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Guest Editorial – Management of Digital EcoSystems

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This volume contains the revised and extended versions of papers presented at the 13^{th} International Conference on ManagEment of Digital EcoSystems (MEDES'2021), which was held virtually in Hammamet, Tunisia during the period of November 1 to 3, 2021. MEDES Conference is a platform for academics, scientists, and industry partners who get together to discuss the latest developments and challenges related to digital ecosystems in terms of resource management, data privacy, operation continuity, to mention just some. The selected papers have been reviewed by a panel of experts providing constructive feedback to their authors.

The first paper, *The Application of Machine Learning Techniques in Prediction of Quality of Life Features for Cancer Patients*, considers that training predictive Quality of Life (QoL) models in the medical field poses many challenges due to data privacy and lack of of patient data. It then analyzes classification and regression machine learning models to predict QoL indicators for breast and prostate cancer in centralized and federated learning settings. The experimental evaluation shows that long-term periods centralized models provide better predictions. It also shows that federated models perform well only for the short-term predictions.

The second paper, *Internet of Things and Agent-based System to Improve Water Use efficiency in collective irrigation*, describes an effective intelligent irrigation system based on smart sensors and multi-agents. Smart sensors collect data whereas agents take care of supervision, planning, and prediction. A real-time irrigation decision is proposed and is based on a predicted soil moisture estimated.

The third paper, *Combining Offline and On-the-fly Disambiguation to Perform Semantic-aware XML Querying*, presents a fully automated XSemSearch system for XML keyword search. Using semantic concepts of a knowledge base, both XML documents and keyword queries are transformed into semantic representations. The proposed solution exploits two distinct disambiguation strategies: offline context-based XML document disambiguation strategy and online global keyword query disambiguation strategy. Three alternative query processing algorithms to evaluate query processing time and quality are also provided.

The fourth paper, *Data-centric UML Profile for Agroecology Applications: Agricultural Autonomous Robots Monitoring Case Study*, deals with the lack of conceptual models for Internet of Things data, and proposes a UML profile that takes into account both the representation of data gathered from different kinds of devices and non-functional requirements. The feasibility and integration of the proposed UML profile in complex systems are discussed through a theoretical quality assessment and an implementation in the agroecology case study for the monitoring of autonomous agricultural robots.

We thank all reviewers for their nice and hard work and hope that readers will enjoy the content of this special issue inspiring them for more research.