



**intelligent techniques**  
**clever implementations**  
**smart systems**

**CONFERENCE AND DEBATE**  
**September 11-17, 2015 – Porto, Portugal**



## **Provisional Programme v2.0 – Paper Sessions**

The following Programme for ISAP 2015 is published to the convenience of presenting authors. It is provisional in the sense that the confirmation of the inclusion of the paper in the final proceedings and its publication is subject to the actual presentation of the paper in the conference.

## GENERAL SCHEDULE

The tentative arrangement of the Programme Schedule is the following:

	Fri 11	Sat 12	Sun 13	Mon 14	Tue 15	Wed 16	Thu 17
9:30 10:50	ECML PKDD 2015	TUTORIALS		Opening Key note	Paper Forum	Paper Forum	TECHNICAL VISITS
				Coffee break	Coffee break	Coffee break	
11:10 12:30				Plenary Debate	Plenary Debate	Late-break + demos	
	Lunch	Lunch		Lunch			
14:30 16:10	Joint ECML PKDD + ISAP session			Parallel Sessions	Parallel Sessions	Parallel Sessions	
				Tea break	Tea break	Tea break	
16:30 18:10				Parallel Sessions	Parallel Sessions	Plenary Debate	
18:10			Reception			Closure	
20:00					DINNER		

The attendance to the joint [ECML PKDD - ISAP] session, on Friday 11, is free of charge for registered ISAP participants.

This session will have Prof. Chen-Ching Liu as invited speaker.

ECML PKDD stands for the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases.

## PAPER SESSIONS

### Monday, September 14<sup>th</sup>

9:30-9:50 *Opening Session*  
*Room B003*

9:50-10:50 *KEYNOTE*  
*Are Cognitive Architectures Useful for Power System Applications?*  
*Speaker Prof. JC Principe, University of Florida, USA*  
*Room B003*

11:10-12:30 *Plenary Debate*  
*Room B003*

14:30-16:10 *OSO1-Optimizing System Operation*  
*Chair Hiroyuki Mori, Meiji University, Japan*  
*Room B006*

OSO1-011 *Analysis of the Great Britain's Power System with Electric Vehicles and Storage Systems*  
*Zeyad Obaid, Liana Cipcigan, Nick Jenkins, Mazin Muhsin*

OSO1-026 *Effect of the Application of Aspiration Level on the Solution Accuracy of Tabu Search in Operation Planning Problem for Residential PEFC-CGS*  
*Satoshi Nomoto, Teruhisa Kumano*

OSO1-055 *Parallel Harmony Search Based Distributed Energy Resource Optimization*  
*Oguzhan Ceylan, Guodong Liu, Kevin Tomsovic*

OSO1-064 *Energy Storage for Wind Power: A Comparative Analysis Considering the Type and Size of the Wind System*  
*Gastón Orlando Suvire, Pedro Enrique Mercado*

OSO1-075 *Online Estimation of Equivalent Model for Cluster of Induction Generators: A MVMO-based Approach*  
*Jose Luis Rueda Torres, Francisco González-Longatt, István Erlich*

14:30-16:10 *SPL1-System Planning*

*Chair Armando Leite da Silva, Pontifical Catholic University of Rio de Janeiro, Brazil*

*Room B011*

- SPL1-031 Simultaneous Determination of Optimal Sizes and Locations of Distributed Generation Units by Differential Evolution  
*Madihah Md Rasid, Murata Junichi, Takano Hirotsuka*
- SPL1-058 NSGA-II Applied To The Multi-Objective Distribution System Expansion Planning Problem  
*Eleandro Almeida, Eduardo N. Asada*
- SPL1-078 Power transmission investment under uncertainty: A Real Option framework  
*Rolando Pringles, Fernando Olsina, Francisco Garcés*
- SPL1-096 Power mix optimization on risk base  
*Peter Kadar*
- SPL1-100 An intelligent tool aimed to policy makers: combining costs, risks and sustainability  
*Leontina Pinto*

14:30-16:10 *CDR1-Control of Distributed Resources*

*Chair Chen-Ching Liu, Washington State University, USA*

*Room B012*

- CDR1-003 Voltage Control for a Distributed Line Feeder by a Multi-agent Approach  
*Shinya Kurisu, Takeshi Nagata*
- CDR1-005 An Intelligent Multi Agent Framework for Active Distribution Networks Based on IEC 61850 and FIPA Standards  
*Mehmet H. Cintuglu, Osama Mohammed*
- CDR1-016 Design of Robust PSS in Multimachine Power Systems using Backtracking Search Algorithm  
*Md Shafiullah, L. Coelho, M. A. Abido*
- CDR1-019 Over-Voltage Mitigation Control Strategies for Distribution System with High PV Penetration  
*Hong-Tzer Yang, Yu-Tang Chen, Jian-Tang Liao, Chiao-Tung Yang*
- CDR1-071 Extending the VISMA Concept to Improve the Frequency Stability in Microgrids  
*Pablo F. Frack, Pedro E. Mercado, Marcelo G. Molina*

*16:30-18:10 CDM0-Component and Data Monitoring  
Chair J. Peças Lopes, FEUP and INESC TEC, Portugal  
Room B006*

- CDM0-028 Classification of Power Quality Disturbances using Wavelet Transform and Optimized ANN  
*Muhammad Ijaz, Md. Shafiullah, M. A. Abido*
- CDM0-068 System Diagnostics and Monitoring applied in Flaws of the Structure Systems in HPSs by Using Image Processing  
*Rogério Thomazella, José Eduardo Cogo Castanho, Marcelo Nicoletti Franchin, Richard José Algarve, Fabio Romano Lofrano Dotto, Valdir Fernandes, Italo Tadeu Freitas Filho, Mauricio Nunes*
- CDM0-084 Intelligent Physical Security Monitoring System for Power Substations  
*Jing Xie, Chen-Ching Liu, Marino Sforza, Martin Bilek, Radek Hamza*
- CDM0-091 Hybrid Systems State Estimation Applied to Power Transformers Fault Diagnosis  
*Bruno Leão, Alessandro Dutra, Débora Reis, Luiz Souza, Tania Arango, Rodrigo Salim, Alexandre da Silva*

*16:30-18:10 FOR1-Forecasting  
Chair Chanan Singh, Texas A&M University, USA  
Room B011*

- FOR1-001 From Marginal to Simultaneous Prediction Intervals of Wind Power  
*Ricardo Bessa*
- FOR1-009 Short-Term Statistical-Based Wind Power Forecasting using Wavelet Transform and Machine Learning  
*Hong-Tzer Yang, Darvin Y. Roberts*
- FOR1-018 Spatial Pattern Recognition of Urban Sprawl Using a Geographically Weighted Regression for Spatial Electric Load Forecasting  
*Joel Melo, Edgar Carreno, Antonio Padilha-Feltrin*
- FOR1-042 Load Profiles Identification Based on Autoencoders and Kohonen Maps  
*Nuno Fidalgo, Leonardo Proganó*
- FOR1-070 Prediction Intervals for Electric Load Forecast: Evaluation for Different Profiles  
*Vânia Almeida, João Gama*

## Tuesday, September 15<sup>th</sup>

09:30-10:50 *PS0-Poster Session*

*Chair Vladimiro Miranda, FEUP and INESC TEC, Portugal  
Room B003 Hall*

- PS0-012      Intelligent Techniques Application for Consumption Class Classification Through Residential Load Curves  
*Danilo Gastaldello, Zita Vale, Filipe Fernandes, Caio Ramos, André Souza, Haroldo Amaral*
- PS0-022      An efficient algorithm based on Paraconsistent Annotated Logic used in determining the risk Degree in Electrical Power System  
*João Inácio Da Silva Filho, Alexandre Rocco, Germano Lambert-Torres, Maurício Conceição Mario, Sandro Rodrigues Gonçalves Bastos, Clovis Misseno Da Cruz*
- PS0-024      Functional Clustering and Extreme Learning Machine for Load Forecasting  
*Artur Trindade, Fátima Rodrigues*
- PS0-029      Simulation of Portfolio Optimization by Electricity Trading Participants in a Multi-agent System  
*Kashif Imran, Yu Zhao, Ivana Kockar*
- PS0-034      Thermal Generator Operation Considering Forecast Error of Renewable Energy with Real-Time Exchange Power Market  
*Hayato Tahara, Harun Or Rashid Howlader, Noorzad Ahmad Sami, Tomonobu Senjyu, Toshihisa Funabashi*
- PS0-040      Definition of Statistical-based Data Time Windows for Predicting the Power System Post-contingency Dynamic Vulnerability Status  
*Jaime Cepeda, Delia Colome*
- PS0-049      Design of Dynamic Optimal Power System Stabilizer Employing Genetic Programming  
*Md Shafiullah, M. A. Abido*
- PS0-056      Big Data Techniques applied to Load Forecasting  
*Germano Lambert-Torres, Claudio Inacio de Almeida Costa, Carlos Henrique Valério de Moraes, Luiz Eduardo Borges da Silva, Ronaldo Rossi*
- PS0-069      Economic Assesment of Dynamic Pricing in Smart Distribution Networks  
*Juan P. Palacios, Mauricio E. Samper , Alberto Vargas*
- PS0-081      Transformer Ranking for Asset Management of Power Transmission Systems using Fuzzy Multi-Attribute Scoring Procedure  
*Aysun Koksal, Aydogan Ozdemir*
- PS0-083      Artificial Neural Network Approach to Photovoltaic System Power Output Forecasting  
*Amra Jahic, Tatjana Konjic, Joze Pihler*

- PSO-085 Radial Distribution Network Topology Optimization Using Genetic Algorithms Considering Uncertain Load and Distributed Generation  
*Filipe Azevedo, Vitor Hugo Ribeiro*
- PSO-089 Intelligent Model Predictive Optimal Control for a Large-Scale Supercritical Power Unit  
*Liangyu Ma, Zhiyuan Gao, Kwang Lee*
- PSO-098 Power System Controlled Islanding Using Self Organizing Maps and Particle Swarm Optimization  
*Emmanouil Voumvoulakis, Dimitris Trakas, Nikos Hatziargyriou*

11:10-12:30 *Plenary Debate*  
*Room B003*

14:30-16:10 *OSO2-Optimizing System Operation*  
*Chair Kwang Lee, Baylor University, USA*  
*Room B006*

- OSO2-014 Multi-Objective Optimization of SVR Considering Optimum Placement and Weather Conditions in Distribution Systems  
*Ryuto Shigenobu, Atsushi Yona, Tomonobu Senjyu, Toshihisa Funabashi*
- OSO2-077 Multi-Agent based Metalearner using Genetic Algorithm for Decision Support in Electricity Markets  
*Tiago Pinto, Joao Barreto, Isabel Praca, Gabriel Santos, Zita Vale, E. J. Pires*
- OSO2-087 Reduced-Neighborhood-Based Tabu Search for Distribution System Service Restoration  
*Hiroyuki Mori, Takayuki Muroi*
- OSO2-101 Multiple Power System Stabilizers Tuning Using Mean-Variance Optimization  
*Paranietharan Arunagirinathan, Ganesh Venayagamoorthy*

14:30-16:10 *SPL2-System Planning*

*Chair Mladen Kezunovic, Texas A&M University, USA*

*Room B011*

- SPL2-044 Power System Reactive Power Planning with a Modified Quantum-Inspired Differential Evolution Algorithm  
*Ming Niu, Zhao Xu, Siu-Lau Ho*
- SPL2-052 Improved stability index of a power system based upon optimal placement of wind farms using differential evolution  
*Muhammad Usman Mukhtiar, Zakariya Alhamouz, Mohammad Abido, Ssenoga Twaha, Gussan Mufti*
- SPL2-102 Impact of Clustering-based Scenario Reduction on the Perception of Risk in Unit Commitment Problem  
*Hrvoje Keko, Vladimiro Miranda*
- SPL2-060 Definition of the Demand Response Events Duration Using Differential Search Algorithm for Aggregated Consumption Shifting and Generation Scheduling  
*Pedro Faria, Joao Soares, Zita Vale*
- SPL2-103 Statistical Tuning of DEEPSO Soft Constraints in the Security Constrained Optimal Power Flow Problem  
*Leonel M. Carvalho, Fabio Loureiro, Jean Sumaili, Hrvoje Keko, Vladimiro Miranda, Carolina G. Marcelino, Elizabeth F. Wanner*

14:30-16:10 *FOR2-Forecasting*

*Chair Nuno Fidalgo, FEUP and INESC TEC, Portugal*

*Room B012*

- FOR2-038 Artificial Neural Network-based Methodology for Short-Term Electric Load Scenario Generation  
*Stylianios Vagropoulos, Evaggelos Kardakos, Christos Simoglou, Anastasios Bakirtzis, João P. S. Catalão*
- FOR2-039 Novel Method for Typical Load Curves Characterization of Industrial Consumers Towards the Smart Grids  
*Raimundo Teive, Fabiano Andrade, Edison Aranha Neto, Lucas Rosario, Joao Aírto De Bettio*
- FOR2-045 Evaluating probabilistic graphical models for forecasting  
*Pablo H. Ibarguengoytia, Alberto Reyes, Uriel Garcia, Ines Romero, David Pech*
- FOR2-072 A Hybrid Short-term Solar Power Forecasting Tool  
*Jorge Filipe, Ricardo Bessa, Jean Sumaili, Ricardo Tomé, João Sousa*
- FOR2-079 An EMD-ANN Based Prediction Methodology for DR Driven Smart Household Load Demand  
*Akin Tascikaraoglu, Nikolaos G. Paterakis, João P.S. Catalão, Ozan Erdinc, Anastasios G. Bakirtzis*



16:30-18:10 *CDR2-Control of Distributed Resources*  
*Chair Mohamed Abido, King Fahd University of Petroleum & Minerals, Saudi Arabia*  
*Room B006*

- CDR2-030 Evaluating a MAS Architecture for Flexible Distribution Power Flow Management  
*Minjiang Chen, Stephen Mcarthur, Ivana Kockar, Jeremy Pitt*
- CDR2-067 Application of PSO for the Development and Simulation of EV Charging Time Minimization in Distribution Systems  
*Yen-Chih Yeh, Men-Shen Tsai*
- CDR2-080 Now-casting Photovoltaic Power With Wavelet Analysis and Extreme Learning Machines  
*Andreas Teneketzoglou, Nikolaos G. Paterakis, João P. S. Catalão*
- CDR2-093 Decentralized Economic Dispatch of Distributed Generators based on Population Dynamics  
*Iasonas Kouveliotis Lysikatos, Nikos Hatziargyriou*
- CDR2-094 Optimal Plug-in Electric Vehicles Management by Aggregators  
*Patricio Benalcazar, Alberto Vargas, Mauricio Samper*

16:30-18:10 *SRE0-System Reliability*  
*Chair Vladimiro Miranda, FEUP and INESC TEC, Portugal*  
*Room B011*

- SRE0-013 Using Clustering to Evaluate Reliability of Composite Power Systems  
*Hagkwen Kim, Alex Sprintson, Chanan Singh*
- SRE0-032 Spare Transformers Optimization Using Monte Carlo Simulation and Metaheuristic Techniques  
*Armando Leite da Silva, João Guilherme Costa, Kascilene Machado, Carlos Moraes*
- SRE0-050 Application of Paraconsistent Artificial Neural network in Statistical Process Control of voltage levels in Electrical Power Systems  
*Clóvis Misseno da Cruz, João Inácio Da Silva Filho, Dorotéa Vilanova Garcia, Claudio Rodrigo Torres, Maurício Conceição Mario, Jair Minoro Abe, Alexandre Rocco, Germano Lambert-Torres*
- SRE0-086 Support Vector Machine Application in Composite Reliability Assessment  
*Leonidas Resende, Luiz Manso, Wellington Dutra, Armando Leite da Silva*
- SRE0-095 Impact Assessment of Transmission Line Switching on System Reliability Performance  
*Payman Dehghanian, Mladen Kezunovic*

## Wednesday, September 16<sup>th</sup>

09:30-10:50 *AIS1-Applications of Intelligent Systems*  
*Chair Gerhard Krost, University Duisburg-Essen, Germany*  
*Room B006*

- AIS1-021 A Modified Negative Selection Algorithm Applied in the Diagnosis of Voltage Disturbances in Distribution Electrical Systems  
*Fernando Lima, Carlos Minussi, Ricardo Bessa, José Fidalgo*
- AIS1-033 Considering ICT in Reliability Assessment of System Protection Scheme  
*Yang-Che Hsiao, Javier López, Tsun-Yu Hsiao, Chan-Nan Lu*
- AIS1-036 Adaptive System Protection Scheme using Generalized Pattern Search  
*Javier López, Yang-Che Hsiao, Tsun-Yu Hsiao, Chan-Nan Lu*
- AIS1-051 An Intelligent Controlled Islanding Scheme for Power Systems  
*Nelson Granda, Delia Graciela Colome*

09:30-10:50 *ITC0-Intelligent Tools in Control Functions*  
*Chair Zita Vale, Polytechnic Institute of Porto, Portugal*  
*Room B011*

- ITC0-008 Correction of Power Grid Parameters using Genetic Algorithms  
*Andre Augusto, Milton Do Coutto Filho, Julio Souza*
- ITC0-010 Capacity-Based Service Restoration Using Multi-Agent Technology and Ensemble Learning  
*Nelson Avila, Von-Wun Soo, Wan-Yu Yu, Chia-Chi Chu*
- ITC0-057 Distribution System Reconfiguration with Variable Demands Using the Clonal Selection Algorithm  
*Simone S. F. Souza, Ruben Romero, Jorge Pereira, João T. Saraiva*
- ITC0-090 Denoising Auto-associative Measurement Screening and Repairing  
*Jakov Krstulovic, Vladimiro Miranda*
- ITC0-099 Optimization of Electrical Distribution Network Operation based on EPSO  
*Jorge Pereira, Jorge Alves, Manuel Matos*

09:30-10:50 *Late-break + demos*  
*Room B012*

11:10-12:30 *Plenary Debate*  
*Room B003*

*14:30-16:10 OSO3-Optimizing System Operation  
Chair Manuel Matos, FEUP and INESC TEC, Portugal  
Room B006*

- OSO3-025 Paralell Particle Swarm Optimization for Reactive Power and Voltage Control Investigating Dependability  
*Yoshikazu Fukuyama*
- OSO3-027 Design and Dynamic Analysis of Electric Spring for Voltage Regulation in Smart Grid  
*Emad Areed, Mohamed Abido*
- OSO3-059 Solving Control-Constrained Reactive Power Dispatch with Discrete Variables  
*Ana Paula Mazzini, Eduardo Asada, Guilherme Lage*
- OSO3-062 Day-ahead Distributed Energy Resource Scheduling Using Differential Search Algorithm  
*João Soares, Cristina Lobo, Marco Silva, Zita Vale, Hugo Morais*
- OSO3-088 Improved Artificial Bee Colony Algorithm Based on Orthogonal Learning for Optimal Power Flow  
*Wenlei Bai, Ibrahim Eke, Kwang Lee*

*14:30-16:10 MMS0-Market Models and Simulation  
Chair J. Tomé Saraiva, FEUP and INESC TEC, Portugal  
Room B011*

- MMS0-007 Profit-Based Unit Commitment Problem Using PSO with Modified Dynamic Programming  
*Anup Shukla, Vivek Nandan Lal, S.N. Singh*
- MMS0-015 Profit Maximization Planning of a Load Aggregator using Electric Vehicles through Optimal Scheduling of Day Ahead Load  
*Md Shafiullah, Ali T. Al-Awami, Ibrahim Mohamed ElAmin*
- MMS0-023 Analysis of Strategic Wind Power Participation in Energy Market using MASCEM simulator  
*Tiago Soares, Gabriel Santos, Tiago Pinto, Hugo Morais, Pierre Pinson, Zita Vale*
- MMS0-035 Development of Advanced Gaussian Process for LMP Forecasting  
*Hiroyuki Mori, Kaoru Nakano*
- MMS0-063 MASCEM: EPEX SPOT Day-Ahead Market Integration and Simulation  
*Gabriel Santos, Ricardo Fernandes, Tiago Pinto, Isabel Praca, Zita Vale, Hugo Morais*

*14:30-16:10 AIS2-Applications of Intelligent Systems  
Chair Germano Lambert-Torres, PS Solutions, Brazil  
Room B012*

- AIS2-004 Supporting High-Impedance Fault Location using Orthogonal Decomposition Technique  
*Oureste Batista, Rogério Flauzino, Marcel de Araujo, Lucas de Moraes*
- AIS2-017 Metaheuristic Based Device Rating for Energy Harvest in Sewage Plant  
*Ngoc-Hung Truong, Gerhard Krost*
- AIS2-037 Automatic analysis of Pole Mounted Auto-Recloser data for fault diagnosis and prognosis  
*Xiaoyu Wang, Scott Strachan, Stephen McArthur, John Kirkwood*
- AIS2-043 Sizing of a Vanadium Redox Battery to Provide Secondary Reserve  
*Maximiliano Martinez, Marcelo Molina, Pedro Mercado*
- AIS2-065 Differential Evolution Based Air-Gap Torque Method Approach for Induction Motor Efficiency Estimation  
*Luiz Eduardo Borges da Silva, Amanda Cortez, Camila Paes Salomon, Wilson Cesar Santana, Germano Lambert-Torres, Erik Bonaldi, Levy Ely de Lacerda de Oliveira, Jonas Guedes Borges da Silva*

*16:30-18:00 Plenary Debate  
Room B003*

*18:00-18:10 Closure*