

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

Saturday Nov. 26th, 2021

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

Sunday Nov. 27th, 2021

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

# PCI 2022 Detailed Program

Friday Nov. 25th, 2022

Eastern  
European Time

13:00 – 13:30	Registration	
13:30 – 14:00	<b>CONFERENCE OPENING (Room: K16.218)</b> <b>Keynote Speech: High Performance computing, Artificial Intelligence and research infrastructures: The driving force for digital transformation in Greece.</b> Stefanos Kollias, NTUA, GRNET, Greece (Room: K16.218)	
14:00 – 15:00	Coffee break	
	<b>ROOM A (K16.113)</b>	<b>ROOM B (K16.114)</b>
15:30 – 18:00	<b>SESSION 1A / Chair: Zoe Kanetaki (UNIWA)</b> Information Society <ul style="list-style-type: none"> <li>• Christos Liakos, Aimilios Christos Panagopoulos and Panagiotis Karkazis. Smart Business processing in Industry 4.0</li> <li>• 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</li> <li>• 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</li> <li>• 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</li> <li>• Eleni Boumpa, Vasileios Tsoukas, Vasileios Chioktour, Maria Kalafati, Georgios Spathoulas and Athanasios Kakarountas. Smart Delivery for Goods Exploiting ML Algorithms</li> <li>• 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</li> </ul>	<b>SESSION 1B / Chair: Eleni Leligkou (UNIWA)</b> Human-Computer Interaction <ul style="list-style-type: none"> <li>• 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.</li> <li>• Antonios Andreatos, Duke Vomvyras and Christos Douligeris. Exam Wizard e-assessment platform: new features, field test results and instructor's experience</li> <li>• Angeliki Antoniou, Anastasios Theodoropoulos, Jenny Rompa, Fani Giannakopoulou, George Lepouras and Ioannis Triantafyllou. Effects of minimum content in cultural informatics: Implications for HCI</li> <li>• 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</li> <li>• 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</li> <li>• Ioannis Dagkoulis and Lefteris Moussiades. A Comparative Evaluation of Chatbot Development Platforms</li> </ul>
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**