Hector Florez Ixent Galpin Christian Grévisse (Eds.)

### **ICAI Workshops (ICAIW 2024)**

#### Joint Proceedings of the

- 5th International Workshop on Applied Artificial Intelligence (WAAI 2024)
- 6th International Workshop on Applied Informatics for Economics, Society and Development (AIESD 2024)
- 6th International Workshop on Data Engineering and Analytics (WDEA 2024)
- 3rd International Workshop on Intelligent Transportation Systems and Smart Mobility Technology (WITS 2024)
- 4th International Workshop on Knowledge Management, Innovation and Technologies (WKMIT 2024)
- 1st International Workshop on Sustainability Challenges in Tourism and Smart Destinations (SCTSD 2024)
- 1st International Workshop on Systems Engineering Applied to Internet of Health Things (WSEAI 2024)
- 3rd International Workshop on Systems Modeling (WSM 2024)

co-located with the 7th International Conference on Applied Informatics (ICAI 2024)

#### **Editors**

Hector Florez Diversidad Distrital Francisco José de Caldas Bogotá, Colombia

Ixent Galpin Universidad de Bogotá Jorge Tadeo Lozano Bogotá, Colombia

Christian Grévisse Université du Luxembourg Esch-sur-Alzette, Luxembourg

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Corresponding Editor: Hector Florez Universidad Distrital Francisco José de Caldas Bogotá, Colombia haflorezf@udistrital.edu.co

### **Preface**

This volume contains the proceedings of the workshops: 5th International Workshop on Applied Artificial Intelligence (WAAI 2024), 6th International Workshop on Applied Informatics for Economy, Society, and Development (AIESD 2024), 6th International Workshop on Data Engineering and Analytics (WDEA 2024), 3rd International Workshop on Intelligent Transportation Systems and Smart Mobility Technology (WITS 2024), 4th International Workshop on Knowledge Management, Innovation and Technologies (WKMIT 2024), 1st International Workshop on Sustainability Challenges in Tourism and Smart Destinations (SCTSD), 1st International Workshop on Systems Engineering Applied to Internet of Health Things (WSEAI), and 3rd International Workshop on Systems Modeling (WSM 2024). These workshops were colocated with the 7th International Conference on Applied Informatics (ICAI 2024)¹ which took place at Universidad Andrés Bello located in Viña del Mar, Chile, from 24 to 26 October 2024.

5th International Workshop on Applied Artificial Intelligence (WAAI 2024). 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 the 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.

6th International Workshop on Applied Informatics for Economy, Society, and Development (AIESD 2024). 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 edition of AIESD 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, and 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.

6th International Workshop on Data Engineering and Analytics (WDEA) 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

<sup>1</sup>http://icai.itiud.org/

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 algorithms, or applications including machine learning, databases, optimization or any type of algorithms which consider managing or obtaining value from data.

3rd International Workshop on Intelligent Transportation Systems and Smart Mobility Technology (WITS 2024). The digital transformation of traffic monitoring systems has led to an increased interest from the academic community, governments, and the general public in 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 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.

4th International Workshop on Knowledge Management, Innovation and Technologies (WKMIT 2024)). 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. Complete and integral knowledge management requires an approach from different perspectives: people, organizational culture, processes, tools and technologies, among others. The workshop aims to provide 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 Sustainability Challenges in Tourism and Smart Destinations (SCTSD)** The workshop on Sustainability Challenges in Tourism and Smart Destinations organized by the Universidad Estatal Peninsula de Santa Elena (Ecuador) seeks to promote discussion of the application of sustainability criteria for the development of tourist products and destinations, including management of natural and cultural resources, strategies and approaches for the promotion of tourist destinations. The workshop aims to socialize and disseminate the results of research in smart tourism in Ecuador and the world. Furthermore, it promotes academic debate on experiences, innovation in the hotel and tourism field, and new trends in the industry.

**1st International Workshop on Systems Engineering Applied to Internet of Health Things (WSEAI)** The International Workshop on Systems Engineering Applied to the Internet of Health Things is an event that aims to be an important forum for the research community in the field of the Internet of Health Things (IoHT), organized as a partnership between GREat of the Universidade Federal Ceará, located in Brazil, and ITiSB of Universidad Andrés Bello, located in Chile. The workshop brings advanced research topics and challenges to be discussed by members of the IoHT community who will have an opportunity to exchange ideas and experiences in the field of IoHT. It also seeks to strengthen a space for discussing innovative ideas and the development of emerging technologies, proposing software and hardware systems, and practical experiences related to IoHT in general and each of its technologies. Submissions on new solutions to IoHT challenges and new tools are welcome.

3rd International Workshop on Systems Modeling (WSM 2024) 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. It is mainly focused on Business Process Modeling, Model-Driven Architecture, Model-Driven Engineering, and Modeling in Software Engineering among other areas related to software modeling.

The workshops received 47 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 28 research papers overall. This volume contains these papers. These papers are distributed across the workshops as follows:

- 8 submissions received for WAAI, of which 3 were accepted;
- 15 submissions received for AIESD, of 8 six were accepted;
- 5 submissions received for WDEA, of which 5 were accepted;
- 2 submissions received for WITS, of which 1 was accepted;
- 5 submissions received for WKMIT, of which 5 were accepted;
- 3 submissions received for SCTSD, of which 1 was accepted;
- 6 submissions received for WSEAI, of which 4 were accepted;
- 3 submissions received for WSM, of which 1 was accepted.

All the workshops took place on 24 October 2024. 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 2024

Hector Florez Ixent Galpin Christian Grévisse

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