CURRICULUM VITAE

Dr. Dimitris P. Karampatzakis

Agios Loukas, 65404, Kavala, Greece

Date of birth ▪ December 11, 1978

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SHORT PRESENTATION

Dr. Dimitris Karampatzakis is Assistant Professor (Analog and Digital Electronic Systems) at the Department of Informatics – Democritus University of Thrace. He holds a Eng. Diploma in Electronics and Computer Engineering from ECE – Technical University of Crete (2003) and a PhD in VLSI Systems from ECE – University of Thessaly (2009). He used to be a Fellow Researcher at CETI/ATHENA Research and Innovation Center with expertise in ICT technologies: Embedded systems, LoRaWAN, Physical Internet, Industrial Maintenance and VLSI Computer Systems. Dimitris has great experience in start-up ICT companies and in the implementation of cutting-edge technologies. He worked for various companies implementing wireless networks (2004-07) and integrating RFID technologies in industry (2007-10). Dimitris participates in (42) academic/scientific publications in the domain of VLSI, EDA, Edge computing and Information Technologies. Dimitris, as a deputy mayor in municipality of Drama (2014-2023) was responsible for city planning, ICT and EU Projects. He led the team of the new green integrated urban programme of Drama that was funded with the amount of 8.45 MEuros and it is under development.

EDUCATION

Technical University of Crete (TUC), Chania, Greece.
Diploma in Electronics & Computer Engineering (7,73/10), ECE Department, 2003

University of Thessaly (UTH), Volos, Greece.
Ph.D., Department of Electrical & Computer Engineering (Excellent), 2009
Phd Thesis: "*Analysis and Optimization of Digital CMOS Circuits*", Advisor Prof. G. Stamoulis

CURRENT STATUS

- **Assistant Professor, Democritus University of Thrace (DUTH)**
  Dept. of Informatics, **Jan 2018 – now**

GRANTS

INTEL unrestricted grant: "Leakage power analysis & optimization", 2004 (10 kEuros)

PENED Research Program: "Concurrent Optimum design for Power Grid and transistor sizing of modern integrated circuits", General Secretariat for Research and Technology of the Greek Ministry of Development, 3 years Program, 2006-2009 (110 kEuros)

WORKING EXPERIENCE

Post Doc Researcher, ATHENA Research and Innovation Center: Working in Project called "WelCOM – Wireless Sensor Networks for Engineering Asset Life Cycle Optimal Management"(http://welcom-project.ceti.gr), Research and Development Project, "SYNERGASIA", 2011-2014 (1.92 MEuros)

Broadband Technical Manager: BTS Greece, Design and implementation of broadband solutions for hotels, restaurants and cafe (Hotspots, IPCameras, IPTelephony), 2007 (1.2 MEuros)

Microsystems Division Manager: SENSAP Microsystems SA – a member of Corallia Cluster, Auto-ID - RFID technologies and Applications, Athens, 2007- 2009. I worked for the RFID FP7 EU Project called

ASPIRE (http://www.fp7-aspire.eu/). Also, I worked on the research for the best RFID products in the market and the decision to resell in Greece the products of IMPINJ, PRINTRONIX and MTI Wireless (year 2007 as a start up company) (350 kEuros).

Technology Advisor: Broadband Network of the Prefecture of Magnesia, Capturing – Designing and implementing the project, Volos-Magnesia, 2006 – 2007 (100 kEuros).

CMOS Chip Tape Out: Two Tape outs of CAPSENIC, a low-power mixed-signal 0.35u ASIC for integrated MEMS sensors, 2005, University of Thessaly – CERTH - THEON SENSORS S.A., Athens (180 kEuros).

Information System for the Quality Assurance in Higher Greek Education: Working in the Project as Project Manager of the Information System Development, TEI Kavalas, 2010 - 2012 (350 kEuros).

Deputy Mayor of Municipality of Drama: Responsible for Planning and IT responsible for Integrated Projects for Smart & Sustainable Cities (2014-19, 13 MEuros).

ACTIVE EU-NATIONAL RESEARCH AND DEVELOPMENT PROJECTS

[1]. **eROBSON: Educational Robotics at Schools Online with Augmented Reality**
Erasmus+ Call: 2020 STRATEGIC PARTNERSHIP IN RESPONSE OF THE COVID-19 SITUATION
Action: Partnerships for Digital Education Readiness (KA226), National Agency: NO01 Norwegian Agency for International Cooperation and Quality Enhancement in Higher Education. 2021.
[2]. **ELECTRON "rEsilient and seLf-healed EleCTRical pOwer Nanogrid"**, SU-DS04-2018-2020 - Cybersecurity in the Electrical Power and Energy System (EPES), Horizon 2020 Framework Programme (H2020), 2021.

PUBLICATIONS

D. P. Karampatzakis participates in (42) academic/scientific publications (En-Gr) in the domain of VLSI, EDA and Information Technologies. All related data are available here:
https://scholar.google.gr/citations?user=8b-z6IYAAAAJ&hl=en

Journals

[1]. "A Low-Power / Low-Noise Readout Circuit for Integrated Capacitive Sensors" P. Dimitropoulos, D. P. Karampatzakis, G. D. Panagopoulos, G. I. Stamoulis, IEEE Sensors Journal, Vol. 6, No. 3, June 2006.
[2]. "Accurate Minimum Area Design of Power/Ground Meshes Subject to Voltage-Drop Constraints", N.E. Evmorfopoulos, D.P. Karampatzakis and G. I. Stamoulis, IEEE JAPED, Vol. 2, 2006.
[3]. "A new SOI monolithic capacitive sensor for absolute and differential pressure measurements" P.D. Dimitropoulos, C. Kachris, D.P. Karampatzakis, G.I. Stamoulis, Elsevier, Sensors and Actuators A 123–124 (2005) 36–43.
[4]. "R.ox.an.e: An Embedded System for Search and Rescue of Trapped in the Ruins of an Earthquake", D. Pogaridis, G. Karpathios A. Pantelis and D. Karampatzakis, JESTR, Volume 3, pages 188-192, ISSN:1791-2377.
[5]. A. Nikitas, K. Michalakopoulou, E. T. Njoya, and D. Karampatzakis, "Artificial intelligence, transport and the smart city: Definitions and dimensions of a new mobility era," Sustain., 2020, doi: 10.3390/su12072789.
[6]. Ioannou, K.; Karampatzakis, D.; Amanatidis, P.; Aggelopoulos, V.; Karmiris, I. "Low-Cost Automatic Weather Stations in the Internet of Things". Information 2021, 12, 146. https://doi.org/10.3390/info12040146.
[7]. Nanou, A., Tsiomi, E., Oikonomou, A., & Karampatzakis, D. (2021). The SAS Strategy Training for Children with ASD in Inclusive Educational Robotics Activities. Education. Innovation. Diversity, 2(3), 34-52. DOI: https://doi.org/10.17770/eid2021.2.6723.
[8]. Nanou, A. & Karampatzakis, D. (2022). «Collaborative Educational Robotics for The Inclusion of Children With Disabilities» Education. Innovation. Diversity, 1(4), 30-43. DOI: https://doi.org/10.17770/eid2022.1.6899.
[9]. V. Patsias, P. Amanatidis, D. Karampatzakis, T. Lagkas, K. Michalakopoulou, and A. Nikitas, "Task Allocation Methods and Optimization Techniques in Edge Computing: A Systematic Review of the Literature," Future Internet, MDPI, vol. 15, no. 8, p. 254, Jul. 2023. DOI: 10.3390/fi15080254.
[10]. P. Amanatidis, D. Karampatzakis, G. Iosifidis, T. Lagkas, and A. Nikitas, "Cooperative Task Execution for Object Detection in Edge Computing: An Internet of Things Application," Applied Sciences, MDPI, Volume 13, Number 8, p. 4982, April 2023. DOI: 10.3390/app13084982.
[11]. Nanou A, Karampatzakis D. "The Participation of Students with Autism in Educational Robotics: A Scoping Review." Social Sciences. 2023; 12(12):675. DOI: https://doi.org/10.3390/socsci12120675.
[12]. P. Amanatidis, D. Karampatzakis, G. Michailidis, T. Lagkas, and G. Iosifidis, "Adaptive Reverse Task Offloading in Edge Computing for AI Processes", Preprint 04-05-2024, DOI: https://doi.org/10.2139/ssrn.4817069
[13]. P. Amanatidis, D. Karampatzakis, G. Michailidis, T. Lagkas, and G. Iosifidis, "Adaptive Reverse Task Offloading in Edge Computing for AI Processes," Computer Networks, Elsevier, 2024.

[14]. Terzopoulos, G., Kazanidis, I., Tsinakos, A., D. Karampatzakis, & D. Georgiou (2025). "Using transparent displays for implementing augmented reality in the classroom", Eastern Journal of European Studies [Under Review]

Conferences

[1]. "Voltage-Drop-Constrained Optimization of Power Distribution Network Based on Reliable Maximum Current Estimates", N. Evmorfopoulos, D.P. Karampatzakis, G.I. Stamoulis, ICCAD '04.

[2]. "A Statistically-Based Engine for P/G Network Optimization", D.P. Karampatzakis, N.E. Evmorfopoulos and G. I. Stamoulis, IEEE PRIME '05.

[3]. "A Low-Power CMOS VLSI Circuit for Signal Conditioning in Integrated Capacitive Sensors", P. Dimitropoulos, S. Nikolaidis, D. P. Karampatzakis, G. I. Stamoulis, IEEE Sensors 2004.

[4]. "A New SOI Monolithic Capacitive Sensor for Absolute and Differential Pressure Measurements", P. D. Dimitropoulos, C. Kachris, D. P. Karampatzakis & G. I. Stamoulis, XVIII EuroSensors 2004.

[5]. "An RTL-to-Grid Design Flow for Power Grid Verification Based on a Statistical Estimation Engine", D.P. Karampatzakis, N.E. Evmorfopoulos and G. I. Stamoulis, IEEE PRIME '06.

[6]. "Precise Identification of the Worst-Case Voltage Drop Conditions in Power Grid Verification", N. Evmorfopoulos D.P. Karampatzakis G.I. Stamoulis, ICCAD '06.

[7]. "A Design Flow for the Precise Identification of the Worst-Case Voltage Drop in Power Grid Analyses", D.P. Karampatzakis M.K. Tsiampas N.E. Evmorfopoulos and G. I. Stamoulis, IEEE PCI '08.

[8]. "Tracing thermal treatment in wood using RFID", Ntalos, G. Skarvelis, M. Karampatzakis, D. In Proceedings of COST Action E53 Final Conference: "The Future of Quality Control for Wood & Wood Products", 4-7th May 2010, Edinburgh, pp. 7.

[9]. Pistofidis, P., Emmanouilidis, C., Koulamas, C., Karampatzakis, D., and Papathanassiou, N. (2012), "A Layered E-Maintenance Architecture Powered by Smart Wireless Monitoring Components", 2012 IEEE Conference on Industrial Technologies, 19-21 March, Athens, Greece.

[10]. Papathanassiou, N., Emmanouilidis, C., Pistofidis, P., and Karampatzakis, D., (2012), "E-Learning and Context Aware e-Support Software for Maintenance", Proceedings of the 25th International Congress on Condition Monitoring and Diagnostic Engineering Management, COMADEM 2012, 18-20 June, Huddersfield, UK.

[11]. Ntalos, G., Karampatzakis, D., Skarvelis, M., Sideras, A., (2012), "The use of RFID technology in drying and other thermal processes of wood", Proceedings of the 12TH International IUFRO Wood Drying Conference, WDC 2012, 30 Jul- 3 Aug, Belem, Para, Brazil.

[12]. Papathanasiou, N., Emmanouilidis, C., Pistofidis, P., and Karampatzakis, D., (2012), Context aware e-support in e-maintenance, APMS 2012 - Advances in Production Management Systems, 24-26 September 2012, Rhodes, Greece.

[13]. Giannoulis, S., Koulamas, C., Emmanouilidis, C., Pistofidis, P, and Karampatzakis, D., (2012), Wireless Sensor Network Technologies for Condition Monitoring of Industrial Assets, APMS 2012 - Advances in Production Management Systems, 24-26 September 2012, Rhodes, Greece.

[14]. Papathanasiou, N., Karampatzakis, D., Koulouriotis, D., and Emmanouilidis, C., (2014), Mobile Personalised Support in Industrial Environments: Coupling Learning with Context - Aware Features, APMS 2014 - Advances in Production Management Systems, 20-24 September 2014, Ajaccio, France.

[15] D. Karampatzakis, G. Avramidis, P. Kiratsa, I. Tseklidis, and C. Oikonomidis, "A Smart Cargo Bike for the Physical Internet enabled by RFID and LoRaWAN," in 5th Panhellenic Conference on Electronics and Telecommunications, PACET 2019, 2019, DOI: https://doi.org/10.1109/PACET48583.2019.8956282.

[16]. D. Karampatzakis, I. Bakali, and P. Kiratsa, "Creativity Spaces Using STEAM and Internet of Things", 2020 3rd International Experiential Conference on Applied Teaching (IECAT), Drama, Greece.

[17]. G. Drosatos, K. Rantos, D. Karampatzakis, T. Lagkas and P. Sarigiannidis, "Privacy-preserving solutions in the Industrial Internet of Things," 2020 16th International Conference on Distributed Computing in Sensor Systems (DCOSS), Marina del Rey, CA, USA, 2020, pp. 219-226, DOI: https://doi.org/10.1109/DCOSS49796.2020.00044.

[18]. G. Avramidis and D. Karampatzakis, "An Industrial IoT Edge Node for Buffer Level Detection in a Cardboard Production Line", CIEES 2020, International Scientific Conference of Communications, Information, Electronic and Energy Systems, Borovets, Bulgaria, 2020, doi.org/10.1088/1757-899X/1032/1/012014.

[19]. Petros Amanatidis, George Iosifidis, Dimitris Karampatzakis, "Comparative Evaluation of Machine Learning Inference Machines on Edge-class Devices", PCI 2021, 25th Pan-Hellenic Conference on Informatics, 26 – 28 November 2021, Volos, Greece, doi.org/10.1145/3503823.3503843

[20]. G. Amponis, T. Lagkas, D. Karampatzakis, P. Radoglou Grammatikis, V. Argyriou, I. Moscholios, S. Goudos, and P. Sarigiannidis, "Efficient Peer-to-Peer Unicasting for VANET Architectures via Enhanced Monolithic Protocols", SEEDA-CECNSM 2022, 27th South-East Europe Design Automation, Computer Engineering, Computer Networks and Social Media Conference, 23 - 25 September 2022, Ioannina, Greece, doi.org/10.1109/SEEDA-CECNSM57760.2022.9932897 (Best Paper Award)

[21]. I. Stoitsis, P. Amanatidis, T. Lagkas, and D. Karampatzakis. 2022. A Hands-on University Short Course for Edge AI. In 26th Pan-Hellenic Conference on Informatics (PCI 2022), November 25–27, 2022, Athens, Greece, doi.org/10.1145/3575879.3575971.
[22]. Kazanidis, I., Terzopoulos, G., Tsinakos, A., D. Georgiou, & D. Karampatzakis, "Innovative Cultural Experience (ICE), an Augmented Reality system for promoting cultural heritage". In Proceedings of the 26th Pan-Hellenic Conference on Informatics (PCI '22). Association for Computing Machinery, New York, NY, USA, 254–260, doi.org/10.1145/3575879.3576001.
[23]. D. Doropoulou, V. Angelopoulos, P. Amanatidis, T. Lagkas, and D. Karampatzakis, "Teaching Embedded Systems and IoT at the University using MicroPython and Raspeberry Pi Pico", 27th Pan-Hellenic Conference on Progress in Computing and Informatics (PCI 2023), Lamia, Greece, November 2023, doi: 10.1145/3635059.3635079.
[24]. V. Christofas, P. Amanatidis, D. Karampatzakis, T. Lagkas, S. K. Goudos, K. E. Psannis, and P. Sarigiannidis, "Comparative Evaluation between Accelerated RISC-V and ARM AI Inference Machines," 6th World Symposium on Communication Engineering (WSCE 2023), Thessaloniki, Greece, 2023, pp. 108-113, doi: 10.1109/WSCE59557.2023.10365853.
[25]. O. Firssova, N. Fanchamps, D. Karampatzakis, G. Van Lankveld, and M. Fominykh, "Augmented reality for teaching educational robotics online: Design decisions with group concept mapping," in ICERI2023 Proceedings, ser. 16th annual International Conference of Education, Research and Innovation. IATED, 13- 15 November 2023, pp. 8388–8397, doi: 10.21125/iceri.2023.2145.
[26]. Tsiomi, E., Nanou, A., Karampatzakis, D. "Remote Training to Support the participation of Children with Autism in Inclusive Educational Robotics Activities". 13th Panhellenic/International Conference "ICT in Education". Kavala. (2023, September 29 - October 1).
https://www.etpe.gr/wp-content/uploads/2024/07/HCICTE23_458-465.pdf
[27]. K. Voulgaridis, T. Lagkas, D. Karampatzakis, V. Argyriou and P. Sarigiannidis, "Realizing Digital Product Passports with Crowdsourcing Principles: The Case of Sustainable Smart Grids," 2023 19th International Conference on Distributed Computing in Smart Systems and the Internet of Things (DCOSS-IoT), Pafos, Cyprus, 2023, pp. 381-388, doi: 10.1109/DCOSS-IoT58021.2023.00068.
[28]. S. Katsoulis, C. Oikonomidis, V. Angelopoulos, D. Karampatzakis and T. Lagkas, "A LoRaWAN Vibration Detection Sensor for IoT Applications," 2024 Panhellenic Conference on Electronics & Telecommunications (PACET), Thessaloniki, Greece, 2024, pp. 1-4, doi: 10.1109/PACET60398.2024.10497014.
[29]. D. Karampatzakis et al., "Educational Robotics at Schools Online with Augmented Reality," 2024 IEEE Global Engineering Education Conference (EDUCON), Kos Island, Greece, 2024, pp. 1-10, doi: 10.1109/EDUCON60312.2024.10578583.
[30]. G. Terzopoulos, I. Kazanidis, A. Tsinakos, D. Georgiou, D. Karampatzakis, "Using Transparent Displays for Implementing Augmented Reality in the Classroom", 15th International Conference Economies of the Balkan and Eastern European Countries, Chios, Greece May 12-14, 2023.

TEACHING

Undergraduate: Digital Design, Advanced Digital Design, Embedded Systems, Computer Organization, Computer Architecture.
Postgraduate: Embedded Systems, Immersive systems IoT

RESEARCH AREAS - ACTIVITY

Areas: Edge Computing, RFID Systems, Industrial Maintenance, VLSI Computer Systems, Embedded Systems for LoRaWAN, Systems of Systems modeling, EDA tools
Reviewer: IEEE DATE '05 ▪ IEEE ICCAD '04 ▪ 10th IEEE IOLTS 2004 ▪ PCI '05 ▪ APMS2012 ▪ PACET2019 ▪ COMNET2019 ▪ IJIREEICE
Conference Participation: XVIII EUROSENSORS (Rome) ▪ ICCAD '04 (San Jose, CA) ▪ DAC'05 (Anaheim, CA), 8th PhD Forum, Poster presenter ▪ IEEE PRIME '05 (Lausanne, Swiss) – '06 (South Italy) ▪ PCI '08 (Samos, Greece) ▪ APMS2012 (Rhodes, Greece)

ACADEMIC PROJECTS (as supervisor)

Dr. Dimitris Karampatzakis is director of IEES Lab and his research team consists of 1 PostDoc, 3 PhD and 5 MPhil students.

- Design and Implementation using VHDL of a 5-stage ARM processor compatible pipeline, University of Thessaly, 2003-2004.
- Analysis and power consumption for various designs of adders using Synopsys EDA tools, University of Thessaly, 2005.
- Timing and area analysis for H.264-SAD design with various adder structures using Synopsys EDA tools, University of Thessaly, 2006.
- A RTL-to-Grid design flow for power grid verification using a statistical estimation engine,

University of Thessaly, 2006.

▪ «IP Fridge: A smart Refrigerator with internet capabilities», TEI Kavalas, 2010.
Key words: ARM9, NFC, RFID, SENSORS, .NET

▪ «A RFID BASED SYSTEM FOR FIREFIGHTING EQUIPMENT MANAGEMENT», TEI Kavalas, 2011.
Key words: UHF RFID, C#, .NET, BizTalk Server, Impinj, LLRP

▪ «Smart Digital Portrait», TEI Kavalas, 2011.
Key words: 4DGL, GOLDELOX-GFX2, uOLED 160 G1, DS18B20

▪ «Online Survey Questionnaires using CMS», TEI Kavalas, 2012.
Key words: PHP, JQUERY, LIMESURVEY, AJAX

▪ «EPC RFID Open Source Platform and Apps», TEI Kavalas, 2011.
Key words: FOSSTRAK, EPC, UHF RFID, IMPINJ

▪ «Smart TV app for mass media», TEI Kavalas, 2011.
Key words: Samsung SDK 4.X, HTML5, CSS, JavaScript and jQuery

▪ «A parametric building block for the littleBits educational platform», IHU, 2019.
Key words: littleBits, open hardware, multifunction Logic Gate

TECHNICAL SEMINARS

▪ "Power modeling and estimation of digital circuits: Techniques and tools",
by OFFIS and ChipVision (Germany). AIT–INTRACOM, Athens, 2003
▪ NSF-SIGDA-SRC Design Automation Summer School (DASS), Anaheim, CA, 2005
▪ "The Art of Project Management for IT/IS Projects", HAU – Corallia, Athens, 2008.
▪ "Auto-ID technologies and Datapools", GS1 GR, Athens, 2008.
▪ "RFID Products – Partners Training", IMPINJ, Nice – France, 2008.
▪ "RFID Printing Solutions – Partners Training", Printronix, Athens, 2008.
▪ "Project Management Professional (PMP)® Preparation Course", Thessaloniki, 2013.

COMPUTER SKILLS

▪ EDA CAD Tools: Synopsys Design Compiler and Power Compiler, Pathmill, PowerMill, HSPICE, MTI HDL Simulator, Intel Quartus FPGA EDA tool, Electric VLSI design

LANGUAGES

Greek (mother tongue) English (C2)