

Smart system for predicting climate degradation for monitoring the adaptation of agriculture to climate change

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Abstract

Agriculture is undoubtedly one of the most climate-dependent human activities. However, the latter has tried to overcome this dependence and therefore often seeks to modify the environment, for example by rinsing, by standardizing the topography, by increasing the size of the plot, by reducing the landscape heterogeneity by ensuring that the varieties high-yielding varieties bred for a familiar environment are always in optimum growing conditions. In this approach, which assumes that it is still possible to control crop growth conditions, climate change appears as a new factor. In these modern landscapes characterized by agricultural intensification, innovative systems are needed to satisfy the overall long-term increase in global demand for food and wood while addressing environmental concerns. Current forecasts suggest that the Mediterranean region is likely to be strongly

impacted by climate change. Projections indicate that these changes are likely to negatively affect ecosystems and agricultural production throughout the Mediterranean basin. North Africa is expected to face significant challenges in terms of climate change. Smart agriculture based on adaptation to climate change is a practice that will be very useful for Mediterranean countries such as Morocco, Spain and Tunisia, especially in desert and hilly areas where agricultural land and water are rare. Our aim to study the effect of climate change on olive cultivation in the Mediterranean regions based on new techniques of data mining and data analysis to predict in advance the damage caused by the climate change on the quality of crop yields will allow a better decision.

Biography



Prof. Dr. **Mostafa Ezziyyani**, Received the Bachelor's degree in computer science in 1994, the "Graduate Diploma in Computer Science" degree in 1996 and the first PhD degree in "Information System Engineering from Mohammed V University in Rabat, Morocco. He received the second PhD degree in 2006, From Abdelmalek Essaadi University" in Distributed Systems and Data Technologies. In 2008 he received a Researcher Professor **Ability Degree** and since 2017 he holds the position of full professor at Computer Science Department. He is member Mathematics and Applications laboratory (MAL) and responsible of the research direction Data Science and Digital Transformation, he formed a research team that works around this theme and more particularly in the area of integration of heterogeneous systems, Data Science, Artificial Intelligence and decision support systems and new technology for communication. His research activities focus on the modeling databases and integration of heterogeneous and distributed systems (with the various developments to the big data, data sciences, data analytics, system decision support, knowledge management, object DB, active DB, multi-system agents, distributed systems and mediation). This research is at the crossroads of databases, artificial intelligence, software engineering and programming.

He is president of International Scientific Council of Logistics and Transport (CELT) and of College of Engineering (CoE) and president of Arabic African Foundation on Science and Technology Transfer (A2S2T Foundation). He received the first WSIS prize 2018 for the Category C7: ICT applications: AQ1 E-environment, First prize: MtG—ICC in the regional contest IEEE - London UK Project: "World Talk", The qualification to the final (Teachers-Researchers Category): Business Plan Challenger 2015, EVARECH UAE Morocco. Project: «Integrated Sink with Smart Circuit Faucet for water conservation», First prize: Intel Business, Challenge Middle East and North Africa—IBC-MENA. Project: «Intelligent Preventive System for the Control and Monitoring in Real Time of Medicinal Plants in the Process of Growth (PCS: Plants Control System)», Best Paper: International Conference on Software Engineering and New Technologies. Paper: «Disaster Emergency System Application Case Study: Flood Disaster».

He has authored three patents: (1) device and learning process of orchestra conducting (e-Orchestra), (2) built-in washbasin with intelligent circuit tap for water preservation. (LIRCI) (3) Device and method for assisting the driving of vehicles for individuals with hearing loss. He is the editor and coordinator of several projects with Ministry of Higher Education and Scientific Research and others as international project; he has been involved in several collaborative research projects in the context of ERANETMED3/PRIMA/H2020/FP7 framework program including project management activities in the topic modelling of distributed information systems reseed to environment, health, energy and agriculture. The first project aims to propose an adaptive system for flood evacuation. This system gives the best decisions to be taken in this emergency situation to minimize damages. The second project aims to develop a research dynamic process of the itinerary in an events graph for blind and partially sighted users. Moreover, he has been the principal investigator and the project manager for several research projects dealing with several topics concerned with his research interests mentioned above.

He was an invited professor for several countries in the world (USA, UK, France, Spain, Belgium, Holland, Romania, China, Algeria, Sudan, Djibouti, Egypt, and Tunisia). He is member of USA-J1 program for TCI Morocco Delegation in 2007. He creates strong collaborations with research centers in databases and telecommunications for students' exchange: LIP6, Valencia, Poitiers, Boston, Houston, China.

He is the author of more than 150 papers which appeared in refereed specialized journals and symposia. He was also the editor of the book "New Trends in Biomedical Engineering", AEU Publications, 2004. He was a member of the Organizing and the Scientific Committees of several symposia and conferences dealing with topics related to computer sciences, distributed databases and web technology. He has been actively involved in the research community by serving as reviewer for technical, and as an organizer/co-organizer of numerous international and national conferences and workshops. In addition, he served as a program committee member for international conferences and workshops.

He is also the founder and the current chair of the blinds and partially sighted people association. His activity interests focus mainly on the software to help the blinds and partially sighted people to use the ICT, specifically in Arabic countries. He is the founder of the private centre of training and education in advanced technologies AC-ETAT, in Tangier since 2000..

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