CURRICULUM VITAE

IOANNIS KONSTANTINOU

Assistant Professor, Department of Informatics, Athens University of Economics and Business
Electrical and Computer Engineer, NTUA
PhD, School of Electrical and Computer Engineering, NTUA

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CURRICULUM VITAE

1. Contact Information

Surname:	Konstantinou
Name:	Ioannis
Father's name:	Ilias
Place of Birth:	Lamia
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2. Education

- Spercheiada High School (1998) Grade 19.1/20 (Excellent).
- Diploma in Electrical and Computer Engineering, National Technical University of Athens. (2004) Grade 7.33/10 (Very Good). Diploma Thesis Title: *«Creation, Editing and Production of Printable Undergraduate Handbook Using Static and Dynamic Content » (Prof. N. Mitrou)*.
- Master in Techno-Economic Systems (MBA), School of ECE, NTUA 2007 Grade 8.26/10 (Very Good). Diploma Thesis Title: «*Data Grid: Integrating Heterogeneous and Distant Data Stores*» *(Prof. N. Koziris)*
- PhD in Distributed Data Management Systems, School of ECE, NTUA (June 2011). Thesis Title: *«Adaptive Load Balancing Algorithms for Distributed Data Management Systems (Peer to Peer and Cloud Computing)» (Advisor. Prof. P. Tsanakas)*.

3. Foreign Languages

- *English:* Certificate of Proficiency in English (Cambridge University, 2002)
- *French:* DELF - Diplôme d'études en langue française (1995)

4. Teaching Experience

Tenure-track Assistant Professor, Department of Informatics, Athens University of Economics and Business (10/2026–present).

- Tenure-track Assistant Professor appointment, Government Gazette 4904/τ.Γ΄/07.10.2026

Associate Professor (2024–2026), Assistant Professor (2020–2024), Department of Computer Science and Telecommunications, University of Thessaly.

- Associate Professor appointment, Government Gazette 2835/τ.Γ΄/13.09.2024
- Tenured Assistant Professor, Government Gazette 3100/τ.Γ΄/27.11.2023
- Tenure-track Assistant Professor appointment, Government Gazette 924/τ.Γ΄/18.06.2020

Courses taught:

- Operating Systems, Fall 2020–2025
- Programming III, Fall 2020–2025
- Cloud Computing, Spring 2021–2026
- Big Data Management Systems, Spring 2021–2026
- M.Sc. «Artificial Intelligence and Applications»: Advanced Artificial Intelligence, Fall 2025
- M.Sc. «Informatics and Telecommunications»: C Programming, Spring 2022
- M.Sc. «Informatics and Telecommunications»: Introduction to Databases, Fall 2022

Assistant Professor, Department of Informatics, Athens University of Economics and Business (2020–2023), M.Sc. in Data Science

Courses taught:

- Introduction to Data Management and Engineering, Fall 2020, 2021, Spring 2021, Fall 2022
- Large Scale Data Management, Spring 2022, 2023

Lecturer (ΠΔ 407/80), Department of Informatics, Athens University of Economics and Business. Courses taught:

- Operating Systems, Spring 2017
- Distributed Systems (Laboratory), Spring 2020–2022

Academic Fellow, School of Electrical and Computer Engineering, National Technical University of Athens. Courses taught:

- Advanced Topics in Database Systems, Fall 2016–2019
- M.Sc. «Data Science and Machine Learning»: Large Scale Data Management, Spring 2019–2025

Academic Fellow, Department of Computer Science and Telecommunications, University of Thessaly. Courses taught:

- Cloud Computing, Spring 2020, 2021
- Big Data Management Systems, Spring 2020, 2021

Lecturer (ΠΔ 407/80), Department of Computer Science and Telecommunications, University of Thessaly. Courses taught:

- Operating Systems, Fall 2016–2019
- Introduction to Programming, Fall 2016–2018
- Data Mining, Fall 2016
- Object-Oriented Programming (Laboratory), Spring 2017, 2018
- Internet and Concurrent Programming (Laboratory), Spring 2017–2019
- Programming III, Fall 2019

Visiting Assistant Professor (ΠΔ 407/80), Department of Computer Engineering and Informatics, University of Patras. Courses taught:
- Operating Systems II (Cloud Computing, Big Data, MapReduce), Spring 2012
- Operating Systems I, Fall 2012
- Operating Systems II (Cloud Computing, Big Data, MapReduce), Spring 2013

Visiting Postdoctoral Researcher, Department of Computer Engineering and Informatics, University of Patras. Courses taught:
- Operating Systems I, Fall 2013

Postdoctoral Researcher, School of Electrical and Computer Engineering, National Technical University of Athens. Courses taught:
- Advanced Topics in Database Systems, Fall 2013–2015

Laboratory Assistant, School of Electrical and Computer Engineering, National Technical University of Athens:
- Operating Systems, Fall 2008–2010

5. Professional Experience

Dept. of Informatics, Athens University of Economics and Business (10/2026–present)
TENURE-TRACK ASSISTANT PROFESSOR
- Tenure-track Assistant Professor appointment, Government Gazette 4904/τ.Γ΄/07.10.2026

Dept. of Computer Science and Telecommunications, Univ. of Thessaly (6/2020–10/2026)
ASSOCIATE PROFESSOR (2024–2026)
- Associate Professor appointment, Government Gazette 2835/τ.Γ΄/13.09.2024

ASSISTANT PROFESSOR (2020–2024)
- Tenured Assistant Professor, Government Gazette 3100/τ.Γ΄/27.11.2023
- Tenure-track Assistant Professor appointment, Government Gazette 924/τ.Γ΄/18.06.2020

Subject area: «*Distributed Computing Systems with Emphasis on Cloud Computing*»
Director of the «*Video Technology and Cloud Computing Laboratory*»
Membership of University committees:
- University of Thessaly Digital Governance Committee
- Representative of the School of Science in the re-accreditation of the Internal Quality Assurance System of the University of Thessaly

Membership of Department committees:
- Internal Quality Committee for the Department's branch in Cyprus
- Internal Evaluation Group (OMEA) of the Department of Computer Science and Telecommunications
- Appeals committee for the recruitment of teaching staff under the project «Acquisition of Academic Teaching Experience by Young Scientists Holding a PhD at the University of Thessaly», academic year 2024–2025 (alternate member)

- Selection committee for teaching staff under ΠΔ 407/80 and academic fellows under Article 29 of Law 4009/2011
- Evaluation committee for the recruitment of teaching staff under the project «Acquisition of Academic Teaching Experience by Young Scientists Holding a PhD 2019–2022», academic year 2021–2022
- Department representative in the committee for course and examination timetables of buildings A & B of the School of Science (3rd km Athens–Lamia National Road) (alternate member)
- Appeals evaluation committee for the recruitment of teaching staff under ΠΔ 407/80 and academic fellows under Article 29 of Law 4009/2011
- Committee for updating the internal regulations of the Department's undergraduate programme, academic year 2021–2022
- Selection committee for academic fellows under Article 29 of Law 4009/2011, fall semester of academic year 2022–2023
- Committee for the allocation of Department spaces in the south building complex of the School of Science

Department representation:

- Outreach coordinator of the Department

Computing Systems Laboratory, School of ECE, NTUA (07/2011–present)

SENIOR RESEARCHER (EXTERNAL COLLABORATOR)

Research interests: Distributed Computing Systems, Big Data Management Systems, Cloud Software Architectures, Peer-to-Peer Systems and Grid Computing.

- Research proposal writing for EU and Greek funding programmes (FP7, Horizon 2020 and GSRT). Total budget of successful proposals in which he participated or whose submission he coordinated: **+24M Euro** (IW-NET, ZEROW, DataSource, BigOptiBase, E2Data, SELIS, CELAR, MoDiSSENSE). Resulting funding for the laboratory: **1.4M Euro**.
- Supervision of undergraduate and postgraduate theses and membership of examination committees:
  - 14 undergraduate diploma theses, School of ECE, NTUA
  - 9 postgraduate theses, M.Sc. in Data Science and Machine Learning
  - 3 PhD candidates, School of ECE, NTUA
- Scientific consultant on IT matters for public-sector bodies such as the Hellenic Council of State, the Ministry of Economy and Development, the General Directorate of Private Investment and OASA.

Funded research projects:

- **LLM4CIP:** LLM-Powered Cybersecurity Preparedness and Risk Mitigation for Critical Infrastructure Protection (DIGITAL-ECCC-2024-DEPLOY-CYBER-07). Leading the MLOps cloud offering for LLM inference serving.
- **AI Factories – Pharos:** The Greek AI Factory for accelerating AI innovation (GA 101234269, HORIZON-JU-EUROHPC-2025-AI-01-IBA-01 – Artificial Intelligence Factories). Technical lead of the cloud-native infrastructure deployment for GPU-enabled inference and MLOps (Kubernetes, Git, Kubeflow, MLflow, Ansible).
- **COP-PILOT:** Collaborative Open Platform for PILOTing services across emerging smart IoT and Edge computing environments (GA 101189819, IA, HORIZON-CL4-2024-DATA-01-03). AI-enabled autoscaling service.

- **OASA Analytics:** Extraction of Performance Indicators of the Transport Services of OASA S.A. and of the Passenger Service Level in Athens Public Transport using Advanced Data Analytics Techniques (Programme Agreement, ΑΔΑ: ΨΨΡΧ46ΨΧΕ3-Ε2Η)
- **ZEROW:** Systemic Innovations Towards a Zero Food Waste Supply Chain (GA 101036388, IA, H2020-LC-GD-2020-4)
- **PUZZLE:** Towards a Sophisticated SIEM Marketplace for Blockchain-based Threat Intelligence and Security-as-a-Service (GA 883540, IA, H2020-SU-DS-2019). Work Package 4 leader.
- **DataSource:** A Search, Visualisation and Processing Platform for Big Open Data (Τ2ΕΔΚ-01231). Technical coordinator.
- **IW-NET:** Innovation driven Collaborative European Inland Waterways Transport Network (H2020 MG-2-6-2019). Responsible for the Big Data platform.
- **eThemisID:** Integrating the Greek Justice System with eIDAS and e-signature services (CEF/ICT/A2019/1926069, CEF-Connecting Europe Facility). Technical coordinator.
- **BigOptiBase:** Base Station Energy Optimisation with Big Data Analytics (Τ1ΕΔΚ-04605). Technical coordinator.
- **E2Data:** European Extreme Performing Big Data Stacks (Horizon 2020, H2020-ICT-2017-1 #780245)
- **SELIS:** Towards a Shared European Logistics Intelligent Information Space (Horizon 2020, MG-6.3-2015, GA 690588). Technical coordinator for Big Data Systems (Work Package 4 – Cloud and Big Data Infrastructure).
- **MoDiSSENSE:** A Distributed Platform for the Development of Social Networking Services over Mobile Devices (GSRT, 09ΣΥΝ-72_881). Technical coordinator.
- **CELAR:** Automatic, multi-grained elasticity-provisioning for the Cloud (7th Framework Programme, FP7-ICT-2011-8 #317790). Participation in the technical coordination.
- **CLARIN-EL:** Infrastructure for language resources, technologies and services (ESFRI/2006, ΟΠΣ 441451). Participation in the technical coordination.
- **PredMine:** A Predictive Analytics Platform Using Live Big Data (Greece–Israel bilateral programme, 3487). Participation in the technical coordination.
- **ARCOMEM:** ARchive COmmunities MEMories (European Commission, 7th Framework Programme, FP7 270239). Researcher.
- Teaching: Advanced Topics in Database Systems, 9th semester (2013–2018).

Information Society S.A. **(05/2015–present)**
Member of the Board of Directors (7/2019–present)
Member of the ICT4GROWTH advisory committee (5/2015–5/2019)

Centre for Hydrology and Informatics, Civil Engineering, NTUA **(05/2014–05/2016)**
POSTDOCTORAL RESEARCHER
▪ Consulting services to the European Environment Agency (EEA) through the European Topic Centre on Inland, Coastal and Marine Waters (ETC/ICM)
▪ Data management of the WISE Water Quantity dataflow
▪ IT support for Water Accounting
▪ Design and implementation of software for the management of hydrological data
▪ Proposal writing for EU-funded research programmes (Horizon 2020)

Computing Systems Laboratory, School of ECE, NTUA **(11/2005–07/2011)**
RESEARCHER
- Participation in the technical coordination and implementation of the following research projects:
- **STRATUSLAB:** Enhancing Grid Infrastructures with Virtualization and Cloud Technologies (European Commission CP-CSA, RI-261552)
- **GREDIA:** Grid Enabled Access to Rich media Content (European Commission, 6th Framework Programme, FP6 34363)
- **GRIDNEWS:** A Distributed Grid Platform for the Storage and Serving of Audiovisual News Content (Information Society, Measure 3.3)
- **PRESEMT:** Pattern Recognition-Based Statistically Enhanced MT (FP7 ICT-2009.2.2 248307)
- **E-VACATIONS:** Information system for complex and multiple reservations in tourist enterprises of the Ionian Islands using Grid/Web services
- **GreeD:** Extraction, mining and management of monolingual, multilingual and multimedia data and metadata for a variety of applications
- Responsible for the design, development and deployment of large-scale distributed data management prototypes based on peer-to-peer, grid and cloud technologies.
- Participation in the preparation and submission of research proposals for EU and GSRT funding.
- Guidance of undergraduate students during their diploma theses.
- Laboratory Assistant for the Operating Systems course (Fall 2008–2010).
- Administrator of artemis.cslab.ntua.gr, which indexes and serves all diploma theses of the School of ECE, NTUA since 2002.

EXODUS SA, Athens **(7/2002–12/2006)**
SOFTWARE ENGINEER
- Development of web sites with the eCentric content management system (HTML, DHTML, JavaScript, ASP, ASP.NET, SQL Server 2000)
- Maintenance and debugging of web applications of the Piraeus Bank Group
- Development of Internet Banking applications (www.easypay.gr)
- Development of applications in Visual Basic
- Development of Workflow Management applications with JSP and JavaBeans (JBoss)
- Participation in application development for the R&D department

Wateron Multimedia, Athens **(2000–2002)**
SOFTWARE ENGINEER
- Development of the web site www.thalassa.gr for the «Clean Coasts» programme of the Greek Ministry for the Environment (HTML, DHTML, JavaScript, ASP, SQL)
- Development of the web site www.thisavros.gr for the «Lakes and Rivers» programme of the Greek Ministry for the Environment (HTML, DHTML, JavaScript, ASP, SQL)

6. Research Interests

His research focuses on the design, analysis and implementation of efficient distributed systems and techniques for storing, managing and processing big data on modern computing platforms, with emphasis on cloud infrastructures and automated resource optimisation. His work covers a broad range of topics in large-scale data management, including:

- Elastic management of computing resources for efficient data storage and processing in cloud environments, using artificial intelligence techniques (reinforcement learning, deep reinforcement learning, decision trees, etc.) to optimise the operation of data processing and machine learning systems (ML for systems).
- Efficient distributed big data management systems, such as NoSQL, MapReduce and streaming frameworks, supporting business intelligence, data stream processing (IoT) and scientific data applications.
- Parallel and distributed training of machine learning models, focusing on the efficient use of computing resources and the design of suitable systems (Systems for ML).
- Scalable deployment and management of data analytics applications with containers and serverless techniques in the cloud, enabling flexible and cost-effective execution of demanding workloads.
- Load balancing and adaptive task allocation algorithms in distributed environments and peer-to-peer networks, for the efficient use of available resources.
- Management of heterogeneous data (relational, unstructured, time series, vectors, etc.) and data integration and modelling techniques for large-scale applications.

His research aims at innovation at both the systems and the theoretical level, producing flexible, efficient and adaptable solutions for processing and exploiting large, heterogeneous data in real distributed environments.

7. Research Projects

He has worked/is working as a researcher in numerous research projects:

- **LLM4CIP:** LLM-Powered Cybersecurity Preparedness and Risk Mitigation for Critical Infrastructure Protection (DIGITAL-ECCC-2024-DEPLOY-CYBER-07)
  LLM4CIP addresses significant gaps in the cybersecurity frameworks of essential services and critical infrastructures, as highlighted by the NIS2 Directive, by providing a transformative, AI-driven approach to cybersecurity preparedness. The envisioned LLM4CIP platform will enable end-user organisations to simulate, detect, analyse and mitigate cyber risks with unprecedented accuracy and accessibility. Acting as a digital assistant for Security Information and Event Management (SIEM), LLMs will allow even non-experts, such as system administrators, to manage and resolve complex security incidents effectively. This democratises cybersecurity capabilities, lets a wider range of staff contribute to security efforts and reduces reliance on scarce cyber experts, lowering the barriers to adopting security solutions. The platform will also provide an LLM-based risk management framework offering guided, actionable insights on managing ongoing cyber risks, together with a comprehensive suite of LLM- and AI/ML-supported tools that strengthen an organisation's ability to detect and respond to potential cyber attacks. By exploiting the ability of LLMs to process and understand complex patterns in very large datasets, LLM4CIP can identify subtle indicators of security risk that would otherwise go unnoticed, allowing organisations to address threats proactively and in real time.

- **AI Factories – Pharos:** The Greek AI Factory for accelerating AI innovation (GA 101234269, HORIZON-JU-EUROHPC-2025-AI-01-IBA-01 – Artificial Intelligence Factories)
  Pharos, the Greek AI Factory for accelerating AI innovation, aims to establish a European AI Factory in Greece that strategically leverages the pre-exascale supercomputer Daedalus. The initiative seeks to democratise artificial intelligence by making resources and tools accessible to a wide range of end users, with emphasis on start-ups and SMEs. Focusing on critical societal challenges in Health, Culture and Language, and Sustainability (energy, environment, climate), Pharos will promote trustworthy AI solutions that address real needs. It provides comprehensive support, including upskilling, access to quality data, training of advanced AI models and support for business innovation. Full integration with Daedalus will enable advanced AI applications such as predictive analytics for chronic diseases, personalised care, cultural heritage preservation and optimised management of renewable resources. The emphasis on trustworthy AI ensures data protection, security and ethical principles throughout the application life cycle. As an EU AI Factory, Pharos will collaborate with other European initiatives such as EDIHs, Data Spaces, NCCs, DeployAI and other AI Factories, contributing to a cross-border innovation ecosystem aligned with the strategic objectives of EuroHPC.
- **COP-PILOT:** Collaborative Open Platform for PILOTing services across emerging smart IoT and Edge computing environments (GA 101189819, IA, HORIZON-CL4-2024-DATA-01-03)
  The integration of edge computing, advanced 5G connectivity and decentralised processing is driving the large-scale deployment of private edge ecosystems that can reshape many industrial sectors. Fully exploiting intelligent management at the edge, however, requires coordinated efforts in platform development and cross-sector collaboration. COP-PILOT develops a Collaborative Open Platform framework for orchestrating end-to-end services across diverse industrial domains, offering a flexible solution that manages different sectors effectively while ensuring strong security, automation and intelligence. The framework integrates seamlessly with the underlying technologies, from IoT platforms to core infrastructure, and supports advanced cross-sector applications through innovative network services. Implementation follows two main directions: the platform itself, which adopts a modular orchestration approach with a user-friendly interface based on generative AI, multi-level data processing, policy-based optimisation and dynamic reasoning; and its integration in real environments, through four large pilot clusters spanning energy, smart cities, agriculture and industrial manufacturing, with cross-sector applications in mobility, logistics and resource management.
- **OASA Analytics:** Extraction of Performance Indicators of the Transport Services of OASA S.A. and of the Passenger Service Level in Athens Public Transport using Advanced Data Analytics Techniques (Programme Agreement, ΑΔΑ: ΨΨΡΧ46ΨΧΕ3-Ε2Η)
- **ZEROW:** Systemic Innovations Towards a Zero Food Waste Supply Chain. (GA 101036388, IA, H2020-LC-GD-2020-4)
  World hunger is on the rise, yet a third of all food produced globally goes to waste. The EU-funded ZeroW project aims to provide significant contributions to preventing and reducing food waste and enhancing the sustainability of food supply chains. Specifically, ZeroW will carry out the demonstration of diverse innovations in nine real-life food chains,

employing a systemic innovation approach to effectively address the multidimensional issue of food waste. Moreover, the project will justify how scaling up the results of the demonstrated innovations, and combining them with appropriate policies, can bring us closer to the Green Deal's 2030 food waste reduction goals.

- **PUZZLE:** Towards a Sophisticated SIEM Marketplace for Blockchain-based Threat Intelligence and Security-as-a-Service (GA 883540, IA, H2020-SU-DS-2019) WP4 Lead
  For small and medium-sized enterprises (SMEs) and microenterprises, going digital is important for business growth. But it also presents the risk of cybersecurity attacks. The EU-funded PUZZLE project is developing cybersecurity tools to enable even the smallest enterprises to monitor, forecast, assess and manage their cyber risks. Specifically, the project will track the relationships amongst the cyber assets of each small and microenterprise. It will also consider the available network and compute and storage infrastructures and use them to efficiently calculate individual, cumulative and propagated risks, as well as recommend and apply mitigation actions. The project's goal is to design solutions that can be easily on-boarded by external cybersecurity providers and seamlessly adopted by end users..
- **DataSource:** A Search, Visualisation and Processing Platform for Big Open Data (T2EΔK-01231). Technical coordinator.
  The objective of the DataSource project is to create a technology platform for the development of an ecosystem that generates added value by aggregating and synthesizing open datasets provided by independent "stakeholders" of the scientific value chain to facilitate the conduct of a data-driven research. The project will design and implement an integrated system based on state-of-the-art technologies that will be able to collect, visualize and process combined data from open data sets available using distributed large-scale data processing systems over computing platforms clouds. Users will be able to use the platform to query all available interconnected datasets using an easy-to-use graphical user interface, they will have a brief overview of the available results, will perform some basic transformations in the combined data, and will be able to retrieve the final product of the processing through the available links. The necessary subsystems for information visualization, aggregation/data ingestion and algorithmic processing will be developed using scalable data management techniques. The final system will be able to help users from different sectors such as researchers, public sector employees, etc. to easily conduct their research, while the potential commercial operator will be able, through the use of cloud infrastructure, to create a flexible financial billing model depending on the use of the service (pay-as-you-go).
- **IW-NET:** Innovation driven Collaborative European Inland Waterways Transport Network (H2020 MG-2-6-2019). Responsible for the Big Data platform.
  IW-NET will deliver a multimodal optimisation process across the EU Transport System, increasing the modal share of IWT and supporting the EC's ambitions to reduce transport GHG emissions by two thirds by 2050. Enablers for sustainable infrastructure management and innovative vessels will support an efficient and competitive IWT sector addressing infrastructure bottlenecks, insufficient IT integration along the chain and slow adoption of technologies such as new vessel types, alternative fuels, automation, IoT, machine learning. The Living Lab will apply usercentered application scenarios in important TEN-T corridors demonstrating and evaluating the impacts in simulations and tests covering technological, organisational, legal, economical, ecological, and safety/security issues: 1)

Digitalisation: optimised planning of barge operations serving dense urban areas with predictive demand routing (Brussels-Antwerp-Courtrai-Lille-Valenciennes); data driven optimisation on navigability in uncertain water conditions (Danube). 2) Sustainable Infrastructure and Intelligent Traffic Management: lock forecasting reducing uncertainty in voyage planning; lock planning; management of fairway sections where encounters are prohibited; berth planning with mandatory shore power supply and other services (hinterland of Bremerhaven via Weser/Mittelland Canal). 3) Innovative vessels: new barge designs fitting corridor conditions and target markets: barges with a high degree of automation for urban distribution (East Flanders-Ghent); new barge for push boats capable with low/high water levels optimising capacities (Danube from Austria to Romania); use of GALILEO services for advanced driver assistance like guidance, bridge height warning and automatic lock entering (Spree-Oder waterway close to Berlin). Accompanying activities are stakeholder engagement, capacity building, and the delivery of a European IWT development roadmap with policy recommendations for increasing the IWT share.

- **eThemisID:** Integrating the Greek Justice System with eIDAS and e-signature services (CEF/ICT/A2019/1926069, CEF-Connecting Europe Facility). Technical coordinator.

The Greek Justice System consisting of the Hellenic Council of State, the Supreme Civil and Criminal Court and the Court of Audit has made clear steps towards digitizing its operations and offered services with the use of IT infrastructure and software. A significant issue regarding the uptake of digital services in the justice domain is their ability to integrate with existing identification and authorization services in national and pan-European level. The scope of eThemisID is a) to implement the necessary components and integrate them with existing systems to allow the Greek Justice System to offer eIDAS and e-signature compliant services to its end-users in an EU-wide level and b) to extend the national eIDAS node with the ability to offer rich authentication and authorization services to a large number of citizens. The main objectives of eThemisID are:

a) To extend and integrate the national eIDAS node with existing attribute providers for attributes enablement, namely with the Independent Authority for Public Revenue (IAPR), the de-facto identity provider for all economically

active persons and legal entities in Greece, 10M in total, and the Athens Bar Association (ABA).

b) To integrate the implemented components with at least one of the three major Greek Courts, namely the Hellenic Council of State, while offering open-source packages to be considered by adoption from the rest Courts.

c) To showcase eIDAS and e-Seal functionality through the offering of three operational services (TRL-7) as usecases for the Hellenic Council of State namely: 1) eIDAS attribute-based electronic case-file submission and tracking for EU-citizens and lawyers, 2) attribute-based integration of justice software with legal-entity attribute providers (IAPR) and 3) eIDAS-based eSealing of auto-generated documents.

d) To offer readily available open-source components building upon CEF building blocks such as DSS and e-Seal for later adoption.

- **BigOptiBase:** Base Station Energy Optimisation with Big Data Analytics (T1EΔK-04605, Research – Create – Innovate). Technical coordinator.

The goal of BigOptiBase is to enable smart infrastructure management in order to achieve energy consumption optimization of Mobile Base station equipment, while preserving the quality of service that the mobile users perceive. Towards this direction, an integrated system that collects, analyses, processes and visualizes combined data coming from telecommunication usage and telemetry data of Mobile Base stations as well as available public data will be designed and developed. For this purpose, innovative algorithms and methods of data collection, storage and management will be developed based on open software and hardware technologies, which will enable real-time big data analytics over streaming data generated by Mobile Network Base station operation and by external data sources. Real-time distributed machine learning techniques will be applied in order to develop prediction models towards the dynamic, automated and optimized management of network elements (e.g. antennas) as well as other elements (e.g. air-conditions) of the radio network infrastructure. Also, specialized hardware will be designed and programmed, which will be installed and used in the base stations to facilitate initial data collection/processing and remote infrastructure management. The experimental evaluation will be performed through an extended network simulator that will be developed emphasizing on quality of service issues utilizing historical usage data from a Greek Mobile Network Operator. Finally, the system will also be installed for pilot operation in existing base stations.

- **E2Data European Extreme Performing Big Data Stacks (Horizon 2020, H2020-ICT-2017-1 # 780245)**

E2Data will provide a new Big Data software paradigm of achieving the maximum resource utilization for heterogeneous cloud deployments that include a diverse selection of architectures such as CPUs, GPUs, FPGAs, and MICs, without affecting current Big Data programming norms. The proposed solution takes a cross-layer approach by allowing vertical communication between the four key layers of Big Data deployments (application, Big Data software, scheduler/cloud provider, and execution run time) which will allow the E2Data-enabled stack to adress the following question:

"How can the user establish for each particular business scenario which is the highest performing and cheapest hardware configuration?"

E2Data proposes an end-to-end solution for Big Data deployments that will fully exploit and advance the state-of-the-art in infrastructure services by delivering a performance increase of up to 10x while utilizing up to 50% less cloud resources.

- **SELIS: Towards a Shared European Logistics Intelligent Information Space. (Horizon 2020, MG-6.3-2015)**

SELIS is aimed at delivering a 'platform for pan-European logistics applications' by:

- Embracing a wide spectrum of logistics perspectives and creating a unifying operational and strategic business innovation agenda for pan European Green Logistics.

- Establishing an exceptionally strong consortium of logistics stakeholders and ICT providers, that can leverage EU IP from over 40 projects so as to create proof of concept Common Communication and navigation platforms for pan-European logistics applications in month 18 deployed in 8 living labs (LLs) representing the principal logistics communities.

- Establishing a research and innovation environment using the LLs to provide data than can be used for discovery of new insights that will enable continuous value creation supporting the large scale adoption of SELIS.

The proposed Shared European Logistics Intelligent Information Space, SELIS, is a network of logistic communities' specific shared intelligent information spaces termed SELIS Community Nodes (SCN). SCNs are constructed by individual logistics communities to facilitate the next generation of collaborative, responsive and agile green transportation chains. SCNs link with their participants' existing systems through a secure infrastructure and provide shared information and tools for data acquisition and use, according to a 'cooperation agreement'. Connected nodes, provide a distributed common communication and navigation platform for Pan European logistics applications. Each Node decides what information wishes to publish and what information wants to subscribe to. The SELIS Community Node (SCN) concept represents the evolution of a longline of research in this area. The fundamental principle is that it provides a 'lightweight ICT structure' to enable information sharing for collaborative sustainable logistics for all at strategic and operational levels.

- **MoDiSSENSE: A Distributed Platform for the Development of Social Networking Services over Mobile Devices. (GSRT: 09ΣΥΝ-72_881)**

  MoDisSENSE enriches social networking services by exploiting the continuous data flow from the daily use of mobile phones. This flow includes data from user visited locations, contacts, calls and calendar combined with data acquired from the user's social network (list of friends, profile and preferences). The project combines these heterogeneous data sources (geographic and social log files, user profiles and preferences and context information) and offers innovative services based on advanced searches and combined queries that exploit all these aforementioned sources. Furthermore, the project deals with the development and deployment of services that exploit spatiotemporal data generated by user paths.

- **CELAR**: **Automatic, multi-grained elasticity-provisioning for the Cloud, 7th Framework Programme, FP7-ICT-2011-8 #317790**

  Auto Scaling Resources is one of the top obstacles and opportunities for cloud computing: consumers can minimise the execution time of their tasks without exceeding a given budget. Cloud providers maximise their financial gain while keeping their customers satisfied and minimising administrative costs. Many systems claim to offer adaptive elasticity, yet the "throttling" is usually performed manually, requiring the user to figure out the proper scaling conditions. In order to harvest the benefits of elastic provisioning, it is imperative that it be performed in an automated, fully customisable manner. CELAR delivers a fully automated and highly customisable system for elastic provisioning of resources in cloud computing platforms.

- **CLARIN-EL**: **Infrastructure for language resources, technologies and services (ESFRI/2006) ΟΠΣ 441451.**

  The CLARIN-EL project deals with the creation of infrastructure for storing, indexing and sharing repositories with linguistic content. In order to achieve this, a distributed infrastructure over a cloud computing environment will be designed and deployed. The infrastructure is employed with distributed indexing, sharing, storage and execution algorithms using innovative Big-Data technologies.

  - **PREDMINE:** A Predictive Analytics Platform Using Live Big Data (Greece–Israel bilateral programme, 3487)

  PREDMINE deals with the execution of machine learning algorithms (predictive analytics, machine learning, decision trees, etc.) over large data sets. Data is supplemented with additional information gathered from external sources. The goal is to extract more detailed prediction and classification models in a more accurate manner. For this purpose, distributed storage techniques, indexing and data processing will be studied. Real-time innovative data processing platforms will be evaluated and integrated into the platform.

- **ARCOMEM**: **ARchive COmmunities MEMories. European Commission, 7th Framework Programme, FP7 270239**

  ARCOMEM is an EU-funded research project. It is about memory institutions like archives, museums, and libraries in the age of the Social Web. Memory institutions are more important now than ever: as we face greater economic and environmental challenges we need our understanding of the past to help us navigate to a sustainable future. This is a core function of democracies, but this function faces stiff new challenges in face of the Social Web, and of the radical changes in information creation, communication and citizen involvement that currently characterise our information society (e.g., there are now more social network hits than Google searches). Social media are becoming more and more pervasive in all areas of life.

- **STRATUSLAB: Enhancing Grid Infrastructures with Virtualization and Cloud Technologies. (European Commission CP-CSA, RI-261552)**

  StratusLab is developing a complete, open-source cloud distribution that allows grid and non-grid resource centers to offer and to exploit an "Infrastructure as a Service" cloud. It is particularly focused on enhancing distributed computing infrastructures such as the European Grid Infrastructure (EGI).

- **GREDIA**: **Grid Enabled Access to Rich media Content. European Commission, 6th Framework Programme, FP6 34363**

  The main objective of the GREDIA project was to develop a reliable Grid application platform with high-level support for the design, implementation and operational deployment of secure Grid business applications. Thus, GREDIA maintained a novel generic Grid middleware required for applications accessing distributed rich media content using diverse type of devices, including mobile phones. The platform was validated in a real case scenario in the media domain enabling the sharing of resources among different actors such as journalists or

editors accessing the Grid from different locations and in some cases using their mobile phones.

- **GRIDNEWS**: **A Distributed Grid Platform for the Storage and Serving of Audiovisual Content (GSRT)**

  The project's purpose is the storage of high fidelity audio-visual material from television channels and then the content processing for the efficient identification of segments containing a predetermined or arbitrary keyword. The project aims to create an integrated information system through which users will be able to identify and then to reproduce portions of audiovisual material, by keyword searching. The information system exploits the distributed nodes of a Grid infrastructure, which distributes the computational load of the processing algorithms and the storage volume of digital data into many nodes, achieving high performance and scalability.

- **PRESEMT**: **(Pattern Recognition-Based Statistically Enhanced MT). (FP7 ICT-2009.2.2 248307)**:

  The PRESEMT project proposes a novel approach to the problem of Machine Translation by introducing cross-disciplinary techniques, mainly borrowed from the machine learning and computational intelligence domains, in the MT paradigm. To this end, a flexible MT system is developed, which is enhanced with (a) pattern recognition approaches (such as extended clustering or neural networks) towards the development of a language-independent analysis and (b) evolutionary computation (such as Genetic Algorithms or Swarm Intelligence) for system optimisation.

  The project features:

  Development of a novel method based on generalised clustering techniques, for creating a language-independent phrase aligner also adaptable to phrasing principles designated by the end users

  Use of pattern recognition approaches for defining syntactic structure

  Employment of techniques inspired by the functional biological systems for disambiguating translations

  Extensive use of automated optimisation techniques to define a mature system for methodically optimising system parameters

  Application of machine learning methods for allowing system adaptation

  Use of parallel computing architectures as well as mainstream multi-core architectures for PCs for substantial advances in translation speed.

8. Professional Service

Journal Reviewing

1. **Guest Editor**, Journal of Grid Computing: From Grids to Cloud Federations. Special Issue: Orchestration of computing resources in the Cloud-to-Things continuum
2. ACM Computing Surveys
3. ACM Transactions on Autonomous and Adaptive Systems
4. The Computer Journal (Oxford University Press)
5. IEEE Transactions on Services Computing (IEEE)
6. IEEE Transactions on Knowledge and Data Engineering (IEEE)
7. IEEE Transactions on Parallel and Distributed Systems (IEEE)
8. IEEE Transactions on Cloud Computing (IEEE)
9. Data & Knowledge Engineering (Elsevier)
10. GeoInformatica (Springer)
11. Archives for Scientific Computing (Springer)
12. The Journal of Supercomputing (Springer)
13. Big Data Research (Elsevier)
14. Future Generation Computer Systems (Elsevier)
15. International Journal of Cooperative Information Systems (World Scientific)
16. Algorithms (MDPI)
17. Sustainability (MDPI)
18. Engineering Applications of Artificial Intelligence (Elsevier)
19. Computers and Electrical Engineering (Elsevier)
20. Simulation Modeling Practice and Theory (Elsevier)
21. Journal of Web Semantics (Elsevier)
22. Journal of Systems and Software (Elsevier)
23. Computer Networks (Elsevier)
24. International Journal on Artificial Intelligence Tools (World Scientific)
25. International Journal of Metadata, Semantics and Ontologies (Inderscience)

Program Committee Member

1. PC Member, 32nd International European Conference on Parallel and Distributed Computing (Euro-Par 2026)
2. PC Member, 14th IEEE International Conference on Big Data (IEEE BigData 2026)
3. PC Member, 42nd IEEE International Conference on Data Engineering (ICDE 2026)
4. PC Member, 30th IEEE Symposium on Computers and Communications (ISCC) 2025
5. **Chair,** 5th Workshop on From Cloud to Things: harnessing pervasive data in the Computing Continuum - (Cloud2Things) 2025 - in conjunction with ACM UbiComp / ISWC 2025
6. PC Member, 11th IEEE International Conference on Data Science and Advance Analytics (IEEE DSAA 2024)
7. **PC Member, ACM SIGMOD** International Conference on Management of Data 2025
8. PC Member, 20th International Conference on Advanced Data Mining and Applications (ADMA 2024)
9. PC Member, 29th IEEE Symposium on Computers and Communications, 2024.
10. **Proceedings Chair**, Nineteenth ACM European Conference on Computer Systems (EuroSys 2024)

11. **Chair,** 4th Workshop on From Cloud to Things: harnessing pervasive data in the Computing Continuum - (Cloud2Things) 2024 - in conjunction with IEEE PERCOM 2024
12. **Chair,** 3rd Workshop on From Cloud to Things: harnessing pervasive data in the Computing Continuum - (Cloud2Things) 2023 - in conjunction with IEEE PERCOM 2023
13. PC Member, International Conference on Advanced Data Mining and Applications 2023
14. PC Member, 29th International European Conference on Parallel and Distributed Computing (EuroPar 2023)
15. PC Member, 10th IEEE International Conference on Data Science and Advance Analytics (IEEE DSAA 2023)
16. PC Member, IEEE International Conference on Metaverse Computing, Networking and Applications (IEEE MetaCom 2023)
17. PC Member, 28th International Conference on Database Systems for Advanced Applications (DASFAA 2023)
18. PC Member, DistInSys 2022 2st International Workshop on Distributed and Intelligent Systems in conjunction with IEEE ISCC 2022
19. **Chair,** 2nd Workshop on Cloud-to-Things continuum: towards the convergence of IoT, Edge and Cloud Computing - (Cloud2Things) 2022 - in conjunction with IEEE/ACM CCGRID 2022
20. PC Member, 27th International Conference on Database Systems for Advanced Applications (DASFAA 2022)
21. **PC Member, ACM SIGMOD** International Conference on Management of Data 2022
22. PC Member, International Workshop on Security and Privacy for SMEs (SME-SP 2021), in Conjunction with the 16th International Conference on Availability, Reliability and Security (ARES 2021)
23. **Chair,** 1st Workshop on Cloud-to-Things continuum: towards the convergence of IoT, Edge and Cloud Computing - (Cloud2Things) 2021 - in conjunction with IEEE/ACM CCGRID 2021
24. PC Member, 26th International Conference on Database Systems for Advanced Applications (DASFAA 2021)
25. PC Member, 10th International Conference on Cloud Computing and Services Science (CLOSER 2020)
26. PC Member, 1st Workshop on Secure IoT, Edge and Cloud systems - in conjunction with CCGRID 2020
27. PC Member, 20th Annual IEEE/ACM International Symposium in Cluster, Cloud, and Grid Computing (CCGrid 2020)
28. PC Member, 19th Annual IEEE/ACM International Symposium in Cluster, Cloud, and Grid Computing (CCGrid 2019)
29. PC Member, 9th International Conference on Cloud Computing and Services Science (CLOSER 2019)
30. **Chair**, Short Papers, Posters and Demos, IEEE CloudCom 2018
31. PC Member, 1st International Workshop on Next Generation Clouds for Extreme Data Analytics in conjunction with IEEE CloudCom 2018
32. PC member: International Workshop on Semantic Big Data (SBD 2018) in conjunction with SIGMOD 2018
33. PC member: 8th International Conference on Cloud Computing and Services Sciences (CLOSER 2018)

34. PC member: International Workshop on Semantic Big Data (SBD 2017) in conjunction with SIGMOD 2017
35. PC Member: International Workshop on Autonomic Systems for Big Data Analytics (ASBDA 2017) in conjunction with the 2017 IEEE International Conference on Cloud and Autonomic Computing (ICCAC)
36. Publicity co-chair, PC member: 1st International Workshop on Autonomic Management of Large Scale Container-Based Systems in conjunction with the 2017 IEEE International Conference on Cloud and Autonomic Computing (ICCAC)
37. PC member: International Workshop on Semantic Big Data (SBD 2016) in conjunction with SIGMOD 2016
38. PC member: IEEE International Symposium on Network Computing and Applications (NCA 2016)
39. PC member: 8th International Conference on Knowledge Discovery and Information Retrieval (KDIR 2016)
40. PC member: 2nd International Workshop on Algorithmic Aspects of Cloud Computing (ALGOCLOUD 2016)
41. PC member: Advances in High Dimensional Big Data, in Conjunction with IEEE BigData 2015
42. PC member: IEEE International Symposium on Network Computing and Applications (NCA 2015)
43. PC member: 1st International Workshop on Algorithmic Aspects of Cloud Computing (ALGOCLOUD 2015)
44. PC member: 24th ACM International Conference on Information and Knowledge Management (CIKM 2015)
45. PC member: 23rd ACM International Conference on Conference on Information and Knowledge Management (CIKM 2014)
46. PC member: Fourth International Workshop on Cloud Data Management (CloudDB 2012), in conjunction with CIKM 2012

9. Publications

THESIS:

Δ1. Ioannis Konstantinou, **«Adaptive Load Balancing Algorithms for Distributed Data Management Systems (Peer to Peer and Cloud Computing)»** PhD thesis, School of ECE, NTUA, CSLAB, 2011.

Δ2. Ioannis Konstantinou, **«Data Grid: Integrating Heterogeneous and Distant Data Stores»** Masters Thesis, Techno-Economic Systems (MBA), School of ECE, NTUA, 2007

Δ3. Ioannis Konstantinou, **«Creation, Editing and Production of Printable Undergraduate Handbook Using Static and Dynamic Content»** Diploma Thesis, School of ECE, NTUA, 2004.

CONFERENCE PROCEEDINGS:

Σ1. C. Bitsakos, D. Tsoumakos, I. Konstantinou and N. Koziris. **DInos: A Deep Reinforcement Learning Approach to Generalizable Autoscaling in Stateless Cloud Applications** In Proceedings of the 36th International Conference on Database and Expert Systems Applications (DEXA 2025), Bangkok, Thailand, 25 - 27 August, 2025

Σ2. A. Spyrou, I. Konstantinou, and N. Koziris. A **Decision Support System for Automated Configuration of Cloud Native ML Pipelines** In proceedings of the 4th International Workshop on From Cloud to Things: Harnessing pervasive data in the Computing Continuum - (Cloud2Things) in conjunction with IEEE Pervasive Computing 2024 PerCom, Biarritz, France, March 11-15 2024.

Σ3. M. Chrysopoulos, I. Konstantinou, and N. Koziris: **Deep Reinforcement Learning in Cloud Elasticity through Offline Learning and Return Based Scaling** In proceedings of the 16th IEEE International Conference on Cloud Computing (CLOUD), Chicago, IL, USA, July 2-8 2023

Σ4. N. Nikitas, I. Konstantinou, V. Kalogeraki, and N. Koziris: **Cherry: A Distributed Task-Aware Shuffle Service for Serverless Analytics** In proceedings of the 2021 IEEE International Conference on Big Data (BigData 2021), December 15-18 2021

Σ5. N. Provatas, I. Konstantinou, and N. Koziris: **Is Systematic Data Sharding able to Stabilize Asynchronous Parameter Server Training?** In proceedings of the 2021 IEEE International Conference on Big Data (BigData 2021), December 15-18 2021

Σ6. A. Krisilias, N. Provatas, I. Konstantinou, and N. Koziris: **A Performance Evaluation of Distributed Deep Learning Frameworks on CPU Clusters Using Image Classification Workloads** In proceedings of the Fifth IEEE International Workshop on Benchmarking, Performance Tuning and Optimization for Big Data Applications (BPOD 2021 in conjuction with IEEE BigData 2021), virtual event, December 15-18 2021

Σ7. A. Tsiourvas, C. Bitsakos, I. Konstantinou, D. Fotakis, and N. Koziris: **A Mechanism Design and Learning Approach for Revenue Maximization on Cloud Dynamic Spot Markets** In proceedings of the 14th IEEE International Conference on Cloud Computing (CLOUD), September 5-11 2021

Σ8. N. Provatas, E. Kassela, N. Chalvantzis, A. Bakogiannis, I. Giannakopoulos, I. Konstantinou and N. Koziris: **SELIS BDA: Big Data Analytics for the Logistics Domain.** In proceedings of the 2020 Applications of Big Data Technology in the Transport Industry Workshop (in conjuction with IEEE BigData 2020), December 10-13 2020

Σ9. C. Kotselidis et al.: **Efficient Compilation and Execution of JVM-Based Data Processing Frameworks on Heterogeneous Co-Processors** In Proceedings of the Design, Automation and Test in Europe Conference (DATE 2020)

Σ10. E. Kassela, N. Provatas, I. Konstantinou, A. Floratou and N. Koziris: **General-Purpose vs. Specialized Data Analytics Systems: A Game of ML & SQL Thrones** In proceedings of the 2019 IEEE International Conference on Big Data (BigData 2019), Los Angeles, CA, USA December 9-12 2019

Σ11. E. Kassela, N. Provatas, A. Tsiourvas, I. Konstantinou, and N. Koziris: **BigOptiBase: Big Data Analytics for Base Station Energy Consumption Optimization** In proceedings of the 2019 IEEE International Conference on Big Data (BigData 2019), Los Angeles, CA, USA December 9-12 2019

Σ12. N. Provatas, I. Konstantinou and N. Koziris: **Towards Faster Distributed Deep Learning Using Data Hashing Techniques** In proceedings of the 2019 IEEE International Conference on Big Data (BigData 2019), Los Angeles, CA, USA December 9-12 2019

Σ13. E. Kassela, I. Konstantinou and N. Koziris: **Towards a Multi-engine Query Optimizer for Complex SQL Queries on Big Data** In proceedings of the 2019 IEEE International Conference on Big Data (BigData 2019), Los Angeles, CA, USA December 9-12 2019

Σ14. K. Bitsakos, I. Konstantinou and N. Koziris: **DERP: A Deep Reinforcement Learning Cloud System for Elastic Resource Provisioning** In proceedings of the 2018 IEEE International Conference on Cloud Computing Technology and Science (CloudCom), Nicosia, Cyprus December 10-13 2018

Σ15. Ioannis Mytilinis, Constantinos Bitsakos, Katerina Doka, Ioannis Konstantinou and Nectarios Koziris: **The Vision of a HeterogeneRous Scheduler** In proceedings of the 1st International Workshop on Next Generation Clouds for Extreme Data Analytics (Xtreme-cloud - in conjuction with IEEE CloudCom 2018), Nicosia, Cyprus December 10-13 2018

Σ16. N. Zacheilas, N. Chalvantzis, I. Konstantinou, V. Kalogeraki and N. Koziris: **ORiON: Online ResOurce Negotiator for multiple Big Data Analytics frameworks** In proceedings of the 2018 IEEE International Conference on Autonomic Computing (ICAC 2018), Trento, Italy, September 3-7 2018.

Σ17. A. Naskos, A. Gounaris and I. Konstantinou: **Elton: a Cloud Resource Scaling-out Manager for NoSQL Databases**. In proceedings of the 2018 IEEE International Conference of Data Engineering (ICDE 2018), Paris, France, April 16-19 2018

Σ18. K. Lolos, I. Konstantinou, V. Kantere and N. Koziris: **Elastic Management of Cloud Applications using Adaptive Reinforcement Learning**. In proceedings of the 2017 IEEE International Conference on Big Data (BigData 2017), Boston, MA, USA December 11-14 2017

Σ19. G. Touloupas, I. Konstantinou and N. Koziris: RASP: Real-time Network **Analytics with Distributed NoSQL Stream Processing**. In proceedings of the 2nd Workshop on Real-time and Stream Analytics in Big Data (in conjuction with IEEE BigData 2017), Boston, MA, USA December 11-14 2017

Σ20. T. Doudali, I. Konstantinou and N. Koziris: **Spaten: a Spatio-temporal and Textual Big Data Generator**. In proceedings of the 2017 Big Spatial Data Workshop (BSD 2017 in conjuction with IEEE BigData 2017), Boston, MA, USA December 11-14 2017

Σ21. K. Doka, I. Mytilinis, I. Giannakopoulos, I. Konstantinou, D. Tsitsigkos, M. Terrovitis and N. Koziris: **Exploiting Social Networking and Mobile Data for Crisis Detection and Management**. In Proceedings of the International Conference on Information Systems for Crisis Response and Management in Mediterranean Countries. Springer, Cham, 2017.

Σ22. K. Lolos, I. Konstantinou, V. Kantere and N. Koziris: **Rethinking Reinforcement Learning for Cloud Elasticity**. In Proceedings of ACM Symposium of Cloud Computing conference, Santa Clara, California USA, September 25-27 (SoCC'17)

Σ23. K. Lolos, I. Konstantinou, V. Kantere and N. Koziris: **Adaptive State Space Partitioning of Markov Decision Processes for Elastic Resource Management**. In proceedings of the 2017 IEEE International Conference of Data Engineering, San Diego, CA, USA April 19-22 (ICDE 2017)

Σ24. N. Chalvantzis, I. Konstantinou and N. Koziris : **BBQ: Elastic MapReduce over Cloud Platforms**. In proceedings of the 17th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, Madrid, Spain May 14-17 (CCGrid 2017).

Σ25. Giannakopoulos, I. Konstantinou, D. Tsoumakos and N. Koziris : **AURA: Recovering from Transient Failures in Cloud Deployment**. In proceedings of the 17th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, Madrid, Spain May 14-17 (CCGrid 2017).

Σ26. I. Giannakopoulos, I. Konstantinou, D. Tsoumakos and N. Koziris: **Recovering from Cloud Application Deployment Failures through Re-execution.** In proceedings of the 2nd International Workshop on Algorithmic Aspects of Cloud Computing (ALGOCLOUD 2016), in conjunction with the ALGO 2016 Conference, August 22, 2016, Aarhus, Denmark

Σ27. Copil, G., Moldovan, D., Le, H. D., Truong, H., Dustdar, S., Sofokleous, C., Loulloudes, N., Trihinas, D., Pallis, G., Dikaiakos, M. D., Giannakopoulos, I., Papailiou, N., Konstantinou, I., Sheridan, C., Loverdos, C. K., Floros, E., Star, K., & Xing, W. **On Controlling Elasticity of Cloud Applications in CELAR**. In S. Bagchi (Ed.), Emerging Research in Cloud Distributed Computing Systems (pp. 222-252). Hershey, PA.

Σ28. E. Kassela, I. Konstantinou and N. Koziris: **A Generic Architecture for Scalable and Highly Available Content Serving Applications in the Cloud** In proceedings of the 4th IEEE Symposium on Network Cloud Computing and Applications (NCCA 2015), Munich, Germany, June 11-12 2015.

Σ29. I. Mytilinis, I. Giannakopoulos, I. Konstantinou, K. Doka, D. Tsitsigkos, M. Terrovitis, L. Giampouras and N. Koziris: **MoDisSENSE: A Distributed Spatio-Temporal and Textual Processing Platform for Social Networking Services.** In Proceedings of the 2015 ACM SIGMOD/PODS International Conference on Management of Data (SIGMOD'15), Demo track, Melbourne, Victoria, Australia, 2015.

Σ30. A. Naskos, E. Stachtiari, A. Gounaris, P. Katsaros, D. Tsoumakos, I. Konstantinou and S. Sioutas **Dependable Horizontal Scaling Based On Probabilistic Model Checking** In proceedings of the 15th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid), Shenzhen, Guangdong, China, May 4-7, 2015 **(best paper award nomination)**

Σ31. E. Kassela, C. Boumpouka, I. Konstantinou and N. Koziris: **Automated Workload-aware Elasticity of NoSQL Clusters in the Cloud.** In proceedings of the 2014 IEEE International Conference on Big Data (BigData 2014), Washington DC, USA, October 27-30 2014.

Σ32. I. Mytilinis, I. Giannakopoulos, I. Konstantinou, K. Doka and N. Koziris: **MoDisSENSE: A Distributed Platform for Social Networking Services over Mobile Devices.** In proceedings of the 2014 IEEE International Conference on Big Data (BigData 2014), Washington DC, USA, October 27-30 2014.

Σ33. I. Giannakopoulos, N. Papailiou, C. Mantas, I. Konstantinou, D. Tsoumakos and N. Koziris: **CELAR: Automated Application Elasticity Platform.** In proceedings of the 2014 IEEE International Conference on Big Data (BigData 2014), Washington DC, USA, October 27-30 2014.

Σ34. N. Papailiou, D. Tsoumakos, I. Konstantinou, P.Karras and N. Koziris: **H2RDF+: An Efficient Data Management System for Big RDF Graphs**. In Proceedings of the

2014 ACM SIGMOD/PODS International Conference on Management of Data (Demo Track), Snowbird, Utah, USA.

Σ35. N. Papailiou, D. Tsoumakos, I. Konstantinou, P.Karras and N. Koziris: **Scalable Indexing and Adaptive Querying of RDF Data in the cloud.** In Proceedings of the 6th International Workshop on Semantic Web Information Management - SWIM 2014 (in conjunction with the 2014 ACM International Conference on Management of Data), Snowbird, Utah, USA.

Σ36. N. Papailiou, I. Konstantinou, D. Tsoumakos, P.Karras and N. Koziris: **H2RDF+: High-performance Distributed Joins over Large-scale RDF Graphs**. In proceedings of the 2013 IEEE International Conference on Big Data (BigData 2013), Santa Clara, CA, USA, October 6-9 2013

Σ37. I. Konstantinou, D. Tsoumakos, I. Mytilinis and N. Koziris: **DBalancer: Distributed Load Balancing for NoSQL Data-stores**. In proceedings of the 2013 ACM SIGMOD/PODS International Conference on Management of Data, New York, USA, June 22-27 2013.

Σ38. I. Konstantinou, V. Kantere, D. Tsoumakos, and N. Koziris: **COCCUS: Self-Configured Cost-Based Query Services in the Cloud**. In proceedings of the 2013 ACM SIGMOD/PODS International Conference on Management of Data, New York, USA, June 22-27 2013.

Σ39. D. Tsoumakos, I. Konstantinou, C. Boumpouka, S. Sioutas and N. Koziris: **Automated, Elastic Resource Provisioning for NoSQL Clusters Using TIRAMOLA**. In proceedings of the 13th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid), Delft, The Netherlands, May 13-16, 2013 **(best paper award)**.

Σ40. I. Konstantinou and E. Floros and N. Koziris **Public vs Private Cloud Usage Costs: The StratusLab Case** In proceedings of the 2nd International Workshop on Cloud Computing Platforms (CloudCP 2012 - In conjuction with EuroSys), Bern, Switzerland, 2012

Σ41. E. Angelou and N. Papailiou and I. Konstantinou and D. Tsoumakos and N. Koziris **Automatic Scaling of Selective SPARQL Joins Using the TIRAMOLA System** In proceedings of the 4th International Workshop on Semantic Web Information Management (SWIM 2012 - In conjuction with SIGMOD), Scottsdale, Arizona, USA, 20 May 2012

Σ42. I. Konstantinou and E. Angelou and C. Boumpouka and D. Tsoumakos and N. Koziris and S. Sioutas **TIRAMOLA: Elastic NoSQL Provisioning through A Cloud Management Platform** In proceedings of the ACM SIGMOD International Conference on Management of Data (SIGMOD demo track), Scottsdale, Arizona, USA, 2012

Σ43. N. Papailiou and I. Konstantinou and D. Tsoumakos and N. Koziris **H2RDF: Adaptive Query Processing on RDF Data in the Cloud** In Proceedings of the 21th International Conference on World Wide Web (WWW demo track), Lyon, France, 2012

Σ44. P. Antonopoulos and I. Konstantinou and D. Tsoumakos and N. Koziris **Efficient Updates for Web-scale Indexes over the Cloud** In Proceedings of the International Workshop of Data Management in The Cloud (DMC2012 - In conjuction with ICDE 2012)

Σ45. Preuß S. and Keffer, H. and Schmidt, P.and Goumas, G. and Asiki, A., and Konstantinou, I. **User Adaptation in a Hybrid MT System**. In International Conference on Text, Speech and Dialogue (pp. 362-369). Springer Berlin Heidelberg. (2012, September).

Σ46. I. Konstantinou and E. Angelou and C. Boumpouka and D. Tsoumakos and N. Koziris **On the Elasticity of NoSQL Databases over Cloud Management Platforms** In Proceedings of the 20th International Conference on Information and Knowledge Management (**CIKM**), Glaskow,Scotland, UK, 2011,pp. 2385-2388

Σ47. I. Konstantinou and E. Angelou and D. Tsoumakos and N. Koziris: **Distributed Indexing of Web Scale Datasets for the Cloud**. In Proceedings of the International Workshop on Massive Data Analytics on the Cloud (**MDAC2010** - in conjunction with **WWW 2010**), Raleigh, NC, USA, 26 April 2010.

Σ48. I. Konstantinou and D. Tsoumakos and N. Koziris: **Measuring the Cost of Online Load-Balancing in Distributed Range-Queriable Systems.** In Proceedings of the 9th International IEEE Conference on Peer-to-Peer Computing (**P2P**), Seattle, WA, USA, 8-11 September 2009.

Σ49. D. Dimitriadis, A. Metallinou, I. Konstantinou, G. Goumas, P. Maragos and N. Koziris: **GRIDNEWS: A Distributed Automatic Greek Broadcast Transcriptions System.** Proc. of IEEE Intern. Conf. on Acoustics, Speech and Signal Processing ICASSP-09, Taipei, Taiwan, March 2009.

Σ50. I. Konstantinou and D. Tsoumakos and N. Kozyris: **PASS It ON (PASSION): An Adaptive Online Load-Balancing Algorithm for Distributed Range-Query specialized Systems.** In Proceedings of the 16th International Conference on Cooperative Information Systems (**COOPIS**), Monterrey, Mexico, 12-14 November 2008

Σ51. A. Asiki, K. Doka, I. Konstantinou, A. Zissimos, and N. Koziris: **A Distributed Architecture for Multi-Dimensional Indexing and Data Retrieval in Grid Environments.** In Proceedings of the Cracow 2007 Grid Workshop (CGW'07), Krakow, Poland, October 16-17, 2007.

Σ52. I. Konstantinou, K. Doka, A. Asiki, A. Zissimos, and N. Koziris: **Gredia Middleware Architecture.** In Proceedings of the Cracow 2007 Grid Workshop (CGW'07), Krakow, Poland, October 16-17, 2007.

JOURNALS:

Π1. E. Kassela, I. Konstantinou and N. Koziris, **Accelerating Distributed Repartition Joins on Skewed Datasets via Patch-Based Shuffling**, in IEEE Access, vol. 13, pp. 41068-41096, 2025, doi: 10.1109/ACCESS.2025.3547623

Π2. N. Provatas, I. Konstantinou and N. Koziris: **A Survey on Parameter Server Architecture: Approaches for Optimizing Distributed Centralized Learning**, in IEEE Access, vol. 13, pp. 30993-31015, 2025, doi: 10.1109/ACCESS.2025.3535085.

Π3. N. Provatas, I. Chalas, I. Konstantinou and Nectarios Koziris: **Strategy-Switch: From All-Reduce to Parameter Server for Faster Efficient Training,** in IEEE Access, vol. 13, pp. 9510-9523, 2025, doi: 10.1109/ACCESS.2025.3528248

Π4. N. Chalvantzis, A. Vontzalidis, E. Kassela, A. Spyrou, N. Nikitas, N. Provatas, I. Konstantinou and N. Koziris: **IW-NET BDA: A Big Data Infrastructure for Predictive**

and Geotemporal Analytics of Inland Waterways, in IEEE Access, vol. 12, pp. 52503-52523, 2024, doi: 10.1109/ACCESS.2024.3387315.

Π5. I. Giannakopoulos, I. Konstantinou, D. Tsoumakos and N. Koziris: **Cloud Application Deployment with Transient Failure Recovery**. Journal of Cloud Computing, Springer, 2018 7:11

Π6. D. Sarlis, N. Papailiou, I. Konstantinou, G. Smaragdakis and N. Koziris: **Datix: A System for Scalable Network Analytics** ACM SIGCOMM Computer Communication Review, 45(5), October 2015.

Π7. I. Konstantinou and D. Tsoumakos and N. Koziris: **Fast and Cost-Effective Online Load-Balancing in Distributed Range-Queriable Systems.** IEEE Transactions on Parallel and Distributed Systems (**TPDS**) vol. 22, August 2011, pp. 1350-1364.

Π8. A. Asiki and A. Doka and I. Konstantinou and A. Zissimos and D. Tsoumakos and N. Koziris and P. Tsanakas: A **Grid middleware for data management exploiting Peer-to-Peer techniques.** *Future Generation Computer Systems, vol. 25, Apr. 2009, pp. 426-435.*

10. Awards

1) Best Paper Award, 13th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid 2013), for paper Σ39

2) Best Paper Award Nomination, 15th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid 2015), for paper Σ30

3) NTUA Thomaidion Award (2009, 2011) for outstanding publications in scientific journals or conference proceedings, for papers Σ48 and Π8

11. Press Mentions

1) «Αλλάζουν οι μεταφορές με ελληνική σφραγίδα» [Transport changes with a Greek stamp] (Kathimerini)

https://www.kathimerini.gr/society/1042967/allazoyn-oi-metafores-me-elliniki-sfragida/

2) European Commission Intelligence Body Completes Global Supply Chain Mission (Forbes)

https://www.forbes.com/sites/adrianbridgwater/2019/09/03/european-commission-intelligence-body-completes-global-supply-chain-mission/?sh=7b95dccf16df

3) «Διεθνές βραβείο σε εργασία Ελλήνων για το i-cloud» [International award for Greek researchers' cloud work] (Kathimerini)

https://www.kathimerini.gr/society/496105/diethnes-vraveio-se-ergasia-ellinon-gia-to-i-cloud/

4) «Ο... Τιραμόλα που κέρδισε το Διεθνές Συμπόσιο Υπολογιστών» [The TIRAMOLA that won the international computing symposium] (Patris)

https://archive.patris.gr/articles/247457#.UiSppx0pOfk

12. Citations

The above publications have received more than 1,400 citations, and the h-index is 20, according to Google Scholar: http://scholar.google.gr/citations?hl=el&user=4LnVNmIAAAAJ