



NEO 2020
8th International Workshop on
Numerical and Evolutionary Optimization
November 18 and 19, 2020

Schedule NEO 2020

DAY 1, NOVEMBER 18, 2020	
ROOM 1	
08:45 - 09:00	Opening RED (for attendees of the Research Experience Day)
09:30 - 10:30	Tutorial I: Yazmín Maldonado Robles VHDL by MOEA Chair: Salvador Enrique Lobato Larios
11:45 - 12:25	Career Opportunity I: Guillermo Morales-Luna Graduate Studies in CS at Cinvestav-IPN: Offers and Opportunities for Mexican and Foreign Students Chair: Salvador Enrique Lobato Larios
12:30 - 13:10	Career Opportunity II: Marcela Quiroz Artificial Intelligence: Opportunities for Students in AI at Universidad Veracruzana Chair: Salvador Enrique Lobato Larios
15:45 - 17:25	Session Applications (4 talks)
17:45 - 18:45	Tutorial III: Luis Gerardo de la Fraga Optimization using Python Chair: Salvador Enrique Lobato Larios
ROOM 2	
9:00 - 9:30	Opening (for all NEO attendees)
9:30 - 10:20	Session Optimization in Industry I (2 talks)
10:30 - 11:30	Keynote I: Kalyanmoy Deb Evolutionary Multi-Criterion Optimization: Three Decades of Research and Applications Chair: Oliver Schütze
11:45 - 13:25	Session Set Oriented Numerics (4 talks)
14:30 - 15:30	Keynote II: Jian-Qiao Sun Ultra-High Density Piezoelectric Energy Harvesting System from Highway Traffic Chair: Oliver Schütze
15:45 - 17:00	Session Optimization in Industry II (3 talks)
17:15 - 18:15	Tutorial II: Claudia Sánchez and Mario Graff Wind Data Analysis and Data Imputation using Classical and Machine Learning Techniques Chair: Carlos Hernandez
20:00 - 22:00	Women at NEO
ROOM 3	
09:30 - 10:20	Session Circuits and Machine Learning I (2 talks)
11:45 - 13:25	Session Circuits and Machine Learning II (4 talks)
15:45 - 17:00	Session Solar Energy (3 talks)
17:15 - 18:30	Session Discrete Optimization I (3 talks)
DAY 2, NOVEMBER 19, 2020	
ROOM 1	
9:00 - 10:00	Keynote III: Ling Hong Evolutionary Dynamics and Bifurcations in Nonlinear Dynamical Systems with Fuzzy Uncertainties Chair: Oliver Schütze
10:15 - 11:55	Session Multi-objective Optimization (4 talks)
12:15 - 13:30	Session Decision Making I (3 talks)
14:30 - 15:30	Keynote IV: Ivan Salgado Transito Thermal Solar Energy, a Solution for a more Sustainable Future Chair: Luis Gerardo de la Fraga
15:45 - 16:35	Session Decision Making II (2 talks)
17:10 - 17:30	Closing Session
ROOM 2	
9:00 - 10:00	Tutorial IV: Jesús-Adolfo Mejía-de-Dios and Efrén Mezura-Montes Bilevel Optimization Without Tears Chair: Juan Gabriel Ruiz Ruiz
10:15 - 11:55	Session Wind Energy (4 talks)
12:15 - 13:30	Session Discrete Optimization II (3 talks)
15:45 - 17:00	Session Discrete Optimization III (3 talks)



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DAY 1, NOVEMBER 18, 2020				
	ROOM 1	ROOM 2	ROOM 3	
		Session Optimization in Industry I Time: 09:30 – 10:20 Chair: Oliver Cuate	Session Circuits and Machine Learning I Time: 09:30 – 10:20 Chair: Luis Gerardo de la Fraga	
09:30 - 09:55		Lu Jiang and Furui Xiong. Numerical Simulation and Optimization on Sealing Performance of the Spring Energized C-ring in Reactor Pressure Vessel	Perla Rubi Castañeda, Esteban Tielo Cuautle and Luis Gerardo de la Fraga. Single-objective Optimization of a CMOS VCO Considering Monte Carlo Simulation	50 minutes
09:55 - 10:20		Yuanlin Li, Li Cheng and Tao Bai. HySim: Co-simulation Platform and its Engineering Application in Multidisciplinary Optimization Design	Luis Gerardo de la Fraga Data Types in a Supervised Learning Application	
		Session Set Oriented Numerics Time: 11:45 – 13:25 Chair: Lourdes Uribe	Session Circuits and Machine Learning II Time: 11:45 – 13:25 Chair: Luis Gerardo de la Fraga	
11:45 - 12:10		Bennet Gebken and Sebastian Peitz An efficient descent method for locally Lipschitz multiobjective optimization problems	Lucía J. Hernández-González, Juan Frausto-Solis, J. Javier González-Barbosa, José Enrique Olvera Vazquez, Juan Paulo Sánchez-Hernández and Edgar Roman-Rangel Forecasts for confirmed Covid cases using CNN, ARIMA and Exponential Smoothing	
12:10 - 12:35		Leonardo Guerrero, Diana Gamboa and Rosana Gutierrez Mathematical Analysis for a Nonlinear Type 1 Diabetes Mellitus Model	Youness El Hamzaoui and Juan Antonio Alvarez Arellano Optimization of Operating Conditions for Hydraulic Concrete Structures using an Artificial Neural Networks Inverse	1 hour, 40 minutes
12:35 - 13:00		Salvador Botello-Aceves, S. Ivvan Valdez and Arturo Hernandez Aguirre Difficulties of a local transformation for multi-objective optimization problems: Is it worth it?	Guadalupe Castilla Valdez, Juan Frausto Solis, Moises Israel Herrera Ramos, Juan Javier González-Barbosa and Leonor Hernandez Ramirez A Neuroevolutionary Forecasting Algorithm for Time Series with Genetic and Simulated Annealing Algorithms	
13:00 - 13:25		Lourdes Uribe, Johan M Bogoya, Andrés Vargas, Adriana Lara, Guenter Rudolph and Oliver Schuetze A Set Based Newton Method in the Δp Sense	Martín Alejandro Valencia Ponce, Esteban Tielo Cuautle and Luis Gerardo de la Fraga Multi-objective optimization of a CMOS OTA's linearity for chaotic oscillators	
	Session Applications Time: 15:45 – 17:25 Chair: Yazmin Maldonado	Session Optimization in Industry II Time: 15:45 – 17:00 Chair: Oliver Cuate	Session Solar Energy Time: 15:45 – 17:00 Chair: Iván Salgado-Tránsito	
15:45 - 16:10	Natan Vilchis-Tavera and Adriana Lara A Genetic Algorithm to Effectively Design Musical Counterpoints	David Laredo Razo Optimizing the Operating Personnel Costs (OPC) at Bosch's Toluca plant	Víctor Ramos Fon Bon, Roberto Hourcio Albores Arzate, Manuel De Jesús Palacios Gallegos, Edalí Camacho Ruiz, Cristina Blanco González and Aremi Olaya Virrueta Gordillo Generation of virtual maps of the solar resource in the State of Chiapas, México	
16:10 - 16:35	Josué Gómez, América Morales and Chidentree Treesatayapun Comparison between classical model and data driven model of the first order kinematic control for a redundant robot	Carlos Ignacio Hernandez Castellanos, Sina Ober-Blöbaum and Sebastian Peitz Explicit Multi-objective Model Predictive Control for Nonlinear Systems Under Uncertainty	Fernando Moreno Gomez and Adriana Lara Optimizing Roof-gardens Location for Mexico City Air Quality Improvement	1 hour, 40 minutes
16:35 - 17:00	Salvador Lobato and Juan Gabriel Ruiz Optimizing the energy for an industrial robotic arm manipulator using Particle Swarm Optimization algorithm	Youness El Hamzaoui, Juan Antonio Alvarez Arellano and J.A Rodriguez Modeling of a Steam Turbine through Neural Network Training using Genetic Algorithms	Esmeralda López-Garza, René Domínguez-Cruz and Iván Salgado-Tránsito Optimization management for electric power grids based on a linear model	
17:00 - 17:25	Rogelio Valdez and Yazmin Maldonado FPGAS as efficient accelerators for the implementation of heterogeneous computing.			
			Session Discrete Optimization I Time: 17:15 – 18:30	



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			Chair: Marcela Quiroz	
17:15 - 17:40			Héctor Fraire-Huacuja, Daniela López-García, Laura Cruz-Reyes, Nelson Rangel-Valdez, Claudia Guadalupe Gómez-Santillán, María Lucila Morales-Rodríguez and Fausto Antonio Balderas Jaramillo Optimization of the Project Selection Multi-objective Problem with Type Interval Fuzzy Parameters	1 hour, 15 minutes
17:40 - 18:05			Leo Hernández-Ramírez, Juan Frausto-Solis, Guadalupe Castilla-Valdez, Javier González-Barbosa and Juan Paulo Sánchez-Hernández Chaotic Multi-Objective Simulated Annealing and Threshold Accepting for Job Shop Scheduling Problem	
18:05 - 18:30			Octavio Ramos-Figueroa and Marcela Quiroz-Castellanos An Experimental Study of Grouping Mutation Operators for the Unrelated Parallel-Machine Scheduling Problem	

Schedule Sessions NEO 2020

DAY 2, NOVEMBER 19, 2020				
	ROOM 1	ROOM 2		
	Session Multi-Objective Optimization Time: 10:15 – 11:55 Chair: Antonin Ponsich	Session Wind Energy Time: 10:15 – 11:55 Chair: Rafael Campos Amezcua		
10:15 - 10:40	Katharina Bieker, Bennet Gebken and Sebastian Peitz On the treatment of optimization problems with L1 penalty terms via multiobjective continuation	Josué Jordi Zavala, Erasmos Cadenas and Rafael Campos Optimal design of a wind turbine blade based on its mass, in the domain of stress and tip speed ratio		1 hour, 40 minutes
10:40 - 11:05	Manuel Berkemeier and Sebastian Peitz Derivative-Free Multiobjective Trust Region Descent Method Using Radial Basis Function Surrogate Models	Alma Rosa Méndez Gordillo, Rafael Campos Amezcua and Erasmo Cadenas Calderón Existence of multifractality in wind speed time series		
11:05 - 11:30	Carlos Hernandez and Oliver Schütze Archiving Strategies for Multi-objective Evolutionary Algorithms	Julio Cesar Solís Sánchez, Manuel De Jesús Palacios Gallegos, Roberto Hourcio Albores Arzate, Cristina Blanco González, Edalí Camacho Ruiz, Víctor Ramos Fon Bon, Aremi Olaya Virrueta Gordillo and Josué Chanona Soto Development of a methodology to optimize low-power wind energy harvesting		
11:30 - 11:55	Antonin Ponsich, Bruno Domenech, Laia Ferrer-Martí, Alberto García-Villoria and Rafael Pastor Comparison of archive pruning strategies for the multi-objective optimization of stand-alone electrification systems	Marcos Hernández Ortega, Rafael Campos Amezcua, Roberto Gomez Martinez, Hugo Abundis Fong, Luis Gerardo Trujillo Franco and Luis Manuel Palacios Pineda Numerical and experimental analysis of the near wake behind a small wind turbine rotor		
	Session Decision Making I Time: 12:15 – 13:30 Chair: Juan Gabriel Ruiz Ruiz	Session Discrete Optimization II Time: 12:15 – 13:30 Chair: Marcela Quiroz		
12:15 - 12:40	Oliver Cuate and Oliver Schütze Pareto Explorer for Finding the Knee for Many Objective Optimization Problems	Claudia Orquídea López Soto, Emiliano Traversi and David Chaffrey Moreno Fernández Core problem based heuristics for the probabilistic revenue management problem		1 hour, 15 minutes
12:40 - 13:05	Mercedes Perez-Villafuerte, Laura Cruz-Reyes, Nelson Rangel-Valdez, Claudia Gomez-Santillan and Hector Joaquin Fraire Effect of the profile of the decision maker in the search for solutions in the decision-making process	Joel Chacón Castillo and Carlos Segura González A Variant of Differential Evolution with Enhanced Diversity Maintenance		
13:05 - 13:30	Teodoro Macias-Escobar, Laura Cruz-Reyes, Cesar Medina-Trejo, Claudia Gomez-Santillan, Nelson Rangel-Valdez and Hector Fraire Interactive recommendation system for the multiobjective project portfolio problem based on the characterization of cognitive tasks	Guadalupe Carmona Arroyo, Marcela Quiroz Castellanos and Efrén Mezura Montes Variable Decomposition for Large-scale Constrained Optimization Problems Using a Grouping Genetic Algorithm		



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	Session Decision Making II Time: 15:45 – 16:35 Chair: Juan Gabriel Ruiz Ruiz	Session Discrete Optimization III Time: 15:45 – 17:00 Chair: Marcela Quiroz	
15:45 - 16:10	José Yair Guzmán-Gaspar, Efrén Mezura-Montes and Saúl Domínguez-Isidro Differential Evolution in Robust Optimization Over Time: Survival Time Approach	Xochitl Samantha Delgado Hernández, María Lucila Morales Rodriguez and Nelson Rangel Valdez Optimization of Phrase Selection for a Conversational Virtual Agent through Speech Acts and Outranking Methods	1 hour, 15 minutes
16:10 - 16:35	Juan Gabriel Ruiz Ruiz and Salvador Enrique Lobato Larios Optimization of the Design of a Website Using an Interactive Genetic Algorithm	Juan Frausto, Juan Javier González Barbosa, Guadalupe Castilla Valdez, Jose Luis Purata Aldaz, Diego Soto Monterrubio and Leonor Hernández Ramirez GenPo Sharpe: Stock Selection for Investing Portfolio using a Genetic Algorithm with Sharpe Ratio Applied to Mexican Stock Exchange	
16:35 - 17:00		Jessica Elena Gonzalez San Martin, Laura Cruz Reyes, Bernabé Dorronsoro, Marcela Quiroz Castellanos, Nelson Rangel Valdez, Claudia Guadalupe Gómez Santillán and Héctor Fraire Huacuja The Bin Packing Optimization Problem: Algorithm Analysis and Open Problems	