. 587-612, 2017.

Juan Enrique Martínez-Legaz, Maxim Ivanov Todorov, "[Weakly Motzkin predecomposable sets](#)", *Set-Valued and Variational Analysis*, vol. 25, no. 3, pp. 507-516, 2017.

Abraham B. Barragan, Lidia A. Hernandez, Maxim Ivanov Todorov, "[New primal-dual partition of the space of linear semi-infinite continuous optimization problems](#)", *Comptes rendus de l'Académie bulgare des Sciences*, vol. 69, no. 10, pp. 1263-1275, 2016.

Juan-Antonio Díaz-García, Dolores-Edwiges Luna-Reyes, "Primal and dual bounds for the vertex p-median problem with balance constraints", *Annals of Operations Research*, 2016.

O. Starostenko-Basarab, X. Cortés, J. A. Sánchez and V. Alarcon-Aquino, **Unobtrusive emotion sensing and interpretation in smart environment**, *Journal of Ambient Intelligence and Smart Environments*, vol. 7, no. 1, pp. 59-83, 2015 ([pdf](#)).

Mónica G. Elizondo-Amaya, Roger Z. Ríos-Mercado, Juan-Antonio Díaz-García, “A dual bounding scheme for a territory design problem”, *Computers & Operations Research*, vol. 44, pp. 193-205, 2014.

A continuación, se presenta una lista de productos generados (publicaciones en revistas listadas en el reporte Journal Citation Report - JCR) por cada Profesor desde el 2014, año de inicio de operación del programa.

Dr. Vicente Alarcón Aquino (SNI Nivel I)

E. Juárez-Guerra, V. Alarcón-Aquino, P. Gómez-Gil, J. M. Ramírez-Cortés, E. S. García-Treviño, “**A new Wavelet-based neural network for classification of epileptic-related states using EEG**”, *Journal of Signal Processing Systems*, 2019 ([pdf](#)).

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Dr. Juan Antonio Díaz García (SNI Nivel II)

María-Gabriela Sandoval-Esquivel, Juan-Antonio Díaz-García, Roger Z. Ríos-Mercado, "An improved exact algorithm for a territory design problem with p-center-based dispersion minimization", *Expert Systems with Applications*, vol. 146, pp. 113-150, 2020.

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Dra. Mireya Paredes López

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Dr. Jorge Rodríguez Asomoza (SNI Nivel I)

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Dr. Roberto Rosas Romero (SNI Nivel I)

G. Solana-Lavalle, R. Rosas-Romero, "Classification of PPMI MRI scans with voxel-based morphometry and machine learning to assist in the diagnosis of Parkinson's disease", [Computer Methods and Programs in Biomedicine](#), vol. 198, no. 105793, 2021 ([paper](#)).

G. Solana-Lavalle, J. C. Galán-Hernández, **R. Rosas-Romero**, "Automatic Parkinson disease detection at early stages as pre-diagnosis tool by using classifiers and a small set of vocal features", [Biocybernetics and Biomedical Engineering](#), vol. 40, no. 1, pp. 505-516, 2020 ([paper](#)).

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- L. Peralta-Malvárez, O. López-Rincón, E. D. Rojas-Velázquez, L. O. Valencia-Rosado, R. Rosas-Romero, G. Echeverry, "Newborn cry nonlinear features extraction and classification", [Journal of Intelligent & Fuzzy Systems](#), vol. 34, no. 5, pp. 3281-3289, 2018 ([paper](#)).
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