M.Sc. in "Advanced Informatics and Computing Systems - Software Development and Artificial Intelligence"

M.Sc. in "Informatics"

The 16th International Conference on Information, Intelligence, Systems and Applications
10-12 July 2025, University of the Aegean, Mytilene, Greece

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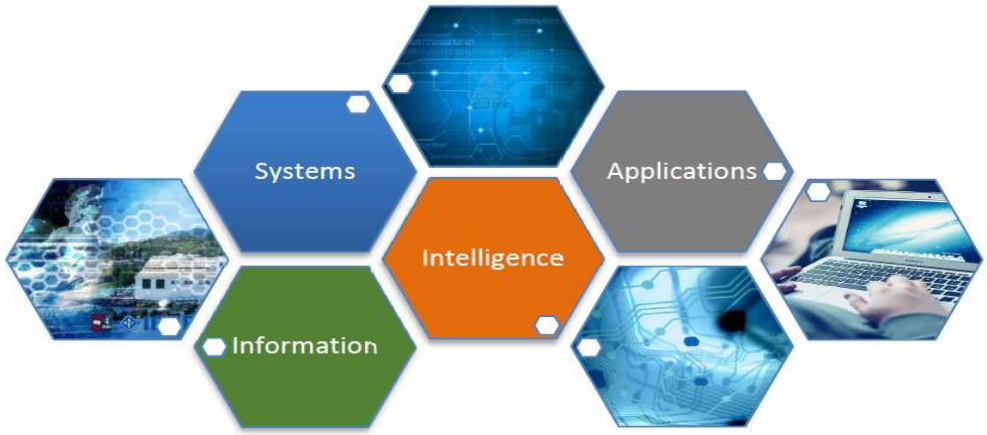

The International Conference on Information, Intelligence, Systems and Applications (IISA) series offers a forum for the constructive interaction and prolific exchange of ideas among scientists and practitioners from different research fields – such as computers, mathematics, physics, biology, medicine, chemistry, experimental psychology, social sciences, linguistics, and engineering – having the goal of developing methodologies and tools for the solution of complex problems in artificial intelligence, biology, neuroscience, security, monitoring, surveillance, healthcare, sustainability in energy sources, governance, education, commerce, automation, robotics, optimization, image, speech and natural languages, and their integration.

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IISA 2025 Chairs' Message

Welcome to the **Sixteenth International Conference on Information, Intelligence, Systems, and Applications (IISA 2025)**. **Information** is widely available and accessible, but frequently leads to information overload and overexposure, while the effort for coding, storing, hiding, securing, transmitting and retrieving it may be excessive. **Intelligence** is required to manage information and extract knowledge from it, inspired by biological and other paradigms. Information and **Multimedia Systems**, with an increasing level of Intelligence, are being developed that incorporate these advances. As a result, new Technologies, Protocols and **Applications** are emerging. The International Conference on Information, Intelligence, Systems and Applications (IISA) series offers a unique forum for the constructive interaction and prolific exchange of ideas among scientists and practitioners from different research fields – such as computers, mathematics, physics, biology, medicine, chemistry, experimental psychology, social sciences, linguistics, and engineering – having the goal of developing methodologies and tools for the solution of complex problems in artificial intelligence, biology, neuroscience, security, monitoring, surveillance, healthcare, sustainability in energy sources, governance, education, commerce, automation, robotics, optimization, image, speech and natural languages, and their integration.

The IISA conference is held on an annual basis and is intended as an international forum for researchers and professionals in all areas of Information, Intelligence, Systems and Applications. Every year, we invite submission of papers in which high-quality original research and developments is presented. The IISA conference features tutorials, technical paper presentations, workshops, and distinguished keynote speeches.

This year's conference marks the sixteenth IISA. IISA 2025 is organized by the University of the Aegean, Greece, Musashi University, Japan, the University of Piraeus, Greece, and the Biological and Artificial Intelligence Foundation, USA. Technical sponsorship is also provided by the Institute of Electrical and Electronics Engineers (IEEE), the IEEE Computer Society and its Technical Community on Multimedia Computing, as well as by the Programs of Graduate Study in "Informatics" and "Advanced Information Systems" of the Department of Informatics, University of Piraeus, Greece. IISA 2025 is a live conference with the University of the Aegean, Mytilene, Greece as its venue. IISA 2025 lasts for three days and its technical program consists of twenty-two (22) technical paper presentation sessions and six (6) keynote speeches by world-recognized reserahcers from the USA and the UK. We received 302 high quality submissions authored by authors-researchers from about 25 countries around the world. Out of them, ninety eight (98) were accepted as full (eight-page) papers, which corresponds to an acceptance rate

of 32,45%. An additional twenty-three (23) of the submissions were accepted as short (four-page) papers, which corresponds to 7,62% of the submissions. Moreover, accepted full and short paper authors represented academia, government, industry, and business.

We are thankful to the many people who contributed to the success of IISA 2025. Firstly, thanks are due to the paper authors, including those whose papers were not accepted in the program, for choosing IISA 2025 as the forum for dissemination of the results of their research. We are also thankful to the IISA 2025 program committee members and reviewers for their wonderful work in reviewing and selecting in a timely manner the best among the submitted papers. Thanks are also due to the University of the Aegean, Musashi University, the University of Piraeus, the Biological and Artificial Intelligence Foundation, IEEE, the IEEE Computer Society and the IEEE Technical Community on Multimedia Computing for their technical co-sponsorship of the conference. Many thanks are also due to Pernot Ricard Hellas and Mini Ouzo for sponsoring IISA2025.

For their efforts and contributions towards organizing the conference, many thanks are due to:

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Last, but not least, special thanks are due to the **IISA 2025 coordinator, Easy Conferences Ltd., Cyprus**.

On behalf of the Sixteenth International Conference on Information, Intelligence, Systems, and Applications (IISA2025), we invite all of you to join us in Mytilene, Greece and enjoy its technical and social programs.

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Yamamoto Shuichiro, International Professional University in Nagoya, Japan
Yoshinori Tanabe, Tsurumi University, Japan
Zaphiris Panayotis, Cyprus University of Technology

IISA 2025 Invited Keynote Speakers in Alphabetical Order

Miltiadis (Miltos) Alamaniotis, University of Texas at San Antonio, USA

Title: **Preventing the Nuclear September 11th: Dynamically Data Driven Artificial Intelligence Solutions and the balance between Security, Privacy and Ethics**

Abstract:

The terrorist attacks of 9/11 led to a redefinition of security architecture and its priorities to prevent such acts. One emerging scenario involves the potential use of nuclear materials for attacks in metropolitan areas, resulting in severe and widespread consequences. Typically, detecting and identifying terrorist activities involve sensors that measure radiation and analyze the data for significant patterns. Recent advancements in Artificial Intelligence across various fields have shown promise in addressing critical challenges in nuclear security. Specifically, the integration of dynamically data driven application framework with Matrix Profile and AI methods allow for real-time data analysis and nuclear threat detection in consecutive radiation data. AI facilitates high-definition, high-speed analysis of diverse data types directly within the sensors, improving the monitoring of nuclear materials' use, storage, and transport. Moreover, these dynamically data-driven AI methods embedded into sensor systems eliminate the need for operators to possess specialized expertise in nuclear physics or engineering. This innovation enhances accessibility and operational efficiency, reducing human dependency while maintaining accuracy and reliability.

This talk will explore cutting-edge, dynamically data-driven AI solutions for nuclear threat detection. It will also delve into the delicate balance between advancing security measures and addressing the privacy and ethical implications of deploying AI-powered sensor technologies to prevent a nuclear 9/11 in urban centers.

Short Bio:

Miltiadis (Miltos) Alamaniotis is Associate professor and the Lutcher Brown Endowed Fellow in the Department of Electrical and Computer Engineering at the University of Texas at San Antonio (UTSA). Before joining UTSA, he worked as a researcher at Purdue University. He received his BS in Electrical and Computer Engineering from the University of Thessaly in 2005 and MS and PhD in Nuclear Engineering with an emphasis in Applied Artificial Intelligence from Purdue University in 2010 and 2012, respectively. His interdisciplinary research focuses on the development of Artificial Intelligence and machine learning approaches applied to intelligent energy systems, nuclear power systems, and nuclear security to detect hidden radioactive materials.

He has published over two hundred fifty (250) research papers in scientific journals, books and proceedings of international conferences. He serves as Associate Editor in the International journal on Artificial Intelligence Tools, Internet of Things (Elsevier), Intelligent Decision Technologies and served as Program Chair in the IEEE International Tools with Artificial Intelligence 2018. He had worked as an external researcher at Argonne National Laboratory (Illinois, USA), as a visitor in the Energy and Power Systems group at Oak Ridge National Laboratory (Tennessee, USA) in May 2016, and at the Nevada National Security Laboratory (USA). He is the recipient of the Distinguished Alumnus Award of the Department of Electrical and Computer Engineering. University of Thessaly in July 2017, and the Presidential Award for Distinguished Research Achievements at UTSA in 2022. In 2023, the National Academy of Engineering included him in the "top-notch 100 Early Career Engineers in USA" for the 2023 Frontiers-of-Engineering Symposium.

Nathan Clarke, University of Plymouth, UK

Title: **Cyber Security & AI: The Good, the Bad and the Ugly**

Abstract:

Cyber security continues to be a significant challenge with reports stating cybercrime will cost the global community $10.5 trillion by 2025. Cybercrime clearly is not a new problem, but the scale is escalating to new levels and the impact cuts across all of society. Artificial intelligence (AI) is seen by many as a potential step change in capability for cyber security – yet the prospect of truly intelligent systems also opens up equal opportunities for the hacker community. This presentation will draw upon Prof Clarke's 20+ years of developing AI and machine learning systems to aid in a variety of cyber security solutions – providing examples of where and how it can be used to provide more effective cyber security. The talk will also address the weaknesses of current approaches and the need for a new generation of explainable and trustworthy AI to ensure we actually understand how these systems operate to protect us. Finally, Prof Clarke will draw upon some examples of how the technology can be misused and the potential dangers that exist for us all now and in the future.

Short Bio:

Nathan Clarke is a Professor in Cyber Security and Digital Forensics at the University of Plymouth, UK. He is also an adjunct Professor at Edith Cowan University in Australia. His research interests reside in cyber security, specifically biometrics, digital forensics and artificial intelligence. Prof Clarke has published over 250 journal and conference papers. He co-created and he co-chairs the International Symposium on Human Aspects of Information Security and Assurance (HAISA), currently in its nineteenth year. Prof Clarke has been involved in a number of successful EPSRC, Knowledge Transfer Projects and European funded projects (valued at £20 million) and has graduated 48 doctoral students. Prof Clarke is a chartered engineer, a fellow of the British Computing Society (BCS) and a senior member of the IEEE.

Petros Drineas, Purdue University, USA

Title: **(Randomized) Numerical Linear Algebra: A Core Engine for Data Science, Machine Learning, and AI**

Abstract:

Numerical Linear Algebra (NLA) has long been a cornerstone of scientific computing, powering advancements in physics, engineering, and beyond. This talk explores how Randomization in NLA (or RandNLA for short) has emerged as a transformative force in data science, machine learning, and artificial intelligence. By leveraging randomness to accelerate computations and reduce dimensionality, these methods address the challenges posed by modern datasets. We will highlight key algorithms, applications, and the impact of RandNLA in enabling scalable solutions for problems in data science, ML, and AI.

Short Bio:

Petros Drineas is a Professor and the Department Head of the Computer Science Department of Purdue University. He earned a PhD in Computer Science from Yale University in 2003 and a BS in Computer Engineering and Informatics from the University of Patras, Greece, in 1997. His work has fundamentally contributed to the development of Randomization in Numerical Linear Algebra (RandNLA). He has also worked on applications of RandNLA to Data Science, with a particular focus on genomic data. Read Less

Prof. Drineas was elected a SIAM Fellow in 2023; was named a Purdue University Faculty Scholar in 2022; and is the recipient of an NSF CAREER award and an IBM Academic award. He was a Visiting Professor at the US Sandia National Laboratories during the fall of 2005, a Visiting Fellow at the Institute for Pure and Applied Mathematics at the University of California, Los Angeles in the fall of 2007, and a long-term visitor at the Simons Institute for the Theory of Computing at the University of California Berkeley in the fall of 2013. From October 2010 to December 2011, he served the US National Science Foundation as a Program Director in the Information and Intelligent Systems (IIS) Division and the Computing and Communication Foundations (CCF) Division.

Prof. Drineas has published over 150 papers (cited approximately 15,000 times) in theoretical computer science, applied mathematics, and genetics venues, including the Proceedings of the National Academy of Sciences, PLOS Genetics, Genome Research, the Journal of Medical Genetics, PLoS One, Bioinformatics, etc. He has presented keynote talks and tutorials in major conferences (e.g., SIAM ALA, KDD, VLDB, SDM, etc.) and over 100 invited colloquia and

seminars. He received two fellowships from the European Molecular Biology Organization for his work in genetics and his research has been featured in popular press articles, including SIAM News, LiveScience, ScienceDaily, Scitizen, the National Geographic, Yahoo! News, etc. Prof. Drineas is an associate editor of the SIAM Journal on Matrix Analysis and Applications (SIMAX), the SIAM Journal on Scientific Computing (SISC), the Applied and Computational Harmonic Analysis (ACHA) journal, and PLoS One.

Steven Furnell, University of Nottingham, UK

Title: **Cyber Security for SMEs – Recognising Needs and Tracking Experiences**

Abstract:

Addressing cyber security is often a difficult issue for Small and Medium-sized Enterprises (SMEs), with time and budgetary constraints and lack of skills and resources resulting in lack of attention to good practice. This presentation reports on the current findings from an ongoing project – CyCOS – that has been investigating the cyber security needs of SMEs and their related experiences when attempting to seek support. The results are reported from the perspective of SMEs themselves, as well as providers that they may turn to for assistance. Based upon the findings, the project is trialling a new community-based approach to support, aiming to enable SMEs and advisors to socialise cyber security issues and solutions in an accessible and collaborative context. This talk will discuss findings to date and outline the plans for the Communities of Support pilots.

Short Bio:

Steven Furnell is Professor of Cyber Security in the School of Computer Science at the University of Nottingham. His research interests include security management and culture, usability of security and privacy, and technologies for user authentication and intrusion detection. He has authored over 400 papers in refereed international journals and conference proceedings, as well as various books, book chapters, and industry reports. Steve is the UK representative to Technical Committee 11 (security and privacy) within the International Federation for Information Processing, and a board member of the Chartered Institute of Information Security, and a member of the Steering Group for the Cyber Security Body of Knowledge (CyBOK) and the Careers and Learning Working Group within the UK Cyber Security Council. Steve is the Principal Investigator on the CyCOS project, looking at enhancing cyber security support for small organisations.

Peristera (Perry) Paschou, Purdue University, USA

Title: **Data-Driven Insights into Human Genetic Diversity for Health and Disease**

Abstract:

Dr. Paschou's research integrates cutting-edge data science methodologies and genomic analysis to uncover the impact of human population genetic diversity on health outcomes and disease risk. This talk will showcase how advanced computational tools, coupled with multi-omic and neuroimaging data integration are utilized to understand the basis of complex disorders paving the way for precision medicine. Attendees will explore the intersection of genetics, data analytics, and bioinformatics, gaining insights into the collaborative, multi-disciplinary approaches driving innovations in disease prevention, diagnosis, and treatment.

Short Bio:

Peristera (Perry) Paschou is a Professor and Head of the Department of Biological Sciences at Purdue University in the USA. Her research centers on the integration of advanced data analysis techniques to investigate the genetic structure of human populations and the genetic underpinnings of complex diseases, with a special focus on neurodevelopmental disorders. She holds a PhD from the University of Athens, with postgraduate training at the University of Oxford and postdoctoral studies at Yale University in the USA. Certified by the American Board of Medical Genetics in Clinical Molecular Genetics, she has also served as faculty in the Department of Molecular Biology and Genetics at Democritus University of Thrace, as a Visiting Researcher at UCSF, UCLA, and the National Institutes of Health, and as Associate Dean at Purdue University. Dr. Paschou leads international research initiatives leveraging large-scale data integration and computational approaches for the study of Tourette Syndrome and related disorders. In recognition of her contributions to data-driven genetics research she was named Showalter Faculty Scholar.

Andreas Spanias, SenSIP Center, Arizona State University, USA

Title: **International Research and Workforce Development in Classical and Quantum Machine Learning – A Fulbright Scholar Experience**

Abstract:

Machine Learning (ML) algorithms have been deployed in several areas including energy, environmental, media, biomedical, security and other applications. At Arizona State University the Sensor Signal and Information Processing (SenSIP) center and industry consortium has launched several research projects involving ML especially in the areas of solar energy monitoring, imaging and audio processing. In addition, SenSIP hosted five National Science Foundation (NSF) workforce development programs that focused on providing research experiences in ML to students and community college faculty. More recently the SenSIP center, started research and workforce development projects in quantum machine learning and quantum signal processing. Most of these efforts have been supported by NSF and industry. In 2024, these efforts expanded to international engagement through a Fulbright Research Scholar grant with activities in the Balkans and in the eastern Mediterranean region. The Fulbright program which was granted in 2024 and implemented in the spring of 2025 enabled us to train students and faculty in the Balkans on QML for energy and imaging applications. More specifically the program consisted of two QML research projects engaging graduate students in the Balkans and several Fulbright research seminars in Balkan and eastern Mediterranean universities. The presentation will cover the Fulbright and SenSIP activities and specific research results will be presented on classical and quantum machine learning for solar energy applications.

Short Bio:

Andreas Spanias is Professor in the School of Electrical, Computer, and Energy Engineering at Arizona State University (ASU). He is also the director of the Sensor Signal and Information Processing (SenSIP) center and the founder of the SenSIP industry consortium (also an NSF I/UCRC site). His research interests are in the areas of adaptive signal processing, speech processing, quantum machine learning and sensor systems. He and his students developed the award winning software J-DSP which was sponsored by NSF. Dr. Spanias is author of two textbooks: Audio Processing and Coding by Wiley and DSP; An Interactive Approach (2nd Ed.). He contributed to more than 350 papers, 11 monographs, and 27 US patents. He served as Associate Editor of the IEEE Transactions on Signal Processing and as General Co-chair of IEEE ICASSP-99. He also served as the IEEE Signal Processing Vice-President for Conferences. Andreas Spanias is co-recipient of the 2002 IEEE Donald G. Fink paper prize award and was elected Fellow of the IEEE in 2003. He served as Distinguished Lecturer for the IEEE Signal processing society. He is currently heading four NSF workforce development projects as a PI. He received the 2018 IEEE Phoenix Chapter award with citation: “For significant innovations and patents in signal processing for sensor systems.” He also received

the 2018 IEEE Region 6 Outstanding Educator Award (across 12 states) with citation: “For outstanding research and education contributions in signal processing.” He is a Senior Member of the National Academy of Inventors (NAI). He was recently named US Fulbright Research Scholar with regional research and outreach activities in the Balkans.

Program at a Glance

TIME	THURSDAY, JULY 10, 2025	SATURDAY, JULY 12, 2025
08:00 - 08:30	REGISTRATION	———
08:30 - 09:00	OPENING SESSION	———
09:00 - 10:00	**KEYNOTE – 1** / ROOM 1	**KEYNOTE – 5 / ROOM 1**
10:00 - 10:15	*COFFEE BREAK*	*COFFEE BREAK*
10:15 - 11:45	**TM-1** / ROOM 1 **TM-2** / ROOM 2 **TM-3** / ROOM 3 **TM-4** / ROOM 4	**SM-1** / ROOM 1 **SM-2** / ROOM 2 **SM-3** / ROOM 3 **SM-4** / ROOM 4
11:45 - 13:00	*LUNCH*	*LUNCH*
13:00 - 14:00	**KEYNOTE – 2** / ROOM 1	**KEYNOTE – 6** / ROOM 1
14:00 - 14:15	*COFFEE BREAK*	**CLOSING SESSION** / ROOM 1
14:15 - 15:15	**KEYNOTE – 3** / ROOM 1	———
15:15 - 16:15	*WELCOME RECEPTION*	———

TIME	FRIDAY, JULY 11, 2025 MAIN CONFERENCE	FRIDAY, JULY 11, 2025 ENERGY WORKSHOP
08:00 - 08:30	———	———
08:30 - 09:00	———	———
09:00 - 10:00	**KEYNOTE – 4** / ROOM 1	**WELCOME AND KEYNOTE SPEECHES** / ROOM 2
10:00 - 10:15	*COFFEE BREAK*	*COFFEE BREAK*
10:15 - 11:45	**FM-1** / ROOM 1 **FM-3** / ROOM 3 **FM-4** / ROOM 4 **FM-5** / ROOM 5	**FM-2** / ROOM 2
11:45 - 13:00	*LUNCH*	*LUNCH*
13:00 - 14:30	**FA-1** / ROOM 1 **FA-3** / ROOM 3 **FA-4** / ROOM 4 **FA-5** / ROOM 5	**FA-2** / ROOM 2
14:30 - 14:45	*COFFEE BREAK*	*COFFEE BREAK*
14:45 - 16:15	**FE-1** / ROOM 1 **FE-3** / ROOM 3	**FE-2.1** / ROOM 2
16:15-16:20	———	*BREAK*
16:20-16:55	———	**FE-2.2** / ROOM 2
16:55-17:00	———	**WORKSHOP CONCLUDING REMARKS**
19:00 – 21:00	———	———
17.30 - 23.00	**EXCURSION TO TRADITIONAL TOWN OF MOLYVOS AND GALA DINNER**	**EXCURSION TO TRADITIONAL TOWN OF MOLYVOS AND GALA DINNER**

Detailed Program

Thursday, 10 July 2025

08.30 – 09.00	**Opening Session (ROOM-1)** **Professor C. Kalloniatis, University of the Aegean, Greece** **Professor S. Yamamoto, International Professional University of Technology in Nagoya, Japan** **Professor C.-N. Anagnostopoulos, University of the Aegean, Greece** **Professor H. Takeuchi, Musashi University, Japan** **Professor E. Kavakli, University of the Aegean, Greece** **Professor G.A. Tsihrintzis, University of Piraeus, Greece** **Professor M. Virvou, University of Piraeus, Greece**
09.00 – 10.00	**Keynote Speech-1 (ROOM-1)** **Professor Steven Furnell** **Cyber Security for SMEs – Recognising Needs and Tracking experiences** **Chair: C. Kalloniatis**
13.00 – 14.00	**Keynote Speech-2 (ROOM-1)** **Professor Nathan Clarke** **Cyber Security & AI: The Good, the Bad and the Ugly** **Chair: C. Kalloniatis**
14.15 – 15.15	**Keynote Speech-3 (ROOM-1)** **Professor Andreas Spanias** **International Research and Workforce Development in Classical and Quantum Machine Learning – A Fulbright Scholar Experience** **Chairs: G.A. Tsihrintzis and M. Virvou**

Session TM-1 (ROOM 1)	Rapidly Growing Artificial Intelligence Development and Applications
Session Chairs: **Maria Virvou** **and** **George A. Tsihrintzis**	❖ ***10:15-10:30*** **Requirements for Fair and Trustworthy AI: Overcoming Clustering and Stereotype Bias through Individualized User Modeling** *Maria Virvou, George Tsihrintzis* ❖ ***10:30-10:45*** **IGET-- A Knowledge Transformation Model Considering Generative AI** *Shuichiro Yamamoto* ❖ ***10:45-11:00*** **SI-Agent: An Agentic Framework for Feedback-Driven Generation and Tuning of Human-Readable System Instructions for Large Language Models** *Jeshwanth Challagundla, Mantek Singh, Siddharth Raina, Smarth Behl, Jasmin Jarsania* ❖ ***11:00-11:15*** **Integrating Artificial Intelligence into Health Information Systems: Challenges, Opportunities, and Ethical Implications** *Ioannis Davgiotis, Aristea Kontogianni, Efthimios Alepis* ❖ ***11:15-11:30*** **Symbolic Infrastructure: A Framework for Transhuman Co-Creation and Knowledge Mediation for Understanding Complex Data** *Michael Sfakianakis, Maria Elisavet Kampi* ❖ ***11:30-11:45*** **AI-Enhanced Management of Standard Operating Procedures: An Innovative Approach Integrating Large Language Models and Knowledge Graphs** *Nikos Karacapilidis, Nikolaos Giarelis, Charalampos Mastrokostas*
Session TM-2 (ROOM 2)	Applications and Services
Session Chair: **Michail Alexiou**	❖ ***10:15-10:30*** **A Preliminary Study on Extending the Apache Spark Framework for FPGA-Based Task Offloading** *Panagiotis Katsoudas, Michail Alexiou, Miltiadis Alamaniotis* ❖ ***10:30-10:45*** **A Framework for Optimization-as-a-Service in Manufacturing** *Stathis Plitsos, Dimitrios Tsakoumis, Konstantinos Giannakos, Giulio Vivo, Gregory Koronakos, Pavlos Eirinakis* ❖ ***10:45-11:00*** **A Function as a Service for Astronomical Image Processing** *Sandro Ricardo dos Reis, Bruno Batista, Vanessa Cristina Oliveira de Souza* ❖ ***11:00-11:15*** **Interface for Operating a Parts Inspection Machine in the Automotive Industry** *Isaías Machado, Rafael Frinhani, Rodrigo Seabra, Lina Garcés* ❖ ***11:15-11:30*** **BLE Communication in Indoor Environments: Comparative Analysis of LOS and NLOS Scenarios** *David Ferreira, Janislley Sousa, Moyses Lima, Higo Albuquerque*

	❖ ***11:30-11:45*** **The Economics of the AI-Energy Nexus** *Maria Karasimou, E Kaliakouda, Nikolaos Bourbakis, Lefteri Tsoukalas*
Session TM-3 (ROOM 3) Session Chairs: **Eleni Stroulia** **and** **Christos Makris**	**Searching the Web, Information Retrieval and Recommender Systems** ❖ ***10:15-10:30*** **Visual Querying for Insights into Social Platform Activities** *Hassnain Ali, Eleni Stroulia* ❖ ***10:30-10:45*** **A Graph-Based Information Retrieval Framework** *Nikitas - Rigas Kalogeropoulos, Agorakis Bompotas, Anastasia Velaeti, Christos Makris* ❖ ***10:45-11:00*** **How Do We Seek Mental Health Information?** *Cristina Perea del Olmo, David Coyle* ❖ ***11:00-11:15*** **QUESTA: A Hybrid IRT–Thompson Sampling Algorithm for Adaptive Quizzes Applied to Career Recommendation** *Michail Tselepatiotis, Efthimios Alepis* ❖ ***11:15-11:30*** **The Evolution of AI-Powered Recommendation Agents: Taxonomies, Techniques, Applications, and Emerging Frontiers** *Dinesh Besiahgari, Naveen Kumar Ramakrishna* ❖ ***11:30-11:45*** **Crop Recommendation in Smart Agriculture using Self-Labeled Techniques** *Gregory Davrazos, Vasileios Gkamas, Maria Rigou, Sotiris Kotsiantis*
Session TM-4 (ROOM 4) Session Chairs: **Christos Kalloniatis** **and** **Evangelos Sakkopoulos**	**Cybersecurity - 1** ❖ ***10:15-10:30*** **InviseeAI: Advanced Healthcare Data Anonymization Platform** *Marios Vardalachakis, Apostolis Siatras, Christos Kalloniatis* ❖ ***10:30-10:45*** **Age Verification in the Context of the EUDI Wallet: Balancing Privacy and Security** *Anna Zafeiropoulou, Evangelos Sakkopoulos* ❖ ***10:45-11:00*** **An AI-Driven Cybersecurity Framework for Cultural Heritage Management Systems: Preventing Phishing Attacks and Ensuring Data Integrity** *Zois Koukopoulos, Dimitrios Koukopoulos, Christos Fidas* ❖ ***11:00-11:15*** **interID - An Ecosystem-agnostic Verifier Application for Self-sovereign Identity** *Hakan Yildiz, Axel Küpper* ❖ ***11:15-11:30*** **A Proposed Theoretical Mapping between Cyber-resilience and Autopoiesis** *Emmanouil Mavrofidis, Thomas Mavrofides, Achilles D. Kameas*

Friday, 11 July 2025

09.00 – 10.00	**Keynote Speech-4 (ROOM-1)** **Professor Petros Drineas** **(Randomized) Numerical Linear Algebra: A Core Engine for Data Science, Machine Learning, and AI** **Chairs: G.A. Tsihrintzis and M. Virvou**

09.00 – 10.00	**5th International Workshop on Data Analytics in the Energy Sector** **Keynote Speeches (ROOM-2)** **Elissaios Sarmas,** National Technical University of Athens, GREECE **Elena Boskov Kovacs,** Blueprint Energy Solutions GMBH, AUSTRIA **Massimo Bertoncini,** Engineering Ingegneria Informatica S.p.A., ITALY **Tudor Cioara,** Technical University of Cluj-Napoca, ROMANIA **Smart Digitalization of the Energy Sector** **Welcome Speech and Chair: V. Marinakis**

Session FM-1 (ROOM 1)	**Healthcare – 1: AI-enhanced Medical Diagnostics**
Session Chairs: **Michail Alexiou** **and** **Geoffrey Solano**	❖ ***10:15-10:30*** **BrainDil: Enhanced and Efficient Brain Tumor Classification in MRI Images using Dilated Convolution** *Ryan Deem, Md Abdullah Al Hafiz Khan, Garrett Goodman, Michail Alexiou* ❖ ***10:30-10:45*** **A Cost-Effective, Portable, and Non-Invasive Dual-Axis Swallowing Accelerometry System for Dysphagia Assessment** *Dimitris Tsipianitis, Charalampos Galanis, Emilia Michou* ❖ ***10:45-11:00*** **Predicting Brain Cancer from Patients' Magnetic Resonance Imaging using Convolutional Neural Networks** *Evgenia Psarra, Dimitris Apostolou* ❖ ***11:00-11:15*** **PhosStack: Elevated Predictive Performance for Breast Cancer Classification** *Marina Elia, Wenting Duan* ❖ ***11:15-11:30*** **Brain Tumor Detection Using Vision Transformers on Magnetic Resonance Imaging (MRI) Images** *Roland Anthony Tan, Geoffrey Solano* ❖ ***11:30-11:45*** **Early Detection and Diagnosis of Bone Fracture with Hybrid YOLO-NAS** *Sotirios Spanogianopoulos, Mary Linda Panakal Augustine, Larry Liston, Mhd Saeed Sharif*
Session FM-2 (ROOM 2)	**Smart Grid-ready & Energy Efficient Buildings**
Session Chairs: **Vangelis Marinakis,** **Elissaios Sarmas,** **Elena Boskov Kovacs,** **Massimo Bertoncini,** **and** **Tudor Cioara**	❖ ***10:15-10:30*** **Performance and Energy Benchmarking of Edge ML Workloads** *Alexandru Rancea, Ionut Anghel, Tudor Cioara* ❖ ***10:30-10:45*** **Smart Assessment and Enhancement of Indoor Environmental Quality in Cultural Heritage Buildings** *Marina Solovyeva, Emmanouela Bikaki, Sokratis Divolis, Evangelos Spiliotis* ❖ ***10:45-11:00*** **Smart and Ready? A Comparative Analysis of Seven EU Countries' Preparedness for Adopting the Smart Readiness Indicator Scheme** *George Thomopoulos, Christos F Alexandros Xenakis, Apostolos Arsenopoulos, Georgios Maximos Paliatsos, Iason C. Dimitriou, John Psarras* ❖ ***11:00-11:15*** **User-driven co-Design Framework for Building Energy Management Systems Services** *Sokratis Divolis, Alexios Lekidis, Georgios Kormpakis, Vangelis Marinakis*

	❖ ***11:15-11:30*** **Decision Support System for Optimised Selection of Financing Tools for Energy Efficiency Projects: A Case Study in the Greek Market** *Ioanna Andreoulaki, Aikaterini Papapostolou, Vasilis Kotrogiannis, Daniela Stoian, John Psarras* ❖ ***11:30-11:45*** **Oracle MILP and Reinforcement-Learning Bidding for PV–Battery Dispatch with Curtailment and Deferral Demand-Response** *Nickie Gkolia, Nikolaos Dimitropoulos, Vangelis Marinakis* ❖ ***11:45-12:00*** **Non-Intrusive Load Monitoring Using Denoising Autoencoders Under Clustering-Based Training Optimization** *Ioannis Papias, Vasilis Michalakopoulos, Dimitra Karoutsou, Elissaios Sarmas Nikos Dimitropoulos, Vangelis Marinakis, Marion Paraschi, Dimitris I. Chatzigiannis*
Session FM-3 (ROOM 3) Session Chair: **Bill Kapralos**	**AI-enhanced Educational Informatics - 1** ❖ ***10:15-10:30*** **Fuzzy Logic for Evaluating the Acquisition of Soft Skills through Adaptive Scenarios in Game-Based Learning: The Case of EPATHLO** *Konstantina Chrysafiadi, Spyros Papadimitriou, Maria Virvou* ❖ ***10:30-10:45*** **A Data-Driven Approach to Online Test Improvement: IRT Analysis in University Examination Quizzes** *George Mavrommatis, Evgenia Paxinou, Vassilios Verykios* ❖ ***10:45-11:00*** **Gamified Training for Greek Public Servants: Enhancing Procedure Knowledge through Interactive Learning** *Stavros Piotopoulos, Evangelos Sakkopoulos* ❖ ***11:00-11:15*** **Immersive Virtual Learning Environments and Immersive Technologies: A Grad. Course Case Study** *Bill Kapralos, Sandy Abdo, Md Mahmud Ferdous, Eddy Fung, Stacey Koornneef, Shengqian Wang* ❖ ***11:15-11:30*** **Design and Deployment of an Educational IoT-Based Micro Ecosystem with micro:bit Integration** *Dimitris Tsipianitis, Vasilis Koumenteas* ❖ ***11:30-11:45*** **Application of Self-Labeled Techniques for Predicting MOOC Enrollment After Initial Registration** *George Raftopoulos, Gregory Davrazos, Theodor Panagiotakopoulos, Sotiris Kotsiantis, Achilles Kameas*
Session FM-4 (ROOM 4) Session Chair: **Ioannis Hatzilygeroudis**	**Machine Learning-infused Applications - 1** ❖ ***10:15-10:30*** **Perception-based Probabilistic Latent Space Matching for Anomaly Detection in Industrial Autonomous Systems** *Neron Michail Panagiotopoulos, Nikolaos Passalis, Anastasios Tefas* ❖ ***10:30-10:45*** **IoT-Driven Predictive Maintenance: Enhancing Fault Detection through Automated Data Labeling** *Gregory Davrazos, Theodor Panagiotakopoulos, Sotiris Kotsiantis*

and **Anastasios Tefas**	❖ ***10:45-11:00*** **A Comparative Study of Machine Learning Models for Multi-Pollutant Forecasting in Urban Environments** *Gerasimos Vonitsanos, Andreas Kanavos, Dimitris Papadopoulos, Spyros Sioutas* ❖ ***11:00-11:15*** **Age and Gender Recognition from Images Using EfficientNet Models** *George Sigalos, Ioannis Hatzilygeroudis, Isidoros Perikos* ❖ ***11:15-11:30*** **Random Quantum Circuits as 3D Convolutional Kernels for 3D SAS ATR** *Chris Su, Andreas Spanias, Suren Jayasuriya, Greg Vetaw, Glen Uehara* ❖ ***11:30-11:45*** **Big Data-Driven Trip Duration Prediction in Urban Transportation Systems** *Elias Dritsas, Maria Trigka, Phivos Mylonas*
Session FM-5 (ROOM 5) Session Chairs: **George A. Tsihrintzis**	**Advances in Machine Learning - 1** ❖ ***10:15-10:30*** **Linkage Criteria for Agglomerative Clustering based on Counterfactual Distances** *Georgios Vardakas, Antonia Karra, Evaggelia Pitoura, Aristidis Likas* ❖ ***10:30-10:45*** **Investigating the Effect of k-NN Preprocessing on Developing Graph Neural Networks: A Fairness-Based Perspective** *Nikolaos Zafeiropoulos, Emmanouil Mavrikos, George Tsekouras* ❖ ***10:45-11:00*** **Quantum Generative Neural Networks for Imaging Applications** *Andreas Spanias, Sunil Vittal, Glen Uehara, David Ramirez, Gennaro De Luca* ❖ ***11:00-11:15*** **AutoKNN: An AutoML Web Application for k-Nearest Neighbours Classification** *Konstantinos Batsios, Stefanos Ougiaroglou, Charalampos Mpratsas* ❖ ***11:15-11:30*** **International Student Training in Quantum Machine Learning** *Andreas Spanias, Glen Uehara, Elena Vasileva, Marija Chaushevska, Monika Todevska, Jovan Kamchev, Zoran Ivanovski, Dimitar Dimitrov* ❖ ***11:30-11:45*** **SCALE-BOSS-SPARK-MV: Scalable Multivariate Time-Series Classification on Top of Apache Spark** *Apostolos Glenis*

Session FA-1 (ROOM 1)	**Healthcare – 2: AI-infused Medical Applications**
Session Chairs: **Vassilios Verykios** **and** **Dimitrios Panagoulias**	❖ ***13:00-13:15*** **Macroscopic-to-Microscopic Integration for Dermatology Triage: A YOLO-Based Framework with Clinician-Guided Labeling** *Dimitrios P. Panagoulias, Evridiki Tsoureli-Nikita, Maria Virvou, George Tsihrintzis* ❖ ***13:15-13:30*** **A Meta-Analytic NLP-Driven Mapping of Fairness in Healthcare AI** *Rozita Tsoni, Manolis Koutouzis, Vassilios Verykios* ❖ ***13:30-13:45*** **Medical Information Retrieval In Natural Language Using LLMs for SPARQL Query Generation** *Charalampos Doulaverakis, Giannis Vassiliou, Stavroula Chatzinikolaou, Sotirios Batsakis, Nikolaos Papadakis, Grigoris Antoniou* ❖ ***13:45-14:00*** **Feature Engineering with Large Language Models Improves Solitary Pulmonary Nodule Malignancy Classification with Machine Learning** *Ioannis Apostolopoulos, Nikolaos Papathanasiou, Dimitrios Apostolopoulos, Elpiniki Papageorgiou, Nikolaos Papandrianos* ❖ ***14:00-14:15*** **An Online Deep Learning Tool for Predicting Variants in Viral Mutation using Seq2Seq LSTM** *Justine Marie Tence, Geoffrey Solano* ❖ ***14:15-14:30*** **Current Status, Trends and Challenges in AI-based Bradykinesia and Tremor Detection on Edge Devices** *Eleftherios Efkleidis Stefanou, Pavlos Bitilis, Konstantinos Kotis*
Session FA-2 (ROOM 2)	**Smart Energy Cluster: Advancing Energy Transition with Smart Infrastructure and Engaged Communities**
Session Chairs: **Vangelis Marinakis,** **Elissaios Sarmas,** **Elena Boskov Kovacs,** **and** **Massimo Bertoncini**	❖ **Welcome and overview – Katerina Papapostolou (NTUA)** ❖ **Session 1 – Empowering Citizens in the Energy Transition: Innovative Models, Technologies & Communities** ❖ **Session 2 – Accelerating Energy Transition: Digital platforms, Storage Integration, and IoT Intelligence**
Session FA-3 (ROOM 3)	**AI-enhanced Educational Informatics - 2**
Session Chair: **Mikael Berndtsson**	❖ ***13:00-13:15*** **Student grade prediction through GitLab logs** *Vasiliki Karamerou, Dimitrios J. Vergados, Angelos Michalas, Dimitrios D. Vergados* ❖ ***13:15-13:30*** **Creating and using Digital Educational Games in Adult Education: A Case Study in a Second Chance School in Greece** *Vasiliki Karamerou, Dimitrios J. Vergados, Dimitrios D. Vergados*

	❖ ***13:30-13:45*** **Challenges and Opportunities for a School Management Group to Monitor Sensor Data** *Mikael Berndtsson, Marina Grahovar, Joeri van Laere, Christian Lennerholt, Maria Börjel* ❖ ***13:45-14:00*** **Obstacles in Promoting Female Principals in Public Primary Schools to Leadership Positions and the Benefits of ICT in Education Management** *Paraskevi Galani, Christos Pierrakeas* ❖ ***14:00-14:15*** **EduFlow: A System for Managing Final Paper Projects using Low-code** *Luis Ricardo Albano Santos, Bruno Batista, Vanessa Cristina Oliveira de Souza* ❖ ***14:15-14:30*** **Videogames for interactive learning and inclusion: exploring the context of use in the culture and fashion domains** *Otilia Kocsis, Eva de Lera*
Session FA-4 (ROOM 4) Session Chair: **Leonidas Akritidis**	**Machine Learning-infused Applications - 2** ❖ ***13:00-13:15*** **How Discretization Affects Software Defect Detection Tasks: An Experimental Study** *Leonidas Akritidis, Vasileios Stergiopoulos, Panayiotis Bozanis* ❖ ***13:15-13:30*** **Embedded Real-Time Robotic Perception for Lightweight High-Resolution Weed Detection** *Emmanouil Mpampis, Nikolaos Passalis, Anastasios Tefas* ❖ ***13:30-13:45*** **Coordinating Artificial Intelligence and Bitcoin Mining Workloads: a Risk-aware Distributional Multi-agent Reinforcement Learning Approach** *Ioannis T. Thomaidis, Panagiotis G. Giannopoulos, Thomas Dasaklis* ❖ ***13:45-14:00*** **Emotion Detection on User Front-Facing App Interfaces for Enhanced Schedule Optimization: A Machine Learning Approach** *Feiting Yang, Antoine Moevus, Steve Lévesque* ❖ ***14:00-14:15*** **IoT Solutions with Edge Computing in Industry 4.0: A review** *Rodrigo Maia, Adler Souza, Bruno Batista*
Session FA-5 (ROOM 5) Session Chairs: **Vassilios Verykios** **and** **Christos Makris**	**Advances in Machine Learning - 2** ❖ ***13:00-13:15*** **An Experimental Evaluation of Pre-trained Models for Efficient and Accurate Record Linkage** *Dimitrios Karapiperis, Georgios Feretzakis, Vassilios Verykios* ❖ ***13:15-13:30*** **Mitigating Covariate Shift in Managerial Decision-making: a Tailored Data Augmentation Approach for Offline Behavioral Cloning** *Panagiotis G. Giannopoulos, Vangelis Malamas, Vassilios Verykios, Thomas K. Dasaklis*

	❖ ***13:30-13:45*** **Toward Goal Models Integration in Achieving Stakeholders' Goals** *Momoe Kobayashi, Takako Nakatani* ❖ ***13:45-14:00*** **Robust Robotic Perception using Adaptive Multiplicative Optimization for Deep Reinforcement Learning** *Loukia Avramelou, Manos Kirtas, Nikolaos Passalis, Anastasios Tefas* ❖ ***14:00-14:15*** **Document embeddings for long texts from Transformers and Autoencoders** *Lenos Christou, Agorakis Bompotas, Nikitas - Rigas Kalogeropoulos, Christos Makris* ❖ ***14:15-14:30*** **Federated Deep Reinforcement Learning for Collaborative Autonomous Navigation in GPS-Denied Environments** *Nikolaos Almalis, George Tsihrintzis, Achilleas Stergioulis, Michail Mitsios*
Session FE-1 (ROOM 1) Session Chairs: **Christos-Nikolaos Anagnostopoulos** **and** **Dimitrios Panagoulias**	**Healthcare – 3: AI-infused Assistive Technologies and Applications** ❖ ***14:45-15:00*** **Problematic Video Gaming During the Covid-19 Pandemic: A Case Study of Greece** *Athanasios Kranas, Vasilios Koutras, Michael Vassilakopoulos, Vassilios S. Verykios* ❖ ***15:00-15:15*** **Autonomous Sensory Meridian Response and Virtual Reality Relaxation** *Nikolleta-Anna Kapogianni, Aggeliki Sideraki, Christos-Nikolaos Anagnostopoulos* ❖ ***15:15-15:30*** **Hydration VR Game: Promoting Awareness on Hydration** *Konstantinos Salomidis, Georgios Styliaras, Olga Malisova, Kyriaki Apergi* ❖ ***15:30-15:45*** **X-INCEPD: Enhancing Inception-based Model for Parkinson's Disease Prediction with Explainable AI** *Nikos Tsolakis, Christoniki Maga-Nteve, Stefanos Vrochidis, Nick Bassiliades, Georgios Meditskos* ❖ ***15:45-16:00*** **HERMES EXO: Empowering Mobility with Modular Lower-Limb Robotic Exoskeleton for CYBATHLON 2024** *Christos Belogiannis, Ioannis Giannoulas, Vasileia Diamanti, Dimitrios Siskos, Iordana Gaisidou, Christos Vrakatselis, Natalia Angeli, Fotios Plessas* ❖ ***16:00-16:15*** **Design and Implementation of a Low-Cost Foot Pressure Sensor for Lower-Limb Exoskeletons: The Case of HERMES EXO** *Christos Belogiannis, Ioannis Giannoulas, Christos Vrakatselis, Konstantinos Oikonomopoulos, Athanasios Zounidis, Antonios Papantoniou, Georgios Vontzos, Fotios Plessas*

Session FE-2.1 (ROOM 2)	Renewable Energy Sources & Energy Communities
Session Chairs: **Vangelis Marinakis,** **Elissaios Sarmas,** **Elena Boskov Kovacs,** **Massimo Bertoncini,** **and** **Tudor Cioara**	❖ ***14:45-14:57*** **Transforming Educational Buildings into Self-Sufficient Hubs of Youth Energy Communities: A case study in Riga, Latvia** *Iason C. Dimitriou, Apostolos Arsenopoulos, Alexandros Xenakis, Elissaios Sarmas, John Psarras* ❖ ***14:57-15:10*** **Quantum enhanced Energy Blockchain for Peer-to-Peer Trading** *Liana Toderean, Mihai Petre Daian, Tudor Cioara, Alin Suciu, Ionut Anghel, Vasilis Michalakopoulos, Elissaios Sarmas* ❖ ***15:10-15:23*** **A Key Performance Indicator Framework for Activated and Data-Driven Energy Communities** *Nektarios Matsagkos, Eleni Kanellou, Vasilis Michalakopoulos, Efstathios Sarantinopoulos, Vangelis Marinakis* ❖ ***15:23-15:36*** **Forecasting Hydropower Plant Output: A Comparative Analysis using Prophet and Baseline Models** *Afroditi Fragkiadaki, Elissaios Sarmas, Anestis Anastasiadis, Panagiotis Papadimitriou, Vangelis Marinakis* ❖ ***15:36-15:49*** **A Meta-Learning Framework for Short-Term Wind Power Forecasting with SCADA and Weather Data** *Antonis Zakynthinos, Vasilis Michalakopoulos, Elissaios Sarmas, Vangelis Marinakis* ❖ ***15:49-16:02*** **A Forecast-driven, Comfort-aware Load-shifting Optimization Tool for Optimizing Solar Self-consumption in Island Energy Communities** *Efstathios Sarantinopoulos, Vasilis Michalakopoulos, Nektarios Matsagkos, Elissaios Sarmas, Eleni Kanellou, Vangelis Marinakis* ❖ ***16:02-16:15*** **Machine Learning Forecasting and Simulation for Battery Optimization Under Extreme Energy Imbalance** *Dimitrios Panagoulias, Elissaios Sarmas, Vangelis Marinakis, Maria Virvou, George Tsihrintzis*
Session FE-2.2 (ROOM 2)	Digital Solutions for Energy & Urban Planning
Session Chairs: **Vangelis Marinakis,** **Elissaios Sarmas,** **Elena Boskov Kovacs,** **Massimo Bertoncini,** **and Tudor Cioara**	❖ ***16:20-16:30*** **Energy Planning the Efficient Way: A Multi-Criteria Tool Supporting EE1st-Compliant Regional Energy Planning** *Georgios Konstantopoulos, Vlassis Oikonomou, Natalia Sofia Boemi, George Yiannakis, Andriana Stavrakaki, John Psarras* ❖ ***16:30-16:40*** **An Urban Data Management Platform for Bridging Trusted Ecosystems, Dataspaces, and Digital Twins** *Iason Sotiropoulos, Ioannis Karvelas, Elissaios Sarmas, Stamatia Rizou, Vangelis Marinakis*

	❖ ***16:40-16:50*** **Prioritisation of Smart Energy Services Integrating Novel Technologies: a Hybrid DEMATEL – Fuzzy VIKOR Approach** *Ioanna Andreoulaki, Vasilis Kotrogiannis, Aikaterini Papapostolou, Efstratia Kanlie, John Psarras* ❖ ***16:50-17:00*** **Athens Energy Portal: A Digital Energy Platform for Intelligent Energy Management of Smart Cities** *Symeon Chorozoglou, Elissaios Sarmas, Giorgos Korbakis, Areti Samara, Nikos Chrysogelos, Haris Doukas* ❖ ***17:00-17:05*** **Conclusions – End of session and workshop**
Session FE-3 (ROOM 3) Session Chair: **Maria Virvou** **and** **George A. Tsihrintzis**	**Rapidly Growing Artificial Intelligence Development and Applications in Education** ❖ ***14:45-15:00*** **Bi-Directional 21st Century Skills for Generative AI in Educational Software: A Requirements Engineering Perspective** *Maria Virvou, George Tsihrintzis, Konstantina Chrysafiadi, Evangelos Sakkopoulos, Evangelia-Aikaterini Tsichrintzi* ❖ ***15:00-15:15*** **The Socratic Turn in AI: Reviewing the Transformation of LLMs into Dialogical Educators** *Diamanto Tzanoulinou, Loukas Triantafyllopoulos, EVGENIA PAXINOU, Georgios Feretzakis, Dimitris Kalles, Vassilios Verykios* ❖ ***15:15-15:30*** **Trustworthiness of an LLM in the Classroom Through a Role-playing Game: The Case of ChatGPT** *Panagiota Ismini Matthe, Maria Virvou* ❖ ***15:30-15:45*** **Evaluating NER Approaches to Support Qualitative Educational Data Anonymization in the Greek Language: a Comparative Study** *Nikos Karousos, George Vorvilas, Despoina Pantazi, Vassilios S. Verykios* ❖ ***15:45-16:00*** **Hallucinations in Generative Artificial Intelligence: A Critical Risk for Intelligent Educational Applications** *Maria Virvou, George Tsihrintzis, Evangelia-Aikaterini Tsichrintzi* ❖ ***16:00-16:15*** **Emotional Advice Compared Between an Affective Intelligent Authoring Tool and Generative AI: A Cognitive Walkthrough in Medical Mobile Tutor and ChatGPT** *Maria Virvou, George Tsihrintzis, Efthimios Alepis*

Saturday, 12 July 2025

09.00 – 10.00	**Keynote Speech-5 (ROOM-1)** **Professor Peristera (Perry) Paschou** **Data-Driven Insights into Human Genetic Diversity for Health and Disease** **Chairs: G.A. Tsihrintzis and M. Virvou**
13.00 – 14.00	**Keynote Speech-6 (ROOM-1)** **Professor Miltiadis (Miltos) Alamaniotis** **Preventing the Nuclear September 11th: Dynamically Data Driven Artificial Intelligence Solutions and the balance between Security, Privacy and Ethics** **Chairs: G.A. Tsihrintzis and M. Virvou**
14:30 – 14.45	**Closing Session (ROOM-1)** **Professor Maria Virvou, University of Piraeus, Greece** **Professor George A. Tsihrintzis, University of Piraeus, Greece**

Session SM-1 (ROOM 1)	**Cybersecurity - 2**
Session Chairs: **Christos Kalloniatis** **and** **Dimitrios Tsolis**	❖ ***10:15-10:30*** **Exposing ToS-Based Traffic Manipulation with Deep Learning Models** *Christos Christodoulou, Christos Kalloniatis, George Tsekouras, Emmanouil Mavrikos* ❖ ***10:30-10:45*** **Simulation of a cyber-attack on MASS's rudder stabilization based on NARMA-L2** *Igor Astrov, Sanja Bauk* ❖ ***10:45-11:00*** **Comparative Analysis of Semi-Supervised Techniques for Attack Type Classification in Edge-IIoT Environments** *Gregory Davrazos, Theodor Panagiotakopoulos, Sotiris Kotsiantis* ❖ ***11:00-11:15*** **Self-Labeled Techniques for IoT Device Identification: Bridging Accuracy and Efficiency** *Gregory Davrazos, Theodor Panagiotakopoulos, Sotiris Kotsiantis, Achilles Kameas* ❖ ***11:15-11:30*** **Emerging Blockchain & Distributed Ledger Technologies in Digital Agriculture – Perspectives in the AI era and Challenges** *Effrosyni Bitakou, Maria Ntaliani, Konstantinos Demestichas, Constantina Costopoulou, Caterina Constantinou, Panagiotis Panopoulos, Eugenia Karamouzi, Kopilović Nikola, Dimitrios Tsolis*
Session SM-2 (ROOM 2)	**Machine Learning Applications in Risk Analysis and Finance**
Session Chairs: **Dionisios Sotiropoulos** **and** **Konstantinos Liagkouras**	❖ ***10:15-10:30*** **Credit Risk Prediction with Kolmogorov-Arnold Networks** *Dionisios Sotiropoulos, Spyridon V. Solanakis* ❖ ***10:30-10:45*** **RRAO: An Ontology for the Representation of Reoffending Risk Assessment Knowledge** *Sotiris Angelis, Joana Pinho, Athanasia Sykiotou, Dimitar Markov, Stamatis Chatzistamatis, Stamatis Spirou, George Tsekouras, Konstantinos Kotis* ❖ ***10:45-11:00*** **Genetic Algorithm-Based Feature Selection for Optimizing Credit Risk Algorithms** *Dionisios Sotiropoulos, Georgios Vellos* ❖ ***11:00-11:15*** **Artificial Neural Network with Backpropagation, Long Short-Term Memory and Transformer Models for Stock Market Forecasting: An Experimental Study** *Konstantinos Liagkouras, Kostas Metaxiotis* ❖ ***11:15-11:30*** **Expert-guided Deep Reinforcement Learning for Autonomous Financial Asset Trading** *Ioannis Drossas, Loukia Avramelou, Nikolaos Passalis, Anastasios Tefas*

	❖ ***11:30-11:45*** **Model Merging for Deep Reinforcement Learning in Autonomous Financial Trading Systems** *Loukia Avramelou, Dimitrios Litsidis, Nikolaos Passalis, Anastasios Tefas*
Session SM-3 (ROOM 3) Session Chair: **Miltos Alamaniotis**	**AI-infused Applications for Smart Cities** ❖ ***10:15-10:30*** **Dynamic Fuzzy Cognitive Networks with AI in the chase of the quality increase in public Sector services of smart cities - an anthropocentric approach** *Andreas Polydoropoulos, Vasilios Stylianakis, Peter Groumpos* ❖ ***10:30-10:45*** **Smart HVAC System Controllers Addressing Preservation Requirements in Historic Buildings** *Carlos Faubel, Lakin Casey, Antonio Martinez-Molina, Cristina Nichiforov, Miltos Alamaniotis* ❖ ***10:45-11:00*** **Towards Large Scale Facade Feature Extraction using Vision Transformers and Panoramic Street View Imagery** *Georgios Spaias, Vasilis Naserentin, Nikos Pitsianis, Anders Logg* ❖ ***11:00-11:15*** **Thermal Wildlife Image Segmentation Using Hybrid Vision Transformers for Smart City Applications** *Derian Mowen, Miltiadis Alamaniotis* ❖ ***11:15-11:30*** **Predicting EV Chargins Station Load by Applying LSTM Techniques** *Apostolos Valiakos, Alexios Lekidis, Elpiniki Papageorgiou* ❖ ***11:30-11:45*** **A Sustainable Energy-Efficient IoT Smart Parking Prototype based on micro:bit Microcontroller** *Dimitris Tsipianitis, Georgios Vlisidis, Alexios Tsetsonis*

Session SM-4 (ROOM 4)	**Intelligent Applications incorporating NLP and LLMs**
Session Chairs: **Maria Virvou** **and** **Ioannis Venetis**	❖ ***10:15-10:30*** **Enhancing Mathematical Confidence and Reducing Math Anxiety via AI: A Factor Analysis of High School Students' Interaction with Algebra Chatbots** *Dimitrios Zarkadoulas, Maria Virvou* ❖ ***10:30-10:45*** **ESCOClassifyAI: A semi-automated software solution for ESCO-skill-based document classification** *Chatzi Chousein Chilmi, Dimitrios Christos Kavargyris, Nikolaos Mittas, Lefteris Angelis* ❖ ***10:45-11:00*** **S2BERTopic – A Topic Modeling Approach on Semantic Similarity Leveraging BERTopic** *Dimitrios Tzolas, Ioannis Venetis* ❖ ***11:00-11:15*** **Developing 'Dr. Calm': An AI-Driven Chatbot for University Student Mental Health Support [WIP]** *Rasha Wahid, Cole Craven, Daria Romanoff, Bill Kapralos, David Chandross*

Conference Venue

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