May 03-05, 2023
Malaga, Spain

Program
OLA’2023 is organized by

- University of Malaga (Spain) and University of Lille (France)

**Conference chair**
- Prof. Francisco Chicano (Univ. of Malaga, Spain)

**Conference program chair**
- Dr. Grégoire Danoy (University of Luxembourg, Luxembourg)

**Workshops / Invited sessions chair**
- Prof. Mario Pavone (University of Catania, Italy)

**Conference steering committee chair**
- Prof. El-Ghazali Talbi (University Lille & INRIA, France)

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- Prof. Rachid Ellaia (EMI, Mohamed V University in Rabat, Morocco)

**Proceedings chair**
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- Mr. Thomas Firmin (University of Lille, France)
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- Dr. Zakaria Dahi (University of Malaga, Spain)

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- Dr. Javier Ferrer (University of malaga, Spain)

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- Andrew Lewis (Griffith University, Australia)
- Francisco Luna (University of Malaga, Spain)
• Gabriel Luque (University of Malaga, Spain)
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• Edmondo Minisci (University of Strathclyde, UK)
• José Ángel Morell (University of Malaga, Spain)
• Amir Nakib (University of Paris Est Créteil, France)
• Antonio J. Nebro (University of Málaga, Spain)
• Sergio Nesmachnow (University of the Republic, Uruguay)
• Enéko Osaba Icedo (Tecnalia, Spain)
• Gregor Papa (Jožef Stefan Institute, Slovenia)
• Mario Pavone (University of Catania, Italy)
• Helena Ramalhinho (Universitat Pompeu Fabra, Barcelona, Spain)
• Rubén Saborido (University of Malaga, Spain)
• 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

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

Prof. Christian Blum (Senior Research Scientist, Artificial Intelligence Research Institute, Spanish National Research Council, CSIC)

Biography: Dr. Christian Blum currently holds the permanent post of Senior Research Scientist at the Artificial Intelligence Research Institute (IIIA) of the Spanish National Research Council (CSIC) in Bellaterra, Spain. Before that, from 2012 to 2016, he was an Ikerbasque Research Professor at the University of the Basque Country in San Sebastian, Spain. Dr. Blum obtained a PhD in Applied Sciences from the Free University of Brussels in 2004 and a Diploma (equivalent to a Masters Degree) in Mathematics from the University of Kaiserslautern, Germany, in 1998. His main research interests are in swarm intelligence techniques for optimization and control, and in the hybridization of metaheuristics with other techniques for large-scale optimization problems arising, for example, in bioinformatics or in transportation. During the last 20 years Dr. Blum has co-authored more than 200 publications in international journals, books, and peer-reviewed conference proceedings. In total, his work has currently received around 18,000 citations, and his current H-index is 43 (Google Scholar). Apart from acting as editor for the journal Computers & Operations Research (responsible for heuristics and metaheuristics), he currently is also an associate editor for journals such as the Artificial Intelligence Journal and for Engineering Applications of Artificial Intelligence. Dr. Blum has given invited keynote talks, for example, at conferences such as MIC 2022, MOTOR 2021, ETI4.0 2021, ISMSI 2021, FedCSIS 2020, HM 2019, BBCC 2018, VNS 2017 and Matheuristics 2016, just to name some of the most recent ones. Moreover, Dr. Blum has been very active in the co-organization of scientific events. He is, for example, a co-founder of the international workshop series on Hybrid Metaheuristics. Another recent example is the International Conference on Swarm Intelligence (ANTS) which he co-organized in 2020 in Barcelona. Finally, during his career, he has won several research and supervision awards. The most prestigious awards he received are the IEEE Transactions on Evolutionary Computation (IEEE TEC) Outstanding Paper Award and the SEIO-BBVA award 2021 for the best methodological contribution in Operations Research (Spanish national award). Concerning student supervisions, he has received an award as director of the thesis that won the first prize at the “Certamen Arquimedes” (Spanish national competition). In addition to these academic results, Dr. Blum was involved in the design and in the development of an innovative ride-sharing software that was officially registered as a patent application by the CSIC in September 2019.
# Program at a glance

**Wednesday, May 3rd**

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<th>Time</th>
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<th>Room “Sala de Juntas”</th>
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<tr>
<td>8h30</td>
<td>Registration</td>
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<tr>
<td>9h15</td>
<td><strong>Opening</strong> (Prof. F. Chicano &amp; Prof. E-G. Talbi)</td>
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<tr>
<td>9h30</td>
<td><strong>Session Optimization and Learning</strong> (chair: F. Chicano)</td>
<td><strong>Session Multi-objective and Bi-level Optimization</strong> (chair: A. Nebro)</td>
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<td>10h50</td>
<td>Coffee Break</td>
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<tr>
<td>11h20</td>
<td><strong>Session Deep Learning</strong> (chair: A. Nakib)</td>
<td><strong>Session Optimization and Learning under Uncertainty</strong> (chair: T. Arbaoui)</td>
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Thursday, May 4th

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<tr>
<td>9h30</td>
<td>Room “Salon de actos”</td>
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<td></td>
<td>Reinforcement Learning (chair: G. Danoy)</td>
<td>Logistics and Transportation (chair: L. Amodeo)</td>
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<tr>
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<td>11h20</td>
<td>Hall</td>
<td>Poster presentations session</td>
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<tr>
<td>12h00</td>
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<td></td>
<td>Invited keynote (chair: G. Danoy)</td>
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<td>Title: Recent Research on &quot;Construct, Merge, Solve &amp; Adapt&quot;</td>
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<td></td>
<td>Prof. Christian Blum</td>
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<td>Spanish National Research Council, Spain</td>
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<tr>
<td>13h00</td>
<td>Free time</td>
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<td>20h00</td>
<td>Banquet</td>
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Friday, May 5th

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<td>Room “Salon de actos”</td>
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<tr>
<td></td>
<td>Advanced Optimization (chair: R. Ellaia)</td>
<td>Learning for Optimization (chair: J. Toutouh)</td>
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<tr>
<td>10h50</td>
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<tr>
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<td>Machine Learning (chair: H. Kheddouci)</td>
<td>Parallel Optimization and Software (chair: N. Melab)</td>
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<tr>
<td>12h40</td>
<td>Conference closing</td>
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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
  Jesús Para, Javier Del Ser, Antonio J. Nebro
- Multi-objective optimization of adhesive bonding process in constrained and noisy settings
  Alejandro Morales Hernández, Inneke Van Nieuwenhuyse, 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
  *Houssem Ouertatani, Cristian Maxim, El-Ghazali Talbi, Smail NIAR*
- Evolutionary data distillation for large image size datasets
  *Nadiya Shvai, Arciin 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-amar, 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 Darvariu, 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 Monroy, 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 Houitte, 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
  Sylvèrio 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 (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, Cheti Triki

10h50 – 11h20 – Coffee break
11h20 - 12h40  Room “Salon de actos”

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 Angel 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 Khedouci, 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*

11h20 - 12h40  Room “Sala de Juntas”

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 Dorronsoro*
- 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-Garcia, Francisco Mata-Cabrera
- Automatic Generation of Subtitles for Videos of the Government of La Rioja, Gadea Mata, Mirari San Martin, 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
- Satellite Image Mosaic Combination Problem, Manuel Combarro Simon, Gregoire Danoy, Jedrzej Musial, 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 Hnaien, 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).