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- Roberto Santana (University of the Basque Country, Spain)
- Alejandro Santiago (Polytechnic University of Altamira, Mexico)
- Nadiya Schvai (Cyclope.ai, France)
- Daniel Stolfi (University of Luxembourg, Luxembourg)
- Andrei Tchernykh (CICESE, Mexico)
- Jamal Toutouh (University of Malaga, Spain)
- Alice Yalaoui (Université de Technologie de Troyes, UTT, France)
- Farouk Yalaoui (UTT, Troyes, France)
- Xin-She Yang (Middlesex University London, UK)

Special sessions

1. Title: **Reinforcement Learning and (multi-objective) optimization**

Organisers: Prof. Ann Nowé (VUB Brussels, Belgium), Dr. Grégoire Danoy (University of Luxembourg, Luxembourg)

2. Title: **Optimisation and Learning in Energy Demand Site Management**

Organisers: Prof. Dr. Gülgün KAYAKUTLU, Prof. Dr. M. Özgür Kayalica and Prof Dr. Üner Çolak (Istanbul Technical University Energy Institute)

3. Title: **Computational intelligence for smart cities**

Organisers: Dr. Jamal Toutouh (Universidad de Málaga, Spain), Dr. Christian Cintrano (Universidad de Málaga, Spain), Dr. Sergio Nesmachnow and Dr. Renzo Massobrio (Universidad de la República, Uruguay)

4. Title: **Advanced methods for anomalies forecasting and detection**

Organisers: M. Pavone, F. Zito, C. Cavallaro, V. Cutello (University of Catania, Italy)

5. Title: **Artificial intelligence for sustainability**

Organisers: Dr. Bernabe Dorronsoro (University of Cádiz, Spain), Juan Carlos De la Torre (University of Cádiz, Spain), Jose Miguel Aragón (University of Cádiz, Spain), and Javier Jareño (University of Cádiz, Spain)

Invited keynote

Keynote name: Óscar Cordón

Affiliation: Andalusian Research Institute on Data Science and Computational Intelligence (DaSCI)



Title: Artificial Intelligence for Forensic Anthropology and Human Identification

Abstract: Skeleton-based forensic identification methods carried out by anthropologists, odontologists, and pathologists represent the first step in every human identification (ID) process and the victim's last chance for identification when DNA or fingerprints cannot be applied. They include methods as biological profiling (BP), comparative radiography (CR), craniofacial superimposition (CFS), and comparison of dental records. BP involves the study of skeletal remains to find characteristic traits (age, sex, stature, and ancestry) that support determining the identity of the individual. It plays a crucial role in narrowing the range of potential matches during the process of ID, prior to the corroboration by any ID technique. CR considers the ante-mortem (AM) and post-mortem (PM) comparison of different bones and cavities (skull frontal sinuses, clavicles, patellae, ...) which have been reported as useful for positive identification based on their individuality and uniqueness. CFS aims to overlay a skull with some AM images of a candidate in order to determine if they correspond to the same person.

However, practitioners still follow an observational paradigm using subjective methods introduced many decades ago; namely, oral description and written documentation of the findings obtained and the manual and visual comparison of AM and PM data. Designing systematic, automatic and trustworthy methods to support the forensic anthropologist when applying BP, CFS and CR, avoiding the use of subjective, error-prone and time-consuming manual procedures, is mandatory to enhance forensic ID. The use of artificial intelligence, in particular computational intelligence (evolutionary algorithms, fuzzy sets and deep learning), computer vision (3D-2D image registration and image processing) and explainable machine learning is a natural way to achieve this aim. This keynote is devoted to present three intelligent systems for CFS, CR, and skeleton-based age-at-death assessment developed in collaboration with the University of Granada's Physical Anthropology Lab within a fifteen years long research project. One of those systems is protected by an international patent, exploited by Panacea Cooperative Research, and is under commercialization in different countries.

Bio: Oscar Cordón was the Founder and a Leader of the Virtual Learning Center (2001-05) and the Vice President of Digital University (2015-19) with the University of Granada (UGR). He was one of the Founding Researchers with the European Centre for Soft Computing (2006-11), being contracted as Distinguished Affiliated Researcher until December 2015. He is currently a Professor with the UGR. He has been, for >25 years, an internationally recognized contributor to Research and Development Programs in fundamentals and real-world applications of computational intelligence. He has published >380 peer-reviewed scientific publications, including a research book on Genetic Fuzzy Systems (with >1400 citations in Google Scholar) and 112 JCR-SCI-indexed journal papers (68 in Q1 and 38 in D1), advised 19 Ph.D. dissertations, and coordinated 37 research projects and contracts (with an overall amount of >9M€). From May 2021, his publications had received 5422 citations (H-index=39), being included in the 1% of most-cited researchers in the world (source: Web of Science), with 14687 citations and H-index=58 in Google Scholar. He also has a granted international patent on an intelligent system for forensic identification commercialized in Mexico and South Africa.

He received the UGR Young Researcher Career Award (2004), the IEEE Computational Intelligence Society (CIS) Outstanding Early Career Award (2011, the first such award conferred), the IFSA Award for Outstanding Applications of Fuzzy Technology (2011), the National Award on Computer Science ARITMEL by the Spanish Computer Science Scientific Society (2014), the IEEE Fellow (2018), and the IFSA Fellowship (2019). He was a member of the High-Level Expert Group that developed the Spanish R+D Strategy for Artificial Intelligence by the Spanish Ministry of Science, Innovation and Universities (2018-19). He is currently or was Associate Editor of 19 international journals. He was recognized as an Outstanding Associate Editor of IEEE Transactions on Fuzzy Systems (2008) and of IEEE Transactions on Evolutionary Computation (2019). Since 2004, he has taken many different representative positions with EUSFLAT and the IEEE Computational Intelligence Society.

His current research lines are on artificial intelligence for forensic identification (with the UGR Physical Anthropology lab and several international forensic labs and security forces) and agent-based modeling and social network analysis for marketing (with ROD Brand Consultants in projects for CAPSA, Mercedes, Jaguar-Land Rover, El Corte Inglés, Telefónica, Samsung, Coca Cola Europe, Cola Cao, WiZink, ...).

Program at a glance

Wednesday, May 3rd

8h30	Registration	
9h15	Room "Salon de actos" Opening (Prof. F. Chicano & Prof. E-G. Talbi)	
9h30	Room "Salon de actos" Session Optimization and Learning (chair: F. Chicano)	Room "Sala de Juntas" Session Multi-objective and Bi-level Optimization (chair: A. Nebro)
10h50	Coffee Break	
11h20	Room "Salon de actos" Session Deep Learning (chair: A. Nakib)	Room "Sala de Juntas" Session Optimization and Learning under Uncertainty (chair: T. Arbaoui)

Thursday, May 4th

9h30	Room "Salon de actos" Session Reinforcement Learning (chair: G. Danoy)	Room "Sala de Juntas" Session Logistics and Transportation (chair: L. Amodeo)
10h50	Coffee Break	
11h20	Hall Poster presentations session	
12h00	Room "Salon de actos" Invited keynote (chair: G. Danoy) Title: Recent Research on "Construct, Merge, Solve & Adapt" Prof. Christian Blum Spanish National Research Council, Spain	
13h00	Free time	
20h00	Banquet	

Friday, May 5th

9h30	Room "Salon de actos" Session Advanced Optimization (chair: R. Ellaia)	Room "Sala de Juntas" Session Learning for Optimization (chair: J. Toutouh)
10h50	Coffee break	
11h20	Room "Salon de actos" Session Machine Learning (chair: H. Kheddouci)	Room "Sala de Juntas" Session Parallel Optimization and Software (chair: N. Melab)
12h40	Conference closing	

Detailed program: Wednesday, May 3rd

8h30 - 9h15 Registration

9h15 - 9h30 Opening Session Room “Salon de actos”

Prof. Dr. Francisco Chicano (Spain) & Prof. El-Ghazali Talbi (France)

9h30 - 10h50 Room “Salon de actos”

Session Optimization and learning (chair: Prof. F. Chicano)

- Dichotomic Search for Biobjective PINN and Neural Network Training
Fabian Heldmann, Kathrin Klamroth
- Partial k-means to avoid outliers, mathematical programming formulations, complexity results
Nicolas Dupin, Frank Nielsen
- Real-time elastic partial shape matching using a neural network-based adjoint method
Alban ODOT, Guillaume Mestdagh, Yannick Privat, Stéphane Cotin
- We won't get fooled again: when performance metric malfunction affects the landscape of hyperparameter optimization problems
René Traoré, Andrés Camero, Xiao Xiang Zhu

9h30 – 10h50 Room “Sala de Juntas”

Session Multi-objective and bilevel optimization (chair: Prof. A. Nebro)

- Solving a Multi-Objective Job Shop Scheduling Problem With an Automatically Configured Evolutionary Algorithm
Jesus Para, Javier Del Ser, Antonio J. Nebro
- Multi-objective optimization of adhesive bonding process in constrained and noisy settings
Alejandro Morales Hernández, Inneke Van Nieuwenhuysse, Sebastian Rojas Gonzales, Jeroen Jordens, Maarten Witters, Bart Van Doninck
- Bilevel optimization based Meta-label correction for car damage classification
Amir Nakib, Sofiane Mallem
- Optimisation of Pricing Strategies with Fairness and Business Ethics
Lakshmi Lineshah, Sunil Vadera

10h50 – 11h20 – Coffee break

Session Deep learning (chair: Prof. A. Nakib)

- Bayesian optimization for NAS with pretrained deep ensembles
Housseem Ouertatani, Cristian Maxim, El-Ghazali Talbi, Smail NIAR
- Evolutionary data distillation for large image size datasets
Nadiya Shvai, Arcadi Llanza, Amir Nakib
- A split-training approach to JoVe-FL
Maria Hartmann, Gregoire Danoy, Mohammed Alswaitti, Pascal Bouvry
- Latent Space Boosting
Vanya Aziz, Ivo Nowak, Ouyang Wu, Jan Kronqvist, Eligius Maria Theodorus Hendrix

Session Optimization and learning under uncertainty (chair: T. Arbaoui)

- Interactive Job Scheduling with Partially Known Personnel Availabilities
Johannes Varga, Günther R. Raidl, Elina Rönnberg, Tobias Rodemann
- Optimization of Fuzzy C-Means with Alternating Direction Method of Multipliers
Benoit Albert, Violaine Antoine, Jonas Koko
- A stochastic model for a multi-echelon disassembly lot-sizing problem under random lead times
Ilhem SLAMA, Simon Thevenin, Oussama Ben-ammar, Alexandre Dolgui
- Predictive maintenance for wind farm failure detection: Strategies for Addressing the Cold Start Problem
Mohamed Saâd EL HARRAB, Marie Bouilloud, Michel Nakhla
- Failure type detection and predictive maintenance for the next generation of imaging atmospheric Cherenkov telescopes
Federico Incardona, Alessandro Costa, Kevin Munari

Detailed program: Thursday, May 4th

9h30 - 10h50 Room "Salon de actos"

Session **Reinforcement learning** (chair: Prof. G. Danoy)

- Graph Reinforcement Learning for Operator Selection in the ALNS Metaheuristic
Syu-Ning Johnn, Victor-Alexandru Darvari, Julia Handl, Joerg Kalcsics
- Multi-Armed Bandit-based Metaheuristic Operator Selection: The Pendulum Algorithm binarization case
Pablo Abrego-Calderon, Broderick Crawford, Ricardo Soto, Eduardo Rodriguez-Tello, Felipe Cisternas-Caneo, Eric Monfroy, Giovanni Giachetti
- Reinforcement learning algorithms in an online EVCS problem with photovoltaic panels
Rémi Gauchotte, Ammar Oulamara, Mounir Ghogho, Mustapha Oudani
- CrazyRL : A Multi-Agent Reinforcement Learning library for flying Crazyflie drones
Florian Felten, Pierre-Yves Houtte, El-Ghazali Talbi, Grégoire Danoy

9h30 - 10h50 Room "Sala de Juntas"

Session **Logistics and transportation** (chair: Prof. L. Amodeo)

- E-scooters Routes Potential: Open Data Analysis in Current Infrastructure. Malaga Case
Diego Daniel Pedroza-Perez, Jamal Toutouh, Gabriel Luque
- Robot-Assisted Delivery problems and their Solutions
Abdullahi Mohammed Jingi, Xinan Yang
- Adaptative local search for a pickup and delivery problem applied to large parcel distribution
Matthieu Fagot, Laure Brisoux Devendeville, Corinne Lucet
- The p-median problem with coverage constraints: an application for public service design
Felipe Albuquerque, Rosa Figueiredo, Cyrille Genre-Grandpierre

10h50 – 11h20 - Coffee break

11h20 – 12h00 Hall - Poster presentations session

12h00 – 13h00 Room "Salon de actos"

[Invited keynote](#) (chair: G. Danoy)

Title: Recent Research on "Construct, Merge, Solve & Adapt"

Prof. Christian Blum (CSIC, Spain)

Detailed program: Friday, May 5th

9h30 - 10h50 Room “Salon de actos”

Session **Advanced optimization** (chair: Prof. R. Ellaia)

- Comparing fractal decomposition based algorithms
Thomas Firmin, El-Ghazali Talbi
- Impact of mixed-variable management by probability features in an Evolutionary Algorithm
Sylv rio Pool Marquez, Caroline Sainvitu, Charlotte Beauthier, Annick Sartenaer
- Initial Insight into Influence of Different Implementations of the Same Algorithm to the Quality in Numerical Optimization
Peter Korošec, Tina Ručigaj Korošec, Jurij Šilc
- Diagonal Barzilai-Borwein rules in stochastic gradient-like methods
Giorgia Franchini, Federica Porta, Valeria Ruggiero, Ilaria Trombini, Luca Zanni ([video online](#))

9h30 - 10h50 Room “Sala de Juntas”

Session **Learning for optimization** (chair: Dr. J. Toutouh)

- Polynomial-Model-Based Optimization
Janina Schreiber, Michael Hecht, Damar Wicaksono
- Evaluating Surrogate Models for Robot Swarm Simulations
Daniel H. Stolfi, Gregoire Danoy
- Is tuning worth the effort? A case study on simulated annealing for parallel machine scheduling problems
Mohamed Elamine Athmani, Younes Mimene, Taha Arbaoui, Farouk Yalaoui
- A self-learning matheuristic for occasional drivers absenteeism mitigation in last mile delivery
Simona Mancini, Margaretha Gansterer, Chefi Triki

10h50 – 11h20 – Coffee break

Session Machine learning (chair: Prof. H. Kheddouci)

- Deep Spiking Neural Network for object tracking
Fernando Quintana-Velazquez, M.P. Guerrero-Lebrero, F. Perez-Peña, P.L. Galindo, Elisa Guerrero
- Time Series Forecasting for Parking Occupancy: Case Study of Malaga and Birmingham Cities
José Ángel Morell, Zakaria Abdelmoiz Dahi, Francisco Chicano, Gabriel Luque, Enrique Alba
- Modeling and analysis of organizational network analysis graphs based on employee data
Abdel-Rahmen Korichi, Hamamache Kheddouci, Taha Tehseen
- A Fast Methodology to Find Decisively Strong Association Rules (DSR) by Mining Datasets of Security Records
Claudia Cavallaro, Vincenzo Cutello, Mario F. Pavone, Francesco Zito
- An optimization approach for optimizing PRIM's randomly generated rules using the Genetic Algorithm ([video on the web site](#))
Rym Nassih, Abdelaziz Berrado

Session Parallel Optimization and Software (chair: Prof. N. Melab)

- Challenges in Automatic Software Optimisation: the energy efficiency case
Tobias Fischbach, Emmanuel Kieffer, Bouvry Pascal
- Characterization and categorization of software programs on x86 architectures
Javier Jareño, Juan Carlos de la Torre, Bernabé Dorransoro
- Productivity-aware Parallel Distributed Tree-Search for Exact Optimization
Guillaume Helbecque, Jan Gmys, Nouredine Melab, Tiago Carneiro, Pascal Bouvry
- Benchmarking parallel optimization methods for calibration of large-scale dynamic models in systems biology
David R. Penas, Stephan Grein, Daniel Weindl, Julio R. Banga, Jan Hasenauer

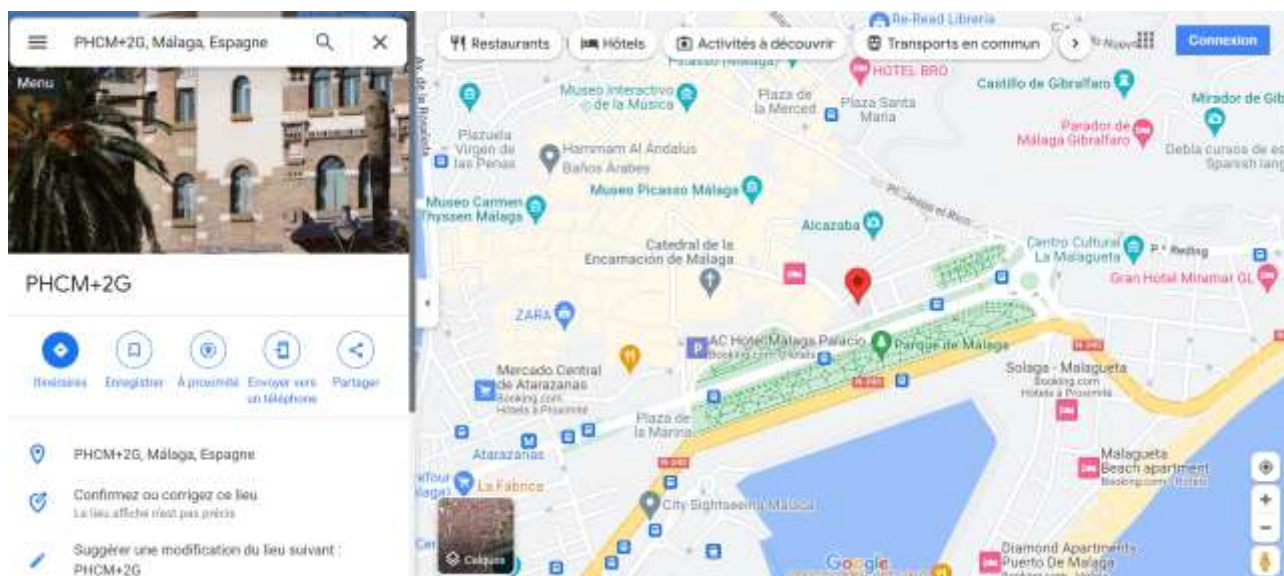
Poster presentations

- A New Automated Customer Prioritization Method, Amira Ben Hadid, Hamamache Kheddouci, Seddik Hadjadj
- A hierarchical Cooperative Coevolutionary approach to solve Very Large-scale Traveling Salesman Problem, Zhong RUI, Zhang Enzhi, Munetomo Masaharu
- An Application of Machine Learning Tools to Predict the Number of Solutions for a Minimum Cardinality Set Covering Problem, Brooks Emerick, Myung Soon Song, Yun Lu, Francis Vasko
- Application of Artificial Intelligence in Ecological Modeling for Olive Leaf Panels, Gokce Ozden-Gurcan, Antonio Ferrández-García, Francisco Mata-Cabrera
- Automatic Generation of Subtitles for Videos of the Government of La Rioja, Gadea Mata, Mirari San Martín, Jónathan Heras
- Binary Black Widow With Hill-Climbing Algorithm for Feature Selection, Abdul-Rahman Mawlood-Yunis, Ahmed Al-Saedi
- Mixing Data Augmentation Methods for Semantic Segmentation, Rubén Escobedo, Jónathan Heras
- Neural Network Information Leakage through Hidden Learning, Arthur da Cunha, Emanuele Natale, Laurent Viennot
- Reoptimizing neural networks for pollen classification, Predrag Matavulj, Slobodan Jelic, Sanja Brdar, Milos Radovanovic, Danijela Tesendic, Branko Sikoparija
- Satellite Image Mosaic Combination Problem, Manuel Combarro Simon, Gregoire Danoy, Jędrzej Musiał, Andrey Tchernykh, Mohammed Alswaitti, Johnatan Pecero, Pascal Bouvry
- Solving the Nurse Scheduling Problem using the Whale Optimization Algorithm, Mehdi Sadeghilalimi, Malek Mouhoub, Aymen Ben Said
- Algorithm Selection for Large-Scale Multi-objective Optimization
Mustafa MISIR, Xinye Cai
- Trajectory planification and acquisition optimisation of a Compton Camera Rover, Lopez Marius, Faicel Hnaïen, Snoussi Hichem, Zied Hmissi, Iltis Alain
- How much substitutionability in rankings?
Ignacy Kaliszewski
- Using Machine Learning to Optimize the Performance of a Genetic Algorithm
Claudia Cavallaro, Vincenzo Cutello, Mario F. Pavone, Francesco Zito
- Estimation of the distribution of Body Mass Index (BMI) with sparse and low-quality data. The case of the Chilean adult population
Fernanda Suazo, Óscar Vásquez
- Multi-objective evolutionary algorithm for Bi-objective Composite Retrieval
Mauricio Moyano, Guillermo Cabrera-Guerrero, Nicolle Ojeda-Ortega
- An artificial intelligence approach to characterize from GWAS summary statistics the role of haplotypes in complex human diseases
Oscar Lao, Olga Dolgova, Alba Nieto, Milagros Sanchez-Mayor, Urko Martinez Marigorta
- Condition-based maintenance optimization under large action space with deep reinforcement learning method
Peng Bi, Yi-Ping Fang, Matthieu Roux, Anne Barros

Conference location

OLA 2023 will take place in the Rectorate of the University of Málaga (UMA), a historical building close to the city center and the touristic port.

Av. de Cervantes, 2 - 29016, Málaga, Spain



Banquet

C/ Bolivia, 26, 29018 Málaga

The Restaurant can be reached using bus lines 3, 8, 11 and 34 (Bus stop 1111, Bolivia-Baños del Carmen).

