IFIP AICT 647

Ilias Maglogiannis
Lazaros Iliadis
John Macintyre
Paulo Cortez (Eds.)

Artificial Intelligence Applications and Innovations

18th IFIP WG 12.5 International Conference, AIAI 2022
Hersonissos, Crete, Greece, June 17–20, 2022
Proceedings, Part II

2 Part II

Springer

IFIP Advances in Information and Communication Technology 647

Editor-in-Chief

Kai Rannenberg, Goethe University Frankfurt, Germany

Editorial Board Members

IFIP – The International Federation for Information Processing

IFIP was founded in 1960 under the auspices of UNESCO, following the first World Computer Congress held in Paris the previous year. A federation for societies working in information processing, IFIP's aim is two-fold: to support information processing in the countries of its members and to encourage technology transfer to developing nations. As its mission statement clearly states:

> *IFIP is the global non-profit federation of societies of ICT professionals that aims at achieving a worldwide professional and socially responsible development and application of information and communication technologies.*

IFIP is a non-profit-making organization, run almost solely by 2500 volunteers. It operates through a number of technical committees and working groups, which organize events and publications. IFIP's events range from large international open conferences to working conferences and local seminars.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is generally smaller and occasionally by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is also rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

IFIP distinguishes three types of institutional membership: Country Representative Members, Members at Large, and Associate Members. The type of organization that can apply for membership is a wide variety and includes national or international societies of individual computer scientists/ICT professionals, associations or federations of such societies, government institutions/government related organizations, national or international research institutes or consortia, universities, academies of sciences, companies, national or international associations or federations of companies.

More information about this series at https://link.springer.com/bookseries/6102

Ilias Maglogiannis · Lazaros Iliadis ·
John Macintyre · Paulo Cortez (Eds.)

Artificial Intelligence Applications and Innovations

18th IFIP WG 12.5 International Conference, AIAI 2022
Hersonissos, Crete, Greece, June 17–20, 2022
Proceedings, Part II

Springer

Editors
Ilias Maglogiannis
University of Piraeus
Piraeus, Greece

Lazaros Iliadis
Democritus University of Thrace
Xanthi, Greece

John Macintyre
University of Sunderland
Sunderland, UK

Paulo Cortez
Universidade do Minho
Guimaraes, Portugal

ISSN 1868-4238 ISSN 1868-422X (electronic)
IFIP Advances in Information and Communication Technology
ISBN 978-3-031-08336-5 ISBN 978-3-031-08337-2 (eBook)
https://doi.org/10.1007/978-3-031-08337-2

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface

Artificial intelligence (AI) is a relatively new scientific area that emerged from the efforts of a handful of scientists from diverse fields approximately 70 years ago. The achievements of AI in the era of the 4th Industrial Revolution are amazing and the expectations are continuously rising. Today AI applications are found in almost all areas of human activities. Healthcare, finance, industry, security, robotics, molecular biology, and autonomous vehicles are only a small sample of the domains that have been influenced by artificial intelligence. However, serious ethical matters have emerged (e.g., privacy, surveillance, bias-discrimination, elimination of entire job categories) requiring corrective legislative actions.

The 18th International Conference on Artificial Intelligence Applications and Innovations (AIAI 2022) offered insight into all timely challenges related to technical, legal, and ethical aspects of intelligent systems and their applications. New algorithms and potential prototypes employed in diverse domains were also introduced.

AIAI is a mature international scientific conference that has been held all over the world and it is well established in the scientific area of AI. Its history is long and very successful, following and propagating the evolution of intelligent systems.

The first event was organized in Toulouse, France, in 2004. Since then, it has had a continuous and dynamic presence as a major global, but mainly European, scientific event. More specifically, it has been organized in China, Greece, Cyprus, Australia, and France. It has always been technically supported by the International Federation for Information Processing (IFIP) and more specifically by the Working Group 12.5, which is interested in AI applications.

Following a long-standing tradition, this Springer volume belongs to the IFIP AICT series and it contains the papers that were accepted to be presented orally at the AIAI 2022 conference. An additional volume collates the papers that were accepted and presented at the workshops which were held as parallel events. The event was collocated with the 23rd International Conference on Engineering Applications of Neural Networks (EANN 2022) and held during June 17–20, 2022, in Crete, Greece. The diverse nature of papers presented demonstrates the vitality of AI algorithms and approaches. It certainly proves the very wide range of AI applications as well.

The response of the international scientific community to the AIAI 2022 call for papers was more than satisfactory, with 158 papers initially submitted. All papers were peer reviewed by at least two independent academic referees. Where needed, a third referee was consulted to resolve any potential conflicts. A total of 72 papers (45.5%) of the submitted manuscripts were accepted to be published as full papers (12 pages long) in the proceedings. Owing to the high quality of the submissions, the Program Committee also decided to accept 11 manuscripts as short papers (10 pages long). The accepted papers cover the following thematic topics and application areas:

- Adaptive Modeling
- Adversarial Neural Networks

- AI and Energy Modeling
- Anomaly Detection Modeling and AI
- Autonomous Shuttles Modeling and AI
- Classification
- Cloud Data Modeling and AI
- Clustering
- Convolutional Neural Networks
- Cybersecurity and AI
- Deep Learning in Medical Applications
- Deep Learning and Fraud Detection
- Deep Learning Models for Face Mask Detection
- Environmental AI Modeling
- Evolutionary and Genetic Algorithms
- Explainable AI
- Feature Selection
- Financial Applications of AI
- Fuzzy Modeling
- Graph Representation of AI Models
- Intrusion Detection Using AI
- IoT
- Industry 4.0
- Learning
- Machine Learning
- Medical AI Modeling
- Metaheuristics
- Molecular Biology AI Modeling
- Natural Language
- Neural Networks Modeling
- Object Detection-Tracking and AI
- Pruning and AI
- Recommendation Systems
- Recurrent Modeling of the Primary Visual Cortex
- Reinforcement Models for Cryptocurrency
- Sentiment Analysis
- Speech and Emotion Recognition
- Text Mining and AI
- Timeseries AI Modeling
- Trading
- Transfer Learning Modeling
- Unsupervised Modeling

The authors of the accepted papers are based in 28 different countries all over the globe, namely, Austria, Brazil, Cyprus, the Czech Republic, Denmark, France, Germany, Greece, Hungary, India, Ireland, Italy, Japan, Lebanon, the Netherlands, Norway, China, Pakistan, Poland, Portugal, South Africa, Saudi Arabia, Serbia, Singapore, Spain, Turkey, the UK, and the USA.

The following seven scientific workshops on timely AI subjects were organized under the framework of AIAI 2022.

- The 11th Mining Humanistic Data Workshop (MHDW 2022)

MHDW 2022 was organized by the University of Patras and the Ionian University, Greece. It aimed to bring together interdisciplinary approaches that focus on the application of innovative as well as existing artificial intelligence, data matching, fusion and mining, and knowledge discovery and management techniques to data derived from all areas of humanistic sciences.

- The 7th Workshop on 5G-Putting Intelligence to the Network Edge (5G-PINE 2022)

The 7th 5G-PINE workshop was organized by the research team of the Hellenic Telecommunications Organization (OTE) in cooperation with many major partner companies. The 5G-PINE workshop was established to disseminate knowledge obtained from ongoing EU projects, as well as from any other action of EU-funded research, in the wider thematic area of "5G Innovative Activities – Putting Intelligence to the Network Edge" and with the aim of focusing on artificial intelligence in modern 5G telecommunications infrastructures. This is achieved by emphasizing results, methodologies, trials, concepts and/or findings originating from technical reports/deliverables, related pilot actions, and/or any other relevant 5G-based applications intending to enhance intelligence to the network edges.

- The 2nd Workshop on Artificial Intelligence and Ethics (AIETH 2022)

The 2nd AIETH workshop was coordinated and organized by John Macintyre (University of Sunderland, UK). It aimed to emphasize the need for responsible global AI. The respective scientific community must be preparing to act preemptively and ensure that our societies will avoid negative effects of AI and of the 4th Industrial Revolution in general. This workshop offered an extensive discussion on potential major ethical issues that might arise in the near future.

- The 2nd Workshop on Defense Applications of AI (DAAI 2022)

The 2nd DAAI workshop was organized by the European Defense Agency (EDA), a European Union (EU) organization. Defense and security systems are becoming more and more complicated and at the same time equipped with a plethora of sensing devices which collect an enormous amount of information both from their operating environment as well as from their own functioning. Considering the accelerating technology advancements of AI, it is likely that it will have a profound impact on practically every segment of daily life, from the labor market to business and service provision. The security and defense sectors will not remain idle or unaffected by this technological evolution. On the contrary, AI is expected to transform the nature of future defense and security domains, because by definition defense and security forces are highly dependent on (accurate) data and (reliable) information. DAAI 2022 aimed at presenting recent evolutions in artificial intelligence applicable to defense and security applications.

- The 1st Workshop on AI in Energy, Buildings and Micro-Grids (AIBMG 2022)

This workshop was organized by Center for Research and Technology (CERTH), Greece. Sustainable energy is hands down one of the biggest challenges of our times. As the EU sets its focus on reaching its 2030 and 2050 goals, the role of artificial intelligence in the energy domain at the building, district, and micro-grid level becomes more prevalent. The EU and member states are increasingly highlighting the need to complement IoT capacity (e.g., appliances and meters) with artificial intelligence capabilities (e.g., building management systems, proactive optimization, prescriptive maintenance). Moreover, moving away from the centralized production schema of the grid, novel approaches are needed not just for reducing energy consumption but also for the optimal management and/or balancing of local (or remote aggregated net metering) generation and consumptions.

The aim of the AIBMG workshop was to bring together interdisciplinary approaches that focus on the application of AI-driven solutions for increasing and improving energy efficiency of residential and tertiary buildings without compromising the occupants' well-being. Applied directly at either the device, building, or district management system level, the proposed solutions should enable more energy efficient and sustainable operation of devices, buildings, districts, and micro-grids. The workshop also welcomed cross-domain approaches that investigate how to support energy efficiency by exploiting decentralized, proactive, plug-n-play solutions.

- The 2nd Workshop on Artificial Intelligence in Biomedical Engineering and Informatics (AIBEI 2022)

Artificial intelligence (AI) is gradually changing the routine of medical practice, and the level of acceptance by medical personnel is constantly increasing. Recent progress in digital medical data acquisition through advanced biosignal and medical imaging devices, machine learning, and high-performance cloud computing infrastructures push health-related AI applications into areas that were previously thought to be only the province of human experts. Such applications employ a variety of methodologies, including fuzzy logic, evolutionary computing, neural networks, or deep learning, for producing AI-powered models that simulate human physiology.

- The 1st Workshop/Special Session on Machine Learning and Big Data in Health Care (ML@HC 2022)

In the present era, machine learning (ML) has been extensively used for many applications to real-world problems. ML techniques are very suitable for big data mining, to extract new knowledge and build predictive models that, given a new input, can provide in the output a reliable estimate. On the other hand, healthcare is one of the fastest growing data segments of the digital world, with healthcare data increasing at a rate of about 50% per year. There are three primary sources of big data in healthcare: providers and payers (including EMR, imaging, insurance claims, and pharmacy data), -omic data (including genomic, epigenomic, proteomic, and metabolomic data), and patients and non-providers (including data from smart phone and Internet activities, sensors, and monitoring tools).

The growth of big data in oncology, as well as other severe diseases (such as Alzheimer's Disease) can provide unprecedented opportunities to explore the biopsychosocial characteristics of these diseases and for descriptive observation, hypothesis generation, and prediction for clinical, research and business issues. The results of big data analyses can be incorporated into standards and guidelines and will directly impact clinical decision making. Oncologists and professionals from related medical fields can increasingly evaluate the results from research studies and commercial analytical products that are based on big data, based on ML techniques. Furthermore, all these applications can be Web-based, so are very useful for the post-treatment of the patients.

The aim of this workshop/special session was to serve as an interdisciplinary forum for bringing together specialists from the scientific areas of computer and web engineering, data science, semantic computing, and bioinformatics-personalized medicine, along with clinicians and caregivers. The focus of this special session was on current technological advances and challenges regarding the development of big data-driven algorithms, methods, and tools; furthermore, it sought to investigate how ML-aware applications can contribute towards big data analysis on post-treatment follow up.

In addition to the paper presentations and workshops, five invited speakers gave keynotes on timely aspects or state-of-the-art applications of artificial intelligence. The keynote presentations were held jointly with EANN 2022. Hojjat Adeli from Ohio State University, USA, gave a speech on "Machine Learning: A Key Ubiquitous Technology in the 21st Century". Riitta Salmelin from Aalto University, Finland, addressed "What neuroimaging can tell about human brain function". Elisabeth André from the University of Augsburg, Germany, discussed "Socially Interactive Artificial Intelligence: Perception, Synthesis and Learning of Human-like Behaviors". Verena Rieser from Heriot-Watt University, UK, gave a speech on the subject of "Responsible Conversational AI: Trusted, Safe and Bias-free" and John Macintyre from the University of Sunderland, UK, addressed the wider AI and ethics area in his talk "Is Big Tech Becoming the Big Tobacco of AI?".

On behalf of the organizers, we would like to thank everyone involved in AIAI 2022, and we hope that you find the proceedings interesting and insightful.

June 2022

Ilias Maglogiannis
Lazaros Iliadis
John Macintyre
Paulo Cortez

Organization

Executive Committee

General Co-chairs

Ilias Maglogiannis	University of Piraeus, Greece
John Macintyre	University of Sunderland, UK

Program Co-chairs

Lazaros Iliadis	Democritus University of Thrace, Greece
Konstantinos Votis	Information Technologies Institute, Greece
Vangelis Metsis	Texas State University, USA

Steering Committee

Ilias Maglogiannis	University of Piraeus, Greece
Lazaros Iliadis	Democritus University of Thrace, Greece

Advisory Co-chairs

Panagiotis Papapetrou	Stockholm University, Sweden
Paulo Cortez	University of Minho, Portugal

Publication and Publicity Co-chairs

Antonios Papaleonidas	Democritus University of Thrace, Greece
Anastasios Panagiotis Psathas	Democritus University of Thrace, Greece

Liaison Chair

Ioannis Chochliouros	Hellenic Telecommunication Organization (OTE), Greece

Doctoral Consortium Chairs

Antonios Papaleonidas	Democritus University of Thrace, Greece
Harris Papadopoulos	Frederick University, Cyprus

Workshops Co-chairs

Panagiotis Kikiras	European Defense Agency, Belgium
Phivos Mylonas	Ionian Univesity, Greece
Katia Kermanidis	Ionian University, Greece

Special Sessions and Tutorials Co-chairs

Spyros Sioutas	University of Patras, Greece
Christos Makris	University of Patras, Greece

Program Committee

Aiello Salvatore	Politecnico di Torino, Italy
Aldanondo Michel	IMT Mines Albi, France
Alexandridis Georgios	University of the Aegean, Greece
Alexiou Athanasios	Novel Global Community Educational Foundation, Australia
Aloisio Angelo	University of L'Aquila, Italy
Alonso Serafin	University of León, Spain
Amato Domenico	University of Palermo, Italy
Anagnostopoulos Christos-Nikolaos	University of the Aegean, Greece
Badica Costin	University of Craiova, Romania
Bezas Napoleon	Centre for Research and Technology Hellas, Greece
Bobrowski Leon	Bialystok University of Technology, Poland
Bozanis Panayiotis	International Hellenic University, Greece
C. Sousa Joana	NOS Inovação SA, Portugal
Campos Souza Paulo Vitor	Federal Center for Technological Education of Minas Gerais, Brazil
Caridakis George	National Technical University of Athens, Greece
Cavique Luis	University of Aberta, Portugal
Chamodrakas Ioannis	National and Kapodistrian University of Athens, Greece
Chochliouros Ioannis	Hellenic Telecommunications Organization S.A. (OTE), Greece
Delibasis Konstantinos	University of Thessaly, Greece
Demertzis Konstantinos	Democritus University of Thrace, Greece
Dimara Asimina	Centre for Research and Technology Hellas, Greece
Diou Christos Harokopio	University of Athens, Greece
Dominguez Manuel	University of Leon, Spain
Drakopoulos Georgios	Ionian University, Greece
Drousiotis Efthyvoulos	University of Liverpool, UK
Ferreira Luis	Polytechnic of Porto, Portugal
Fiannaca Antonino	National Research Council, Italy
Frittoli Luca	Politecnico di Milano, Italy
Fuertes Juan J.	University of León, Spain
Gaggero Mauro	National Research Council, Italy
Georgopoulos Efstratios	University of Peloponnese, Greece
Giancarlo Raffaele	University of Palermo, Italy
Giarelis Nikolaos	University of Patras, Greece
Giunchiglia Eleonora	University of Oxford, UK

Gonzalez-Deleito Nicolas	Sirris, Belgium
Grivokostopoulou Foteini	University of Patras, Greece
Hága Péter	Ericsson Research, Hungary
Hajek Petr	University of Pardubice, Czech Republic
Haralabopoulos Giannis	University of Nottingham, UK
Hatzilygeroudis Ioannis	University of Patras, Greece
Hichri Bassem	GCL International, Luxembourg
Hristoskova Anna	Sirris, Belgium
Humm Bernhard	Darmstadt University of Applied Sciences, Germany
Iakovidis Dimitris	University of Thessaly, Greece
Iliadis Lazaros	Democritus University of Thrace, Greece
Ishii Naohiro	Aichi Institute of Technology, Japan
Islam Shareeful	University of East London, UK
Ivanovic Mirjana	University of Novi Sad, Serbia
Jeannin-Girardon Anne	University of Strasbourg, France
Kalamaras Ilias	Centre for Research and Technology Hellas/Information Technologies Institute, Greece
Kallipolitis Athanasios	University of Piraeus, Greece
Kanakaris Nikos	University of Patras, Greece
Kanavos Andreas	University of Patras, Greece
Kapetanakis Stelios	University of Brighton, UK
Karacapilidis Nikos	University of Patras, Greece
Karatzas Kostas	Aristotle University of Thessaloniki, Greece
Karpouzis Kostas	National and Kapodistrian University of Athens, Greece
Kassandros Theodosios	Aristotle University of Thessaloniki, Greece
Kefalas Petros	CITY College, Greece
Kermanidis Katia Lida	Ionian University, Greece
Kokkinos Yiannis	University of Macedonia, Greece
Kollia Ilianna	IBM/National Technical University of Athens, Greece
Kontos Yiannis	Aristotle University of Thessaloniki, Greece
Koprinkova-Hristova Petia	Bulgarian Academy of Sciences, Bulgaria
Korkas Christos	Democritus University of Thrace/Centre for Research and Technology, Greece
Kosmopoulos Dimitrios	University of Patras, Greece
Kotis Konstantinos	University of the Aegean, Greece
Kotsiantis Sotiris	University of Patras, Greece
Koukaras Paraskevas	Centre for Research and Technology Hellas, Greece
Koussouris Sotiris	Suite5 Data Intelligence Solutions Ltd., Cyprus
Koutras Athanasios	University of Peloponnese, Greece
Krejcar Ondrej	University of Hradec Kralove, Czech Republic
Krinidis Stelios	Centre for Research and Technology Hellas, Greece
Kyriakides George	University of Macedonia, Greece
La Rosa Massimo	National Research Council, Italy
Lalas Antonios	Centre for Research and Technology Hellas/Information Technologies Institute, Greece

Lazaridis Georgios	Centre for Research and Technology Hellas/Information Technologies Institute, Greece
Lazic Ljubomir	UNION University, Serbia
Lederman Dror	Holon Institute of Technology, Israel
Leon Florin	Technical University of Iasi, Romania
Likas Aristidis	University of Ioannina, Greece
Likothanassis Spiros	University of Patras, Greece
Livieris Ioannis	University of Patras, Greece
Lo Bosco Giosuè	University of Palermo, Italy
Logofatu Doina	Frankfurt University of Applied Sciences, Germany
Longo Luca	Technological University of Dublin, Ireland
Maghool Samira	University of Milan, Italy
Maglogiannis Ilias	University of Piraeus, Greece
Magoulas George	University of London, Birkbeck College, UK
Magri Luca	Politecnico di Milano, Italy
Makris Christos	University of Patras, Greece
Malialis Kleanthis	University of Cyprus, Cyprus
Maragoudakis Manolis	Ionian University, Greece
Marano Giuseppe Carlo	Politecnico di Torino, Italy
Margaritis Konstantinos	University of Macedonia, Greece
Martins Nuno	NOS Inovação SA, Portugal
Melnik Andrew	Bielefeld University, Germany
Menychtas Andreas	University of Piraeus, Greece
Mezaris Vasileios	Centre for Research and Technology Hellas, Greece
Michailidis Iakovos	Centre for Research and Technology Hellas, Greece
Mitianoudis Nikolaos	Democritus University of Thrace, Greece
Morán Antonio	University of León, Spain
Moutselos Konstantinos	University of Piraeus, Greece
Muhr David	Johannes Kepler University Linz, Austria
Müller Wilmuth	Fraunhofer IOSB, Germany
Munk Michal	Constantine the Philosopher University in Nitra, Slovakia
Mylonas Phivos	National Technical University of Athens, Greece
Nikiforos Stefanos	Ionian University, Greece
Ntalampiras Stavros	University of Milan, Italy
Oprea Mihaela	Petroleum-Gas University of Ploiesti, Romania
Papadopoulos Symeon	Centre for Research and Technology Hellas/Information Technologies Institute, Greece
Papadourakis Giorgos	Hellenic Mediterranean University, Greece
Papaioannou Vaios	University of Patras, Greece
Papaleonidas Antonios	Democritus University of Thrace, Greece
Papastergiopoulos Christoforos	Centre for Research and Technology Hellas/Information Technologies Institute, Greece
Papatheodoulou Dimitris	KIOS Research and Innovation Center of Excellence, Cyprus
Passalis Nikolaos	Aristotle University of Thessaloniki, Greece

Paulus Jan	Nuremberg Institute of Technology, Germany
Pérez Daniel	University of León, Spain
Perikos Isidoros	University of Patras, Greece
Pimenidis Elias	University of the West of England, UK
Pintelas Panagiotis	University of Patras, Greece
Prada Miguel Ángel	Universidad de León, Spain
Pradat-Peyre Jean-François	Paris Nanterre University and LIP6, France
Psathas Anastasios	Panagiotis Democritus University of Thrace, Greece
Racz Andras	Ericsson Research, Hungary
Rankovic Dragica	UNION University, Serbia
Reitmann Stefan	TU Bergakademie Freiberg, Germany
Rosso Marco Martino	Politecnico di Torino, Italy
Ryjov Alexander Lomonosov	Moscow State University, Russia
Sarafidis Michail	National Technical University of Athens, Greece
Scheele Stephan	Fraunhofer IIS/University of Bamberg, Germany
Scherrer Alexander	Fraunhofer ITWM, Germany
Seferis Manos	National Technical University of Athens, Greece
Serrano Will	University College London, UK
Shi Lei	Durham University, UK
Siccardi Stefano	University of Milan, Italy
Spyrou Evaggelos	Technological Educational Institute of Sterea Ellada, Greece
Staiano Antonino	University of Naples Parthenope, Italy
Stamate Daniel	Goldsmiths, University of London, UK
Stefanopoulou Aliki	Centre for Research and Technology Hellas, Greece
Stucchi Diego	Politecnico di Milano, Italy
Stylianou Nikolaos	Aristotle University of Thessaloniki, Greece
Theocharides Theo	University of Cyprus, Cyprus
Theodoridis Georgios	Aristotle University of Thessaloniki, Greece
Timplalexis Christos	Centre for Research and Technology Hellas/Information Technologies Institute, Greece
Trakadas Panagiotis	National and Kapodistrian University of Athens, Greece
Treur Jan	VU Amsterdam, The Netherlands
Trovò Francesco	Politecnico di Milano, Italy
Tsadiras Athanasios	Aristotle University of Thessaloniki, Greece
Tsaknakis Christos	Democritus University of Thrace, Greece
Van-Horenbeke Franz Alexander	Free University of Bozen-Bolzano, Italy
Versaci Mario	University of Reggio Calabria, Italy
Vidnerová Petra	Czech Academy of Sciences, Czech Republic
Vilone Giulia	Technological University Dublin, Ireland
Vonitsanos Gerasimos	Ionian University, Greece
Votis Kostas	Centre for Research and Technology Hellas, Greece

Vougiatzis Georgios	Information Technologies Institute/Centre for Research and Technology Hellas, Greece
Wan Cen Birkbeck	University of London, UK
Yang Xin-She	Middlesex University London, UK
Zender Alexander	Darmstadt University of Applied Sciences, Germany
Zervas Panagiotis	University of Peloponnese, Greece
Zimmermann Tobias	Fraunhofer ITWM, Germany

Contents – Part II

Contents – Part I

Deep Learning - Recurrent/Reinforcement

Energy Streams Modeling

Evolutionary/Biologically Inspired Modeling and Brain Modeling