

PCI 2022

26th Pan-Hellenic Conference on Informatics

with International Participation

25 - 27 November 2022, Athens, Greece

Venue

Department of Informatics and Computer Engineering,
University of West Attica
Egaleo Park Campus

Conference Program



UNIVERSITY OF
WEST ATTICA
ΠΑΝΕΠΙΣΤΗΜΙΟ ΔΥΤΙΚΗΣ ΑΤΤΙΚΗΣ



UNIVERSITY OF
THESSALY

PCI 2022 Program Overview

Friday Nov. 25th, 2022

Eastern
European Time

13:00 – 13:30	Registration	
13:30 – 14:00	CONFERENCE OPENING (Room: K16.218) Keynote Speech: High Performance computing, Artificial Intelligence and research infrastructures: The driving force for digital transformation in Greece. Stefanos Kollias, NTUA, GRNET, Greece (Room: K16.218)	
14:00 – 15:00	Coffee break	
	ROOM A (K16.113)	ROOM B (K16.114)
15:30 – 18:00	SESSION 1A / Chair: Zoe Kanetaki (UNIWA) Information Society	SESSION 1B / Chair: Eleni Leligkou (UNIWA) Human-Computer Interaction
18:30	SOCIAL EVENT	

Saturday Nov. 26th, 2021

	ROOM A (K16.113)	ROOM B (K16.114)
10:00 – 12:00	SESSION 2A / Chair: Georgia Kapitsaki (UCY) Software Engineering and applications	SESSION 2B / Chair: Stylianos Voutsinas (UNIWA) Current Approaches in ML/AI
12:00 – 12:30	Coffee break	
12:30 – 14:30	SESSION 3A / Chair: TBA Computational science and knowledge-based systems	SESSION 3B / Chair: Stylianos Voutsinas (UNIWA) IoT & Energy efficiency
14:30 – 15:30	Light Lunch	
15:30 – 17:30	SESSION 4A / Chair: Konstantinos Mavrommatis (UNIWA) Topics in Communications & Wireless computing	SESSION 4B / Chair: TBA Distributed computing & Digital Systems
17:30 – 18:30	SMACITE Workshop	
18:30 – 19:30	GR digiGOV-innoHUB: Synergistic innovation for the digital transformation of the public sector Workshop	

Sunday Nov. 27th, 2021

	ROOM A (K16.113)	ROOM B (K16.114)
10:00 – 12:00	SESSION 5A / Chair: Christos Troussas (UNIWA) Extended Reality	SESSION 5B / Chair: Ioannis Voyiatzis (UNIWA) Data Analysis and Signal Processing
12:00 – 13:00	Keynote Speech: The evolution of the cybersecurity threat landscape Konstantinos Patsakis, University of Piraeus, Greece	
13:00 – 13:30	Short break	
13:30 – 16:00	SESSION 6A / Chair: Georgia Drampalou (UNIWA) Novel Technological approaches in Education	SESSION 6B / Chair: Ilias Savvas (UTH) Quantum Computing and Machine Learning
16:00 – 16:30	CLOSING SESSION	

PCI 2022 Detailed Program

Friday Nov. 25th, 2022

Eastern
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13:00 – 13:30	Registration	
13:30 – 14:00	CONFERENCE OPENING (Room: K16.218) Keynote Speech: High Performance computing, Artificial Intelligence and research infrastructures: The driving force for digital transformation in Greece. Stefanos Kollias, NTUA, GRNET, Greece (Room: K16.218)	
14:00 – 15:00	Coffee break	
	ROOM A (K16.113)	ROOM B (K16.114)
15:30 – 18:00	SESSION 1A / Chair: Zoe Kanetaki (UNIWA) Information Society <ul style="list-style-type: none"> • Christos Liakos, Aimilios Christos Panagopoulos and Panagiotis Karkazis. Smart Business processing in Industry 4.0 • Mohsan Ali, Maria Ioanna Maratsi, Loukis Euripidis, Charalampos Alexopoulos and Yannis Charalabidis. Analysis of Reviews on Greek Municipalities to Improve Public Service Delivery and Citizen Satisfaction: A Tool for Co-creation and Co-design • Areti Karamanou, Petros Brimos, Evangelos Kalampokis and Konstantinos Tarabanis. Exploring the Quality of Dynamic Open Government Data for Developing Data Intelligence Applications: The Case of Attica Traffic Data • Ioannis Aris Kostis, Dimitrios Sarafis, Konstantinos Karamitsios, Konstantinos Kotrotsios, Kalliopi Kravari, Costin Badica and Periklis Chatzimisios. Towards an Integrated Retrieval System to Semantically Match CVs, Job Descriptions and Curricula • Eleni Boumpa, Vasileios Tsoukas, Vasileios Chioktour, Maria Kalafati, Georgios Spathoulas and Athanasios Kakarountas. Smart Delivery for Goods Exploiting ML Algorithms • Maria Poli, Spyridon Nomikos, Apostolos Papapostolou, Grigoris Vlassas, Dimitrios Papachristos and Konstantinos Malagas. Evaluation of the Relationship between the Smart Packaging Technology and Disability in Greece 	SESSION 1B / Chair: Eleni Leligkou (UNIWA) Human-Computer Interaction <ul style="list-style-type: none"> • Maria Polychronaki, Constantinos Vassilakis, Dimitrios Kogias, Eleni Leligkou and Ioannis Vagiannis. OPTORER PPE – Optimal routing and exploration of touristic and cultural areas of interest within Attica given personalized adaptive preferences, promoted underlying purpose and interactive experience. • Antonios Andreatos, Duke Vomvyras and Christos Douligeris. Exam Wizard e-assessment platform: new features, field test results and instructor's experience • Angeliki Antoniou, Anastasios Theodoropoulos, Jenny Rompa, Fani Giannakopoulou, George Lepouras and Ioannis Triantafyllou. Effects of minimum content in cultural informatics: Implications for HCI • Andreas Komninos, Angeliki Tsiouma, Georgia Gogoulou and John Garofalakis. Don't Look Up: The Cost of Attention to Stimulus Phrases in Mobile Text Entry Evaluations • Dimitrios Theodoropoulos, Dimitra Ioannou and Christos Katsanos. ToMtool: An Interactive Multimedia Application to Support Training of Emotion Recognition and Theory of Mind Skills to Children with Autism Spectrum Disorder • Ioannis Dagkoulis and Lefteris Moussiades. A Comparative Evaluation of Chatbot Development Platforms
18:30	SOCIAL EVENT	

Saturday Nov. 26th, 2021

Eastern
European Time

ROOM A (K16.113)

ROOM B (K16.114)

10:00 – 12:00

SESSION 2A / Chair: Georgia Kapitsaki (UCY)

Software Engineering and applications

- Georgia Kapitsaki, Athina Paphitou and Achilleas Achilleos. Towards open source software licenses compatibility check
- Konstantinos Papageorgiadis, Konstantinos Georgiou, Konstantinos Charmanas, Nikolaos Mittas and Lefteris Angelis. COVID-Vis: Visualizing knowledge exchange on scientific software development in the COVID-19 era
- Angeliki Kitsiou, Michail Pantelelis, Aikaterini-Georgia Mavroiedi, Maria Sideri, Stavros Simou, Aikaterini Vgena, Eleni Tzortzaki, Christos Kalloniatis. Self-Adaptive Privacy in Cloud Computing: An overview under an interdisciplinary spectrum
- Zoi Kelepiri, Athanasios Lentzas and Dimitrios Vrakas. Intelligent Emergency Evacuation Systems for Buildings
- Kyriakos Skoularikis, Ilias Savvas, Georgia Garani and George Kakarontzas. Developing a Domain-Specific Lexicon for the Greek Language

SESSION 2B / Chair: Stylianos Voutsinas (UNIWA)

Current Approaches in ML/AI

- Vasileios Tsoukas, Anargyros Gkogkidis and Athanasios Kakarountas. A TinyML-based System For Smart Agriculture
- Ioannis Stoitsis, Petros Amanatidis, Thomas Lagkas and Dimitris Karampatzakis. A Hands-on University Short Course for Edge AI
- Aristeidis Karras, Christos Karras, Agorakis Bompotas, Panagiotis Bouras, Leonidas Theodorakopoulos and Spyros Sioutas. SparkReact: A Novel and User-friendly Graphical Interface for the Apache Spark MLlib Library
- Ilias Kyparissidis Kokkinidis, Emmanouil S. Rigas, Evangelos Logaras, Athanasios Samaras, Georgios P. Rampidis, George Giannakoulas, Konstantinos Kouskouras, Antonios Billis and Panagiotis D. Bamidis. Towards an Explainable AI-based Tool to Predict the Presence of Obstructive Coronary Artery Disease
- Evangelia Fragkou, Vasileios Lygnos and Dimitrios Katsaros. Transfer Learning for Convolutional Neural Networks in Tiny Deep Learning Environments

12:00 – 12:30

Coffee break

12:30 – 14:30

SESSION 3A / Chair: TBA

Computational science and knowledge-based systems

- Theofanis Aravanis. Incorporating Belief Merging into Relevance-Sensitive Belief Structures
- Dimitris Tsarmpopoulos, Eirini Nikolopoulou, Christina Nikolakakou and George Androulakis. A combination of a Proximity technique and Weighted average for LP Problems
- Angelos Dimitzas, Vasileios Nastos, Christos Gogos and Christos Valouxis. An exact based approach for the Post Enrollment Course Timetabling Problem
- Angelos Dimitzas, Christos Gogos and Efthalia Pappa. Better solutions for the Thesis Defense Timetabling problem using a three-phase approach
- Michail Pantelelis and Christos

SESSION 3B / Chair: Stylianos Voutsinas (UNIWA)

IoT & Energy efficiency

- Dimitrios Krallis, Stefanos Balaskas and Maria Rigou. Flat vs Skeuomorphic Design for Smart Home Devices: An Exploratory Eye-Tracking Study
- Konstantinos Mavrommatis. Optimization techniques for the energy efficiency of wireless networks
- Theofanis Aravanis and Ioannis Kabouris. A Neuro-Symbolic Approach for Fault Diagnosis in Smart Power Grids
- Stylianos Voutsinas, Ioannis Mandourarakis, Eftichios Koutroulis, Dimitrios Karolidis, Ioannis Voyiatzis and Maria Samarakou. Control and communication for smart photovoltaic arrays
- Ioannis Chaidoulis, Nikitas Karanikolas and

Kalloniatis. Mapping CRUD to Events -
Towards an object to event-sourcing
framework

Sarantos Psycharis. Modular, low-cost, open-
source lab platform for Electronic
Engineering & Mechatronics

14:30 – 15:30

Light Lunch

ROOM A (K16.113)

ROOM B (K16.114)

15:30 – 17:30

**SESSION 4A / Chair: Konstantinos
Mavrommatis (UNIWA)**
Topics in Communications & Wireless
computing

- George Eleftherakis, Fesal Baxhaku and Anca Vasilescu. Bio-inspired Adaptive Architecture for Wireless Sensor Networks
- Konstantinos Mavrommatis. Confronting and intrusion detection techniques of cyber-attacks in wired and wireless communication networks
- Michael Koutsoumpos, Evangelos Zervas, Efstathios Hadjiefthymiades and Lazaros Merakos. An MDP approach to transmission scheduling in WPCN networks
- Leontios Sotiriadis, Basilis Mamalis and Grammati Pantziou. A Cluster-based Virtual Edge Computation Offloading Scheme for MEC-enabled Vehicular Networks
- Evangelos Katsadourous and Charalampos Patrikakis. A Survey on Vulnerability Prediction using GNNs

SESSION 4B / Chair: TBA
Distributed computing & Digital Systems

- Theofanis Kalampokas, George Papakostas, Vassilios Chatzis and Stelios Krinidis. Performance Benchmarking of Visual Human Tracking Algorithms for UAVs
- Evanthia Sdoukou, Athanasios Milidonis, Dimitrios Psilias, Konstantinos Efstathiou, Ioannis Voyatzis. Hardware Selection Approach for custom UAVs
- Georgios Gerontakis, Ioannis Voyiatzis and Panayiotis Yannakopoulos. Security Operations Center in Education: Building an Educational Environment for Attack and Defense Scenarios
- Georgios Kalogeras, Vassilios Tsakanikas, Ioannis Ballas, Vassilios Aggelopoulos and Vassilios Tampakas. Community Detection at scale A comparison study among Apache Spark and Neo4j
- Charalampos Bampalas and Konstantinos Rantos. Blockchain-based vaccination certificates management

17:30 – 18:30

SMACITE Workshop

18:30 – 19:30

**GR digiGOV-innoHUB: Synergistic innovation for the digital transformation
of the public sector Workshop**

Sunday Nov. 27th, 2021

Eastern
European
Time

10:00 – 12:00

ROOM A (K16.113)

SESSION 5A / Chair: Christos Troussas (UNIWA)

Extended Reality

- Ioannis Kazanidis, George Terzopoulos and Avgoustos Tsinakos. Innovative Cultural Experience (ICE), an Augmented Reality system for promoting cultural heritage
- Andrianthi Kapetanaki, Akrivi Krouska, Christos Troussas and Cleo Sgouropoulou. Analyzing the impact and application of Augmented Reality in Education: The case of students with special educational needs
- Georgios Roussos, John Aliprantis, Georgios Alexandridis and George Caridakis. Augmented Reality in Primary Education: Adopting the new normal in learning by easily using AR-based applications
- Sofia Niovi Maragkoudaki and Christos Kalloniatis. Virtual Reality as a mean for increasing privacy awareness: The escape room example
- Dimitrios Koukopoulos, Panagiotis Dafiotis, Stella Sylaiou, Konstantinos Koukoulis and Christos Fidas. Evaluating the design of an art student framework supporting XR exhibitions

ROOM B (K16.114)

SESSION 5B / Chair: Ioannis Voyiatzis (UNIWA)

Data Analysis and Signal Processing

- Dimitrios Samoladas, Christos Karras, Aristeidis Karras, Leonidas Theodorakopoulos and Spyros Sioutas. Tree Data Structures and Efficient Indexing Techniques for Big Data Management: A Comprehensive Study
- Abdelhak Erraji, Abderrahim Maizate and Mohamed Ouzzif. Migrating Data to NoSQL Databases and Improving Data Quality for Big Data Analytics Systems
- Maria Chroni, Stavros Nikolopoulos, Iosif Polenakis and Vasileios Vouronikos. A Multiple Watermarking Scheme for Digital Audio Signals
- Maria Trigka, Elias Dritsas and Christos Fidas. A Survey on Signal Processing Methods for EEG-based Brain Computer Interface Systems
- Eleni Tsalera, Andreas Papadakis, Maria Samarakou and Ioannis Voyiatzis. CNN-based Segmentation and Classification of Sound Streams under realistic conditions

12:00 – 13:00

Keynote Speech: The evolution of the cybersecurity threat landscape
Konstantinos Patsakis, University of Piraeus, Greece

13:00 – 13:30

Light Lunch

13:30 – 16:00

SESSION 6A / Chair: Georgia

Drampalou (UNIWA)

Novel Technological approaches in Education

- Vissarion Siafis and Maria Rangoussi. Educational Data Mining-based visualization and early prediction of student performance: a synergistic approach
- Nikolaos Tzamos, Dimitra Ioannou and Christos Katsanos. Wordinary: A Software Tool for Teaching Greek Word Families to Elementary School Students
- Andreas Komninos and Georgios Tsigkas. Prototyping a Digital Twin System for Environmental Education
- Georgia Drampalou, Nikolaos Kourniatis, Ioannis Voyiatzis. Customized toolbox in VR Design
- Panos Fitsilis, Omiros Iatrellis and Paraskevi Tsoutsas. Using TOSCA language to model personalized educational content
- Vasiliki Giannou and Basilis Mamalis. An Indicative Demanding Teaching Scenario for Primary Education with the Support of a Multi-layer Fog Computing Architecture

SESSION 6B / Chair: Ilias Savvas (UTH)

Quantum Computing and Machine Learning

- Maria Sabani, Ilias Savvas, Dimitrios Poulakis and Georgios Makris. Quantum Key Distribution: Basic Protocols and Threats
- Ilias Savvas, Andrey Chernov, Oleg Kartashov, Grigory Beliavsky and Maria Butakova. On the Effective Representation of Quantum Data for Classical Machine Learning Problems
- Maria Avramouli, Ilias Savvas, Anna Vasilaki, Georgia Garani and Apostolos Xenakis. Quantum Machine Learning in Drug Discovery: Current State and Challenges
- Viktor Potapov and Sergey Gushanskiy. Research of Implementation Methods for Quantum Machine Learning and Their Development on QPU
- Georgios Symeonidis, Chairi Kiourt, Nikolaos Kazakis, Evaggelos Nerantzis and Tsirliganis Nestor. Fat calculation from raw-beef-steak images through machine learning approaches: an end-to-end pipeline
- Mohsan Ali, Ali Muhammad, Muhammad Asad, Makhdoom Sajawal, Charalampos Alexopoulos and Yannis Charalabidis. Towards Perso-Arabic Urdu Language Hate Detection Using Machine Learning: A Comparative Study Based on a Large Dataset and Time-Complexity

16:00 – 16:30

CLOSING SESSION