

Dimitrios G. Kogias, PhD

Assistant Professor · Distributed Computing, Edge Computing and Applications

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Academic Profile

My research focuses on Distributed Computing, Edge Computing and their applications in secure and trustworthy digital infrastructures. My work began with the design and analysis of distributed algorithms and information dissemination protocols in dynamic networking environments, the subject of my doctoral dissertation, and evolved towards scalable cloud-edge-IoT architectures with embedded mechanisms for security, trust and resource management. Recent work focuses on digital trust infrastructures based on blockchain and distributed ledger technologies, including permissioned networks, smart contracts, decentralized digital identity, verifiable credentials and trust frameworks for educational, IoT and multi-stakeholder ecosystems. I also contribute to European R&D projects as work-package leader, technical coordinator and architecture advisor, while developing educational infrastructures that connect academic teaching with real Web3 environments.

Education

2010 PhD in Informatics and Telecommunications, National and Kapodistrian University of Athens. Dissertation: Study and Design of Algorithms for Information Dissemination in Unstructured Networking Environments.

2004 MSc in Electronics and Radioelectrology, National and Kapodistrian University of Athens.

2001 BSc in Physics, National and Kapodistrian University of Athens.

Research Activity

A. Distributed Infrastructure Architecture

TARDIS - Trustworthy and Resilient Decentralised Intelligence for Edge Systems (Horizon Europe) · 2025-2026

Principal Researcher - Work Package Leader | National and Kapodistrian University of Athens

- Architectural design of distributed data-processing mechanisms in edge-cloud environments.
- Coordination of technical evaluation, KPI definition and reliability/operational metrics across 4 use cases.
- Preparation of technical specifications and integration of components into a multi-layer infrastructure.

FASTER - First Responder Advanced Technologies (Horizon 2020, GA 833507) · 2019-2022

Principal Researcher - Work Package Leader | University of West Attica

- Architecture design for a distributed digital ecosystem supporting first-responder field operations.
- System-of-systems integration of heterogeneous subsystems and data/service flows.
- Technical evaluation of architectural choices regarding performance and reliability.

OASEES - Open Autonomous Programmable Cloud Apps & Smart Edge Sensors (Horizon Europe) · 2024

Principal Researcher | National and Kapodistrian University of Athens

- Design support for distributed cloud-edge infrastructure and edge-computing mechanisms.
- Contribution to interoperability and scalability of distributed infrastructure components.

HORSE - Holistic, Omnipresent, Resilient Services for Future 6G (Horizon Europe) · 2025

Principal Researcher | National and Kapodistrian University of Athens

- Architectural support for distributed compute infrastructures in 6G ecosystems.
- Analysis of architectural choices regarding performance, latency and operational resilience.

STORM - Safeguarding Cultural Heritage (Horizon 2020, GA 700191) · 2016-2019

Researcher | University of West Attica

- Design contribution to distributed sensing and data-processing architectures.
- Analysis of architectural choices regarding scalability, reliability and interoperability.

RESCUER - First RESponder-Centered Support Toolkit (Horizon 2020, GA 80960) · 2022-2023

Researcher | University of West Attica

- Design of decentralized computing solutions for adverse and infrastructure-less environments.
- Technical contribution to reliability assessment and operational continuity.

OPTORER-PPE - Optimized Routing and Touring in Areas of Cultural and Tourist Interest · 2022-2023

Principal Researcher - Technical Coordinator | University of West Attica

- Design of distributed data collection and processing architecture based on sensors and mobile platforms.
- Coordination of subsystem integration and evaluation of platform scalability in heterogeneous settings.

B. Network and Information Systems Security

ORBIS - Maritime Border Surveillance (Horizon Europe, GA 101225659) · 2026

Technical & Project Design Consultant | FOUR DOT INFINITY IKE

- Architectural design of subsystems for maritime border surveillance.
- Scientific review of technical deliverables and contribution to risk-aware architecture documentation.

TRILLION - Trusted Citizen-LEA Collaboration over Social Networks (Horizon 2020, GA 653256) · 2015-2018

Researcher | University of West Attica

- Design contribution to secure crowdsensing architecture for citizen-authority collaboration.
- Integration of privacy-preserving mechanisms and controlled information disclosure.

IERAX - Aerial Platforms for Monitoring Emissions from Ships · 2023-2024

Principal Researcher | University of West Attica

- Architecture design for secure collection and transmission of data from aerial and mobile platforms.
- Technical coordination of sensor and networking-subsystem integration.

DESMOS - Interconnected Smart Infrastructures for Protection and Security · 2018-2021

Project Manager - Technical Coordinator | iTrack Telematic Services

- Technical coordination of distributed monitoring and surveillance mechanisms.
- Design of data-management architecture across heterogeneous subsystems.

C. Identity Management and Decentralized Trust

Web3Edu - Permissioned Blockchain Infrastructure for Identity-Centric Education · 2023-present

Architectural Design and Technical Implementation | University of West Attica

- Design and operation of a permissioned Hyperledger Besu network for academic education and research.
- Implementation of account-abstraction-inspired onboarding mechanisms to reduce wallet/key-management friction for students - 140+ enrolled users.
- Development of role-based progression, on-chain/off-chain data separation and verifiable participation records.
- Experimental evaluation of decentralized governance mechanisms and trust frameworks.

ARTEMIS - Blockchain-Based Supply Chain Traceability · 2022-2023

Project Manager - Technical Lead | iTrack Telematic Services

- Technical coordination of a blockchain-based traceability application in a multi-stakeholder setting (2 industrial partners + 3 universities).
- Design of data-integrity mechanisms and trust-aware supply-chain architecture.

LIFE GENERA - Reinvigorating Energy Transition in Tourist Islands (LIFE Programme) · 2023-2025

Principal Researcher - Technical Lead | University of West Attica

- Design and implementation of a blockchain-based serious game for user engagement in energy transition.
- 260+ users and 4.5/5 satisfaction rating documented in project deliverables.
- Development of on-chain transparency, integrity and decentralized data-management mechanisms.

SPAGOS - Secure and Privacy-aware eGovernment Services · 2015

Researcher | National Technical University of Athens

- Design support for secure and privacy-aware eGovernment services.
- Requirements analysis for identification and controlled access in public digital services.

D. Fundamental Distributed Systems and Algorithms

PENED 2003 - Multi-hop Communication in Wireless Access and Monitoring Networks · 2005-2008

Junior Researcher | National and Kapodistrian University of Athens

- Design and analysis of distributed algorithms for data dissemination.
- Study of communication architectures in heterogeneous wired and wireless environments.

ACCA / ANA / HERACLEITUS / CONTENT (EU-IST FET/FIRE) · 2006-2008

Junior Researcher | National and Kapodistrian University of Athens

- Algorithmic study of self-adaptive distributed architectures and service-discovery mechanisms.
- Evaluation of scalability and communication efficiency in large-scale environments.

Teaching Experience

Teaching experience spanning more than 20 years across undergraduate, postgraduate and international programmes in computer networks, distributed systems, operating systems, IoT, blockchain and cybersecurity.

Independent Teaching - Postgraduate Level

- Blockchain Technology - MSc in Cybersecurity, University of West Attica (2020-2025)
- High Performance Computing Systems for Blockchain Technologies - University of West Attica (2024-2025)
- Knowledge Representation & Big Data - MSc in Artificial Intelligence, University of West Attica (2021-2024)
- DLT Cybersecurity, Auditing and Sandbox Considerations (including MiCA-related material) - University of Malta, Centre for DLT (2024-2025)

Independent Teaching - Undergraduate Level

- Internet of Things (IoT) - University of West Attica (2017-2021)
- Operating Systems - University of West Attica (2019-2022, including teaching under P.D. 407/1980)
- NoSQL Databases - University of West Attica (2018-2019)
- Mechatronics - University of West Attica (2018-2019)

Core Courses and Laboratory Teaching (2002-2025)

At the University of West Attica (former Piraeus University of Applied Sciences), as Laboratory Associate and Academic Fellow, with assignments in core Computer Science and Networking courses. Total teaching activity exceeds 7,000 hours at undergraduate and postgraduate level.

- Computer Networks · Microcomputer Architecture · Algorithms and Data Structures
- Structured and Object-Oriented Programming · Introduction to Telecommunications
- Special Topics in Networks and Security · Cloud Computing · Web Application Development

Other Teaching Activity

- 2022: Instructor, Introduction to Blockchain Technology, Lifelong Learning Centre, University of West Attica.
- 2012-2017: Teaching at Aegean College - Distributed Systems Programming, Software Engineering, Network Technologies, Database Design, Web Technologies.

Thesis Supervision

Supervision of 14 theses at the University of West Attica (5 postgraduate, 9 undergraduate) in distributed systems, infrastructure architecture and blockchain technologies.

Publications

686 Citations (Google Scholar)	h-index 15 i10-index 23	23 journal papers 31 conferences · 10 chapters	1 Book Blockchain, Kallipos 2022
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Peer-Reviewed Journal Articles

- J1. K. Oikonomou, D. Kogias, I. Stavrakakis, "Probabilistic Flooding for Efficient Information Dissemination in Random Graph Topologies," *Computer Networks*, vol. 54, no. 10, 2010. doi:10.1016/j.comnet.2010.01.007
- J2. D. Kogias, M. Xevgenis, C. Z. Patrikakis, "Cloud Federation: A Prominent Solution for the Evolution of Cloud Computing," *IEEE Computer*, vol. 49, no. 11, 2016.
- J3. P. Kasnesis, C. Z. Patrikakis, D. Kogias et al., "Cognitive Friendship and Goal Management for the Social IoT," *Computers & Electrical Engineering*, vol. 58, 2017.
- J4. T. Gurkan, D. Kogias et al., "A Survey on Information Security Threats and Solutions for Machine-to-Machine (M2M) Communications," *Journal of Parallel and Distributed Computing*, vol. 109, 2017.
- J5. C. Z. Patrikakis, A. Konstantas, D. Kogias, M. Choras, "TRILLION Project Approach on Scenarios Definition for Citizen Security Services," *Int. Journal of Electronic Governance*, vol. 9, no. 3/4, 2017.
- J6. M. Feidakis, M. Ranguossi, P. Kasnesis, C. Z. Patrikakis, D. G. Kogias, A. Charitopoulos, "Affective Assessment in Distance Learning: A Semi-Explicit Approach," *Int. Journal of Technologies in Learning*, vol. 26, no. 1, 2019.
- J7. D. Kogias, H. C. Leligou, M. Xevgenis et al., "Towards a Blockchain-Enabled Crowdsourcing Platform," *IEEE IT Professional*, vol. 21, no. 5, 2019.
- J8. B. Sayin, S. Sahin, D. G. Kogias, C. Z. Patrikakis, "Privacy Issues in Post Dissemination on Facebook," *Turkish Journal of Electrical Engineering and Computer Sciences*, vol. 27, no. 5, 2019.
- J9. K. Skiadopoulos, K. Oikonomou, M. Avlonitis, K. Giannakis, D. Kogias, I. Stavrakakis, "Multiple and Replicated Random Walkers Analysis for Service Discovery in Fog Computing IoT Environments," *Ad Hoc Networks*, vol. 93, 2019.
- J10. A. Chatzimichail, C. Chatzigeorgiou, D. G. Kogias et al., "Internet of Things Infrastructure for Security and Safety in Public Places," *Information*, vol. 10, no. 11, 2019.
- J11. M. Xevgenis, D. G. Kogias et al., "Application of Blockchain Technology in Dynamic Resource Management of Next Generation Networks," *Information*, vol. 11, no. 12, 2020.
- J12. J. Ducree, M. Etzrodt, D. Kogias et al., "Unchaining Collective Intelligence for Science, Research and Technology Development by Blockchain-Boosted Community Participation," *Frontiers in Blockchain*, vol. 4, 2021.
- J13. M. Feidakis, C. Chatzigeorgiou, D. G. Kogias et al., "Smart Interconnected Infrastructures for Security and Protection: The DESMOS Project," *Computers*, vol. 10, 2021.
- J14. M. Xevgenis, D. G. Kogias et al., "Evaluation of a Blockchain-Enabled Resource Management Mechanism for Next Generation Networks," *Int. Journal of Network Security & Its Applications*, vol. 13, no. 5, 2021.
- J15. P. Kasnesis, V. Doulgerakis, D. G. Kogias et al., "Deep Learning Empowered Wearable-Based Behavior Recognition for Search and Rescue Dogs," *Sensors*, vol. 22, no. 3, 2022.
- J16. E. Katsadouros, D. G. Kogias, C. Z. Patrikakis et al., "Introducing the Architecture of FASTER: A Digital Ecosystem for First Responder Teams," *Information*, vol. 13, 2022.
- J17. M. Xevgenis, D. G. Kogias et al., "Addressing ZSM Security Issues with Blockchain Technology," *Future Internet*, vol. 15, no. 4, 2023.
- J18. M. Polychronaki, D. G. Kogias, H. C. Leligou, P. A. Karkazis, "Blockchain Technology for Access and Authorization Management in the Internet of Things," *Electronics*, vol. 12, no. 22, 2023.
- J19. D. Stamatakis, D. G. Kogias et al., "Blockchain-Powered Gaming: Bridging Entertainment with Serious Game Objectives," *Computers*, vol. 13, no. 1, 2024.
- J20. C. Vassilakis, M. Polychronaki, D. G. Kogias, H. C. Leligou, "OPTORER: A Dynamic Routing and Touring Service for Indoor and Outdoor Tours," *Sensors*, vol. 24, no. 8, 2024.
- J21. M. Polychronaki, M. G. Xevgenis, D. G. Kogias, H. C. Leligou, "Decentralized Identity Management for Metaverse-Enhanced Education: A Literature Review," *Electronics*, vol. 13, no. 19, 2024.
- J22. N. Kaftantzis, D. G. Kogias, C. Z. Patrikakis, "Exploring the Impact of Resource Management Strategies on Simulated Edge Cloud Performance," *Network*, vol. 4, 2024.
- J23. M. G. Xevgenis, M. Polychronaki, D. G. Kogias, H. C. Leligou, E. Liotou, "Securing Zero-Touch Networks with Blockchain: Decentralized Identity Management and Oracle-Assisted Monitoring," *Electronics*, vol. 15, 2026.

Peer-Reviewed Conference Papers

- C1. K. Oikonomou, D. Kogias, L. Tzevelekas, I. Stavrakakis, "Investigation of Information Dissemination Design Criteria in Large-Scale Network Environments," *PCI* 2009.
- C2. K. Oikonomou, D. Kogias, I. Stavrakakis, "A Study of Information Dissemination under Multiple Random Walkers and Replication Mechanisms," *MobiOpp* 2010.
- C3. D. Kogias, K. Oikonomou, I. Stavrakakis, "Replicated Random Walks for Service Advertising in Unstructured Environments," *Med-Hoc-Net* 2008.
- C4. D. Kogias, K. Oikonomou, I. Stavrakakis, "Study of Randomly Replicated Random Walks for Information Dissemination over Various Network Topologies," *WONS* 2009.
- C5. D. Kogias, K. Oikonomou, I. Stavrakakis, "Service Discovery Using Random Walkers Diversion," *Med-Hoc-Net* 2007. (Poster)
- C6. G. Gezer, T. Gurkan, D. Kogias et al., "PI-Controlled ANN-Based Energy Consumption Forecasting for Smart Grids," *ICINCO* 2015.
- C7. T. Gurkan, H. Orenbas, R. Das, D. Kogias et al., "Information Security Threats and Attack Detection Framework for Wireless Sensor Network-Based Smart Grid Applications," *IC-MAST* 2015.
- C8. S. Potirakis et al., D. Kogias, "Physiological Parameters Monitoring of Fire-Fighters by Means of a Wearable Wireless Sensor System," *IC-MAST* 2015.
- C9. M. Xevgenis, L. Toumanidis, D. Kogias, C. Z. Patrikakis, "The Virtual Lab (VLAB) Cloud Solution," *IEEE GLOBECOM Workshops* 2016.

- C10. P. Kasnesis, L. Toumanidis, D. Kogias, C. Z. Patrikakis, I. Venieris, "ASSIST: An Agent-Based SIoT Simulator," IEEE WF-IoT 2016.
- C11. I. Papadopoulos, D. Kogias, C. Z. Patrikakis, C. Marinou, "Enhancing Students Logical Thinking with Gherkin Language," IEEE EDUCON 2017.
- C12. E. Katsadouros, D. Kogias et al., "Teaching Network Security through a Scavenger Hunt Game," IEEE EDUCON 2017.
- C13. C. Chatzigeorgiou, L. Toumanidis, D. Kogias, C. Z. Patrikakis, E. Jacksch, "A Communication Gateway Architecture for Ensuring Privacy and Confidentiality in Incident Reporting," IPAT 2017.
- C14. C. Z. Patrikakis, D. G. Kogias et al., "On the Successful Deployment of Community Policing Services: The TRILLION Project Case," IEEE ICCE 2018.
- C15. C. Charitou, D. G. Kogias et al., "Use of Apps for Crime Reporting: Privacy Concerns and Protection of Personal Data," NGCP 2017.
- C16. V. Resta, R. de Wit, D. Kogias, C. Z. Patrikakis, "STORM: Safeguarding Cultural Heritage through Technical and Organisational Management," REHABEND 2018.
- C17. R. de Wit et al., D. G. Kogias, "Climate Change Communication to Safeguard Cultural Heritage," World Symposium on Climate Change Communication 2018.
- C18. L. Toumanidis, P. Karapetros, D. G. Kogias et al., "Developing the Museum-Monumental Experience from Linear to Interactive Using Chatbots," ICSIMAT 2018.
- C19. V. Doulgerakis, D. G. Kogias, C. Z. Patrikakis, "Using Blockchain to Monitor Livestock Products in the Food Supply Chain," Decentralized Conference Athens 2018.
- C20. A. Chatzimichail et al., D. Kogias, "Smart Interconnected Infrastructure for Security and Safety in Public Places," DCOSS 2019.
- C21. E. Katsadouros, C. Chatzigeorgiou, D. Kogias et al., "Private Incident Reporting Using Onion Networks," IoT4SAFE Workshop 2020.
- C22. M. Xevgenis, D. Kogias et al., "A Survey on Available Blockchain Platforms and Protocols for Supply Chain Management," IoT4SAFE Workshop 2020.
- C23. C. Z. Patrikakis, D. G. Kogias et al., "A Method for Measuring Urban Space Density of People and Delivering Notifications with Respect to Privacy," IEEE ICCE 2021.
- C24. M. Polychronaki, C. Vassilakis, D. G. Kogias et al., "OPTORER PPE: Optimal Routing and Exploration of Touristic and Cultural Areas," PCI 2022.
- C25. D. Margaritis, H. C. Leligou, D. G. Kogias, "One-Dimensional Fingerprinting as an Alternative to the Free Space Path Loss Equation for Indoor Positioning," NiDS 2023. (Best Paper Award)
- C26. D. Margaritis, D. G. Kogias, H. C. Leligou, "An Indoor Mapping Scheme for BLE Beacon-Based Navigation," PCI 2023.
- C27. C. Vassilakis, M. Polychronaki, D. G. Kogias, H. C. Leligou, "OPTORER PPE: A Novel Dynamic Routing and Exploration Service," IACuDiT 2023.
- C28. L. Xagoraris, D. G. Kogias, P. Karkazis, "A Review of Zero Trust Security Framework (ZTF) for Sustainable and Resilient Smart Cities," PCI 2023.
- C29. D. Stamatakis, D. G. Kogias et al., "GENERA: A Serious Game Leveraging Blockchain Technology for Renewable Energy Education," MEDPOWER 2024.
- C30. M. Polychronaki, I. Christidis, M. G. Xevgenis, D. G. Kogias, H. C. Leligou, "My University Studies (M.U.St.): An Academic Proof of Concept for Web3.0," PCI 2024.
- C31. G. Drampalou, I. Voyiatzis, D. Kogias, "Decentralized IoT-Blockchain Architecture for Real-Time Task Validation in Smart Agriculture," PACET 2026.

Book Chapters

- B1. D. Kogias, T. Gurkan, V. C. Gungor, "Cognitive Radio Networks for Smart Grid Communications," in Smart Grid: Networking, Data Management, and Business Models, CRC Press, 2016.
- B2. D. Kogias, M. Michailidis, S. Potirakis, S. Vassiliadis, "Communication Protocols for Vital Signs Sensors Used for the Monitoring of Athletes," in Smart Textiles and Their Applications, Elsevier, 2016.
- B3. D. G. Kogias, E. T. Michailidis, T. Gurkan, V. C. Gungor, "Realizing the Wireless Technology in Internet of Things (IoT)," in Emerging Wireless Communication and Network Technologies, Springer, 2018.
- B4. C. Charitou, D. G. Kogias et al., "Use of Apps for Crime Reporting and the EU General Data Protection Regulation," in Societal Implications of Community-Oriented Policing and Technology, Springer, 2018.
- B5. P. Kasnesis, D. G. Kogias et al., "An IoE Architecture for the Preservation of Cultural Heritage: The STORM Use Case," IGI Global, 2019.
- B6. R. de Wit, D. G. Kogias et al., "Climate Change Communication to Safeguard Cultural Heritage," Springer, 2019.
- B7. P. Kasnesis, D. G. Kogias et al., "Taking Advantage of the Cloud for Efficient Use of ICT Resources and Sensory Data," Pisa University Press, 2019.
- B8. A. Dimou, D. G. Kogias et al., "FASTER: First Responder Advanced Technologies for Safe and Efficient Emergency Response," in Technology Development for Security Practitioners, Springer, 2021.
- B9. M. Polychronaki, D. G. Kogias, C. Z. Patrikakis, "Identity Management in Internet of Things with Blockchain," in Blockchain-Based Internet of Things, Springer, 2022.
- B10. M. G. Xevgenis, D. G. Kogias, H. C. Leligou, "Blockchain in Next Generation Networks (NGNs)," in Handbook of Blockchain Technology, Edward Elgar Publishing, 2025.

Book

- B11. Patrikakis, C. Z., Leligou, H. C. & Kogias, D. G. (2022). Blockchain [Postgraduate textbook]. Kallipos Open Academic Editions. doi:10.57713/kallipos-171

Editorials & Technical Articles

- E1. D. G. Kogias, C. Z. Patrikakis, "Beyond Bitcoin: Exploring the Expanding Horizons of Blockchain Innovation," IEEE IT Professional, vol. 26, no. 3, 2024.
- E2. D. G. Kogias, C. Z. Patrikakis, "The Credential You Earned Is Not Yours: Building Education's Missing Identity Layer," IEEE IT Professional, vol. 28, no. 2, 2026.
- T1. D. Kogias, "Security and Privacy in the Internet of Things: How to Increase the User Trust," Cutter IT, 2016.
- T2. M. Polychronaki, N. Kaftantzis, M. Xevgenis, D. Kogias, N. Leligou, "(Demystifying) Blockchain Development: The BLER Use Case," Cutter Business Technology Journal, 2019.

Extended Abstracts

EA1. A. Damvakeraki, D. G. Kogias, "A Preliminary Study of Zero-Knowledge-Based Governance Mechanisms for DAOs," European DAO Workshop 2026 (DAWO26). (Extended Abstract)

Scientific & Academic Roles

- Associate Editor, Frontiers in Blockchain - Web3 & Metaverse.
- Academic Advisory Board Member, INATBA (International Association for Trusted Blockchain Applications).
- Scientific Committee Member / DLT & Web3 Architecture Advisor, KNOBS S.r.l., Milan (2026).
- Representative of the CoNSeRt Laboratory in the bloxberg Consortium.
- Reviewer for international scientific journals in blockchain, distributed systems and cybersecurity.

Skills & Certifications

Languages

- Greek (native) · English (Certificate of Proficiency in English, Cambridge University) · French (Certificat Pratique de la Langue Francaise, Universite de Sorbonne).

Certifications

- Cisco Certified Network Associate (CCNA) Routing & Switching.

Programming and Technologies

- Blockchain / DLT: Hyperledger Besu, Ethereum, Solidity, Smart Contracts, Permissioned DLT, DIDs, Verifiable Credentials, SBTs.
- Backend & Infrastructure: Python, FastAPI, Node.js, REST APIs, Linux VMs, Nginx, monitoring/observability.
- Cybersecurity & Trust: Security-by-design, Zero Trust, access control, privacy-aware architectures, identity management.
- Research & Project Delivery: proposal writing, WP leadership, KPI definition, technical coordination, deliverables.