Rapid Deployment of Deep AI Models in Engineering Solutions
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Artificial Intelligence revived in the last decade. The need for progress, the growing processing capacity and the low cost of the Cloud have facilitated the development of new, powerful algorithms. The efficiency of these algorithms in Big Data processing, Deep Learning and Convolutional Networks is transforming the way we work and is opening new horizons. Thanks to them, we can now analyse data and obtain unimaginable solutions to today’s problems. Nevertheless, our success is not entirely based on algorithms, it also comes from our ability to follow our “gut” when choosing the best combination of algorithms for an intelligent artefact. It’s about approaching engineering with a lot of knowledge and tact [1-87]. This involves the use of both connectionist and symbolic systems, and of having a full understanding of the algorithms used. Moreover, to address today’s problems we must work with both historical and real-time data. We must fully comprehend the problem, its time evolution, as well as the relevance and implications of each piece of data, etc. It is also important to consider development time, costs and the ability to create systems that will interact with their environment, will connect with the objects that surround them and will manage the data they obtain in a reliable manner.

In this keynote, the evolution of intelligent computer systems will be examined. The need for human capital will be emphasised, as well as the need to follow one’s “gut instinct” in problem-solving. We will look at the benefits of combining information and knowledge to solve complex problems and will examine how knowledge engineering facilitates the integration of different algorithms. Furthermore, we will analyse the importance of complementary technologies such as IoT and Blockchain in the development of intelligent systems. It will be shown how tools like "Deep Intelligence" make it possible to create computer systems efficiently and effectively. "Smart" infrastructures need to incorporate all added-value resources so they can offer useful services to the society, while reducing costs, ensuring reliability and improving the quality of life of the citizens [88-164]. The combination of AI with IoT and with blockchain offers a world of possibilities and opportunities.

The use of edge platforms or fog computing helps increase efficiency, reduce network latency, improve security and bring intelligence to the edge of the network; close to the sensors, users and to the medium used.

This keynote will present success stories regarding biotechnology, smart cities, industry 4.0, the economy, and others. All these fields require the development of interactive, reliable and secure systems which we are capable of building thanks to current advances. Several use cases of intelligent systems will be presented and it will be analysed how the different processes have been optimized by means of tools that facilitate decision-making [165-221].

References:
1. Ana Silva, Tiago Oliveira, José Neves, Paulo Novais (2016). Treating Colon Cancer Survivability Prediction as a Classification Problem. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 5, n. 1


82. Cristian Peñaranda, Jorge Agüero, Carlos Carrascosa, Miguel Rebollo, Vicente Julián (2016). An Agent-Based Approach for a Smart Transport System. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 5, n. 2
86. David Griol, Jose M. Molina (2016). A proposal to manage multi-task dialogs in conversational interfaces. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 5, n. 2
88. David Griol, Jose Manuel Molina (2016). Simulating heterogeneous user behaviors to interact with conversational interfaces. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 5, n. 4
89. David Griol, Jose Manuel Molina, Araceli Sanchís De Miguel (2014). Developing multimodal conversational agents for an enhanced e-learning experience. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 3, n. 1
Eduardo Facchini, Eduardo Mario Dias, Alexandre Pelegi Abreu, Maria Lidia Rebello Pinho Dias (2016). Brazil in Search of Transparency E-Gov. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 5, n. 1


Eduardo Munera, Jose-Luis Poza-Lujan, Juan-Luis Posadas-Yagüe, Jose-Enrique Simó-Ten, Francisco Blanes (2017). Integrating Smart Resources in ROS-based systems to distribute services. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 6, n. 1


Elton S Siqueira, Patrick Cisuaka Kabongo, Tiancheng Li, Carla D. Castanho, Li Weigang (2016). On Chinese and Western Family Trees: Mechanism and Performance. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 5, n. 1

Emmanuel Adam, Emmanuelle Grislin-Le Strugeon, René Mandiau (2012). MAS architecture and knowledge model for vehicles data communication. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 1, n. 1


125. Guillaume Desquesnes, Guillaume Lozenguez, Arnaud Doniec, Éric Duviella (2016). Planning large systems with MDPs: case study of inland waterways supervision. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 5, n. 4


131. Jaime Rincón, Jose Luis Poza, Juan Luis Posadas, Vicente Julián, Carlos Carrascosa (2016). Adding real data to detect emotions by means of smart resource artifacts in MAS. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 5, n. 4


Juan Castro, Pere Martí-Puig (2014). Real-time Identification of Respiratory Movements through a Microphone. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 3, n. 3


Juan Castro, Pere Martí-Puig (2014). Real-time Identification of Respiratory Movements through a Microphone. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 3, n. 3


Lucas Fernando Souza De Castro, Gleifer Vaz Alves, André Pinz Borges (2017). Using trust degree for agents in order to assign spots in a Smart Parking. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 6, n. 2


165. Miki Ueno, Toshinori Suenaga, Hitoshi Isahara (2017). Classification of Two Comic Books based on Convolutional Neural Networks. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 6, n. 1


169. Muhammad Akmal bin Remli, Mohd Saberi Mohamad, Safaai Deris, Azurah A. Samah, Sigeru Omatu, Juan M. Corchado (2019) Cooperative enhanced scatter search with opposition-based...


188. Rafael Cauê Cardoso, Rafael Heitor Bordini. (2017) A Multi-Agent Extension of a Hierarchical Task Network Planning Formalism. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 6, n. 2

189. Rafael Cunha, Cleo Billa, Diana Adamatti (2017). Development of a Graphical Tool to integrate the Prometheus AEOlus methodology and Jason Platform. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 6, n. 2


203. Saadi Bin Ahmad Kamaruddin, Nor Azura Md Ghanib, Choo ng Yeun Liong, Abdul Aziz Jemain (2012). Firearm Classification using Neural Networks on Ring of Firing Pin Impression Images. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 1, n. 3


205. Sérgio Matos, Hugo Araújo, José Luís Oliveira (2013). Biomedical Literature Exploration through Latent Semantics. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 2, n. 2


216. Valérian Guivarch, Valérie Camps, André Péninou (2012). AMADEUS: an adaptive multi-agent system to learn a user’s recurring actions in ambient systems. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 1, n. 3


220. Vincenza Cofini, Fernando De La Prieta, Tania Di Mascio, Rosella Gennari, Pierpaolo Vittorini (2012). Design Smart Games with requirements, generate them with a Click, and revise them with a GUIs. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal (ISSN: 2255-2863), Salamanca, v. 1, n. 3