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ICAI Workshops (ICAIW 2022)

Joint Proceedings of the

- **3rd International Workshop on Applied Artificial Intelligence (WAAI 2022)**
- **4th International Workshop on Applied Informatics for Economics, Society and Development (AIESD 2022)**
- **5th International Workshop on Data Engineering and Analytics (WDEA 2022)**
- **1st International Workshop on Intelligent Transportation Systems and Smart Mobility Technology (WITS 2022)**
- **2nd International Workshop on Knowledge Management and Information Technologies (WKMIT 2022)**
- **1st International Workshop on Systems Modeling (WSM)**

co-located with the 5th International Conference on Applied Informatics (ICAI 2022)

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Preface

This volume contains the proceedings of the workshops: 3rd International Workshop on Applied Artificial Intelligence (WAAI 2022), 4th International Workshop on Applied Informatics for Economy, Society, and Development (AIESD 2022), 5th International Workshop on Data Engineering and Analytics (WDEA 2022), 1st International Workshop on Intelligent Transportation Systems and Smart Mobility Technology (WITS 2022), 2nd International Workshop on Knowledge Management and Information Technologies (WKMIT 2022), and 1st International Workshop on Systems Modeling (WSM 2022). These workshops were co-located with the 5th International Conference on Applied Informatics (ICAI 2022)[1] which took place at the Universidad Continental in Arequipa, Perú, from 27 to 29 October 2022.

3rd International Workshop on Applied Artificial Intelligence (WAAI 2022). The workshop on Applied Artificial Intelligence is an annual event intended to be an important forum of the Artificial Intelligence (AI) community, organized by the GRUPO GEMIS of the Universidad Tecnológica Nacional Facultad Regional Buenos Aires. The workshop aims to provide a forum for researchers and AI community members to discuss and exchange ideas and experiences on diverse topics of AI. It also seeks to strengthen a space for discussion of innovative ideas as well as development of emerging technologies and practical experiences related to Artificial Intelligence in general, and each of its technologies in particular. Submissions are invited on both applications of AI and new tools and foundations.

4th International Workshop on Applied Informatics for Economy, Society, and Development (AIESD 2022). The workshop on Applied Informatics for Economy, Society and Development organized by the Universidad Ecotec (Ecuador) seeks to promote discussion and dissemination of current economics research, systems for territorial intelligence, e- participation, e-democracy and territorial economic development; with special emphasis on social and environmental development. The objective of this 4th edition of AIESD 2022 is to discuss aspects related to computer science applied in society. The idea is to learn the different techniques and tools that are used to study social phenomena, economic growth, the interaction between economic analysis and decision-making. The workshop seeks to promote an atmosphere of dialogue among the community of professionals working on issues related to technology and its application in the economy as well as society.

5th International Workshop on Data Engineering and Analytics (WDEA 2022). Data has become pervasive. Data Analytics, Data Mining, Data Science, or more generally the practice of identifying patterns or constructing mathematical models based on data, is at the heart of most new business models or projects. This, coupled with what has been termed the Big Data phenomenon, used to describe challenging scenarios involving either datasets that are too big to be handled using traditional approaches, datasets with diverse formats and semantics, data streams that need to be actioned in real time, or a combination of these, has led to a whole new series of rapidly evolving tools, algorithms and methods which combine data engineering, computer science, statistics and mathematics. The aim of this workshop is to present recent results at the intersection of these areas, discussing new methods or

[1] http://icai.itiud.org/

algorithms, or applications including Machine Learning, Databases, optimization or any type of algorithms which consider managing or obtaining value from data.

1st International Workshop on Intelligent Transportation Systems and Smart Mobility Technology (WITS 2022). The digital transformation of traffic monitoring systems has led to an increased interest from the academic community, governments and the general public on the concept of smart mobility, consisting of the optimized use of transport networks through the automated analysis of traffic data and, especially, the implementation of intelligent transportation systems. This type of technology focuses on optimizing how people travel, decreasing traffic congestion, improving road safety, and enhancing governmental decision-making during the construction or expansion of infrastructure. The International Workshop on Intelligent Transportation Systems and Smart Mobility Technology (WITS), part of the International Conference on Applied Informatics (ICAI), is an annual event organized by Universidad Antonio Nariño in Bogotá, Colombia, and intended to be an important forum for the discussion and dissemination of contemporary research on the study and design of software providing integrated information in order to allow drivers, commuters and pedestrians to make a safer and more coordinated use of urban transport networks. Participants in the workshop will find a space for the exchange of innovative ideas and practical experiences on the use of this type of technology as well as for the establishment of collaborative networks. The workshop welcomes submissions on both practical and theoretical proposals on ITSs and related technological solutions.

2nd International Workshop on Knowledge Management and Information Technologies (WKMIT 2022)). The workshop on Knowledge Management and Information Technologies is an annual event intended to be an important forum of the Knowledge Management (KM) community, organized by the GRUPO GEMIS of the Universidad Tecnológica Nacional Facultad Regional Buenos Aires. The knowledge is a strategic resource to obtain better results in the organizations and its management promotes continuous improvement practices and innovation. A complete and integral knowledge management requires an approach from different perspectives: people, organizational culture, processes, tools and technologies, among others. The workshop aims at providing a forum for researchers and KM community members to discuss and exchange ideas and experiences on diverse topics of KM. It also seeks to strengthen a space for discussion of innovative ideas, development of emerging technologies and practical experiences related to Knowledge Management in general and each of its technologies in particular.

1st International Workshop on Systems Modeling (WSM 2022) The International Workshop on Systems Modeling (WSM) aims to bring together researchers and practitioners working in different areas of systems modeling to provide an opportunity for the modeling community to further advance the foundations of modeling and modeling in emerging areas.

The workshops received 44 submissions in total. All submitted papers underwent a double blind peer review process, where each paper was reviewed by at least two (2) experts. After a careful discussion, the diverse program committees decided to accept twenty-four research papers overall. This volume contains these papers. These papers are distributed across the workshops as follows:

– Five submissions received for WAAI, of which three were accepted;

– Twenty-four submissions received for AIESD, of which fourteen were accepted;

– Two submissions received for WDEA, both of which were accepted;

– Three submissions received for WITS, of which one was accepted;

– Five papers received for WKMIT, of which two were accepted;

– Five papers received for WSM, of which two were accepted.

We wish to thank the Program Committee members and all additional reviewers for their efforts.

All the workshops took place on 27 October 2022. In all of them, each paper presentation was immediately followed by comments from session chairs and a plenary discussion. We thank all session chairs for their careful preparations and for triggering insightful discussions.

October 2022

Hector Florez
Ixent Galpin
Christian Grévisse

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1st International Workshop on Systems Modeling (WSM 2022)

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