Dimitrios Kafetzis

 Mobile: +30 6936753404
Email: dimitrioskafetzis@gmail.com
LinkedIn: linkedin.com/in/dimitrios-kafetzis
GitHub: https://github.com/Dimitrios-Kafetzis
Google Scholar: https://scholar.google.com/citations?hl=el&user=3RLgkhwAAAAJ

About Me

Electronics and Software Engineer | **Systems Architect** | **Researcher** | **Teams Leader**

As a senior engineer with over 12 years of diverse experience in the tech industry and currently pursuing a PhD at the Athens University of Economics and Business in the rsearch fields of Networks Optimization, IoT and AI, I specialize in the confluence of systems architecture in both hardware and software levels, hardware design, embedded systems engineering, networks, and software development. My passion lies in leveraging my extensive engineering background to devise solutions that address complex problems, particularly in the realms of systems architecture, and network communications.

My career is marked by roles that spanned across engineering and leadership, where I successfully led projects from concept to completion, fostering advancements in maritime technology, military communications systems and AI applications in IoT networks. My work is underpinned by a robust foundation in algorithm design, machine learning / deep learning, and a deep understanding of both hardware and software paradigms, allowing me to navigate and integrate across disciplines seamlessly.

As a researcher, my intellectual curiosity spans a wide array of cutting-edge technologies and methodologies. My work delves into the intricacies of optimization problems applied in networks, software-defined networking and radio within mobile ad hoc networks, edge computing, and the transformative potential of deep learning models in various applications from NLP and Computer Vision till Cybersecurity and Network Forensics. I have a keen interest in the synergy between artificial intelligence and edge networks. This academic pursuit is not in isolation but is deeply integrated with my practical experience, empowering me to bridge the gap between theoretical models and their practical, real-world applications. By weaving together diverse strands of expertise, from embedded systems design to algorithm optimization, I am committed to pioneering solutions that address the nuanced challenges of today's digital landscape.

Beyond my professional and academic pursuits, I am driven by a quest for continuous learning and a commitment to contributing to the tech community's growth. I thrive in environments that challenge the status quo and offer opportunities for innovation and creative problem-solving.

Work Experience

IoT Dpt. Director - Embedded Systems Architect
June 2023 – current
DeepSea Technologies - Nabtesco group
Athens, Greece

- Systems architecture in software and hardware level in for embedded system in maritime industry
- Systems specifications analysis ▪ Maritime products certifications related standards technical analysis (IEC 61162-1 and -450,-460, IEC 62923-1, IEC 60945, IEC 62443, IACS E26/E27 and others) ▪ Design and implementation of experimental prototypes in software and hardware level ▪ Custom Embedded Linux-based OS architectural design using the Yocto project ▪ Algorithms design ▪ Wireless Sensor Networks architectural design utilizing the MQTT-SN and ZigBee protocols and implementation on ST and Microchip PIC microcontrollers on the Zephyr and AWS FreeRTOS ▪ Project management ▪ Project design ▪ Project team organization ▪ Time planning ▪ Internal training ▪ Team monitoring ▪ Reporting to CTO

Researcher - Lead Research Engineer
February 2019 – current
Athens University of Economics and Business - Research Center
Athens, Greece

- IoT ▪ AI models partitioning on resource-constrained devices (DNN and Transformer-based models) in inference and training stages ▪ Machine Learning & Deep Learning ▪ Computer Vision ▪ Edge Computing

■ Mobile Ad-hoc Networks ■ Tactical Networks ■ Mathematical Optimization ■ Networks Optimization ■ Software Defined Networking ■ Software Defined Radios ■ Cyber-security & Network Forensics ■ Programming in C++, Python and Matlab

Participation in EU and Greek national research projects:

- TARGET-X (Trial Platform for 5G/6G Evolution Cross-Industry on Large Scale) working on Machine Learning approaches for QoE parameters estimation-prediction in autonomous vehicles on-road video streaming networks. (October 2024 - July 2025)

- SMOTANET (Design and Development of Tactical Devices for Software Defined Mobile Ad-hoc Tactical Networks) in collaboration with Intracom Defence SA. (September 2020-January 2024)

- LEMONADE (Analysis and Experimental Study of Mobile Wireless Networks with Delay Tolerance)(October 2019-September 2020)

- EREVOS (Aerial Survey of Railways with Drones for Vegetation Management) (April 2019-February 2020)

Embedded Systems & Electronics Design Engineer   March 2020 – current
Freelance   UK, Cyprus (remotely) and Greece

■ Various projects in Audio Electronics industry, Educational Robotics and Industrial IoT field applications
■ High-End PCB Design ■ High Speed PCB Design ■ EMC ■ Audio Electronics ■ Power Supply Electronics
■ PCB Design in Mentor Graphics PADS suite and Altium Designer ■ Embedded Software Development in C and microPython for various micro-controllers of ST, Microchip, Espressif and TI

Software & QA Engineer - Private   July 2021 – July 2022
Hellenic Army - Research and IT Corps   Athens, Greece

■ Military service at the Hellenic Army IT Support Centre (KEPYES)

R&D Dpt. Director - Systems Architect   June 2017 – January 2019
Plaython Inc.   Athens, Greece

■ Systems architecture in software and hardware level in gaming industry ■ Systems specifications analysis ■ Design and implementation of experimental prototypes in software and hardware level ■ Electronics hardware design using Altium Designer ■ Algorithms design ■ Embedded systems software development in C/C++ and C# ■ Project management ■ Project design ■ Project team organization ■ Time planning ■ Internal training ■ Team monitoring ■ Member of BoD ■ Reporting to CEO

Software Engineer   June 2016 – June 2017
Software Competitiveness International (SoftCom Int)   Athens, Greece

■ Software development for the German automotive industry in C/C++ & Python following test-driven development (under NDA)

Technical Consultant & Embedded Systems Engineer   September 2014 – February 2016
IMIS / "Athena" Research and Innovation Center   Athens, Greece

Member of the project team of DAIAD EU research project (FP7-ICT-2013-11) (http://www.daiad.eu/)

■ Embedded Systems Engineering ■ Serial Protocols interfaces development ■ API development in C++ for BLE based communication ■ Electronics Hardware Design using the Altium Designer

Project Manager   May 2015 – January 2016
Prisma Electronics SA   Athens, Greece

Project Management for installation projects on vessels of the LAROS platform (http://www.laros.co.uk/)

■ Preparation and writing of Technical Proposals ■ Project Planning ■ Project Monitoring

Embedded Systems & Software Design Engineer   February 2014 – June 2016

Prisma Electronics SA   Athens, Greece

Member of the Software Development team of the R&D department.

▪ Reliability engineering ▪ Engineering of Quality of Service ▪ Quality metrics ▪ Systems architecture and ontology ▪ Embedded systems engineering ▪ RTOS development in C ▪ DSP algorithms implementation in C ▪ Application layer level development in embedded TI microcontrollers for industrial IoT applications ▪ Wireless Sensor Networks design ▪ Communication protocols design and implementation ▪ Software development ▪ Follow of Agile methodologies on software development ▪ Data visualization ▪ Windows Forms & WPF desktop and mobile applications development in C# ▪ Windows Services development in C# ▪ Oracle & Microsoft SQL Databases ▪ Machine learning algorithms development and implementation ▪ User Interfaces design ▪ IT Technology trend analysis ▪ Software Requirements analysis ▪ Technical writing for user manuals and documentation ▪ Research projects documentation ▪ Support client training and internal

Electronics Design Engineer   September 2013 – February 2014

deSoutter Medical Group – Zethon Ltd   Aston Clinton, UK

Undertaking the design, development and testing of the new controller of the MBU-TDZ project (http://www.desoutter.com/ProdDetail.aspx?ID=255)

▪ Electronics hardware design in Mentor Graphics PADS Suite ▪ Hardware design for driving of DC 3-Phase brushless motors at high speeds ▪ PCB Design verification ▪ Surface mount, through hole and BGA soldering ▪ Firmware development for motor control in high speeds ▪ FOC (Field Oriented Control) algorithms development for DC 3-Phase brushless motors control in C ▪ Algorithms design with the use of PI controllers implemented in C ▪ I2C and SPI buses drivers development for TI C2000 microcontrollers in C ▪ Development of bootloader for TI C2000 microcontrollers in C ▪ Use of MISRA-C standard at the code development in C ▪ Front end software development for GUI based application for Windows in C# .NET framework for serial programming of MBU-TDZ controllers in the production line

Electronics Design Engineer   September 2012 – September 2013

University of Leeds - I3S Ultrasound Group   Leeds, UK

High End Hardware Design for Front End RX & TX devices for the UARP v2 project (Ultrasound Array Research Platform)

▪ FPGA based RTL (register transfer level) Design Verification for buffer blocks design in Verilog language and implementation in Altera Stratix III and Stratix IV ▪ Advanced High Speed Routing Techniques for design of transmission lines at 960 Mbps ▪ LVDS Technology Implementation ▪ Advanced Hardware Design in Mentor Graphics Suite (use of DxDesigner, CES, Expedition PCB) ▪ EMI Control ▪ Power Consumption Analysis ▪ Power Management ▪ Thermal Dissipation Design and Management ▪ Hardware Design Verification

Embedded Systems Engineer (Internship)   June 2012 – September 2012

Prisma Electronics SA   Athens, Greece

Member of the project team for the WPSS project of CERN ATLAS.

▪ Control and development of subsystems for Wireless Sensor Networks ▪ PCB design using Altium Designer ▪ Undertaking of the design from scratch the implementation and the testing of the Human Fall Detection system of the WPSS project. ▪ Contribution to the software development for communications over TCP/IP

Electronics & Electrical Engineer (Internship)   June 2011 – September 2011

Electrophot Hellas SA   Athens, Greece

▪ Maintenance and fixing of photocopier machines ▪ Functional control and electrical characteristics control of DC, AC and stepper motors ▪ Design and implementation of an embedded system for the quality control of the motors ▪ PV based power supply system design

EDUCATION

Doctorate of Philosophy | *Artificial Intelligence and Networks* — February 2019 – current
Athens University of Economics and Business, Department of Informatics — Athens, Greece

Master of Science in Engineering | *Embedded Systems Engineering* — September 2012 – November 2013
University of Leeds, School of Electronics and Electrical Engineering — Leeds, UK
Grade: Merit

Bachelor of Engineering | *Electronics and Nanotechnology* — September 2009 – July 2012
University of Leeds, School of Electronics and Electrical Engineering — Leeds, UK
Grade: First Class with Honors

PUBLICATIONS

Large Language Model Partitioning for Low-Latency Inference at the Edge — May 2025
Dimitrios Kafetzis, Ramin Khalili, and Iordanis Koutsopoulos
IEEE WiOpt 2025
https://arxiv.org/pdf/2505.02533

An Experimental Platform for AI Model Partitioning on Resource-constrained Devices — October 2024
Dimitrios Kafetzis, and Iordanis Koutsopoulos
ACM MobiHoc 2024
DOI: 10.1145/3641512.3690629

DNN Partitioning and Inference Task Offloading in 6G Resource-Constrained Networks — June 2024
Dimitrios Kafetzis, and Iordanis Koutsopoulos
EUCNC & 6G Summit 2024
DOI: 10.1109/EuCNC/6GSummit60053.2024.10597111

Joint Controller Placement and Intrusion Detection System Enablement in Software Defined Mobile Ad Hoc Networks — October 2023
Dimitrios Kafetzis, and Iordanis Koutsopoulos
European Wireless 2023
Print ISBN:978-3-8007-6225-5

Revisiting the OLSRv2 Protocol Optimization in SDN-enabled Tactical MANETs — November 2023
Ioannis Fourfouris, Merkouris Karaliopoulos, **Dimitrios Kafetzis**, Georgios Vardoulias, Apostolos Georgiadis, Spyridon Vassilaras, and Iordanis Koutsopoulos
IEEE Military Communications Conference (MILCOM)
DOI: 10.1109/MILCOM58377.2023.10356322

Software-Defined Networking Meets Software-Defined Radio in Mobile ad hoc Networks: State of the Art and Future Directions — January 2022
Dimitrios Kafetzis, Spyridon Vassilaras, Georgios Vardoulias, and Iordanis Koutsopoulos
IEEE Access
DOI: 10.1109/ACCESS.2022.3144072

UAV-assisted Aerial Survey of Railways using Deep Learning — September 2020
Dimitrios Kafetzis, Ioannis Fourfouris, Savvas Argyropoulos, and Iordanis Koutsopoulos
2020 International Conference on Unmanned Aircraft Systems (ICUAS)
DOI: 10.1109/ICUAS48674.2020.9213928

Teaching Experience

Bachelor and Master Theses Supervisor	Fall 2019 - current
Athens University of Economics and Business, Department of Informatics.	Athens, Greece

Teaching Fellow	Fall 2019 - current
Athens University of Economics and Business, Department of Informatics.	Athens, Greece

Graduate Courses: ▪ Mathematics ▪ Computer Networks ▪ Programming in C++ ▪ Relational Databases (PostgreSQL, PSQL)

Laboratory Supervisor	Spring 2013
University of Leeds, School of Electronics and Electrical Engineering.	Leeds, UK

Graduate Course: Embedded Systems Engineering.

Laboratory Supervisor	Fall 2012
University of Leeds, School of Electronics and Electrical Engineering.	Leeds, UK

Graduate Course: Object-Oriented Programming in Obj-C and Java, iOS and Android Applications Development.

Honors and Awards

2017 Innovation Radar Prize	November 2017

Awarded by European Commission.
As member of the R&D team for the design of the Amphiro b1 product (DAIAD project).

Technical Achievement Award 2015	December 2015

Lloyd's List Greek Shipping Awards. As member of the R&D team of the LAROS project.

Most Hard-Working Employee	December 2015

Awarded by Prisma Electronics SA.

Scholarship award for postgraduate studies for the academic period 2012-2013	August 2012

Awarded by University of Leeds, School of Electronics and Electrical Engineering as a merit for my outstanding performance during my graduate studies.

CPC Raspberry Pi Hackathon 2012 Winner	December 2012

Awarded by Raspberry Pi foundation.

One of the best three projects on the Farnell competition in Embedded Systems 2010-2011	May 2011

Awarded by Farnell UK and University of Leeds, School of Electronics and Electrical Engineering.

Best electronics design project award in Circuit Analysis and Design competition 2009-2010	May 2010

Awarded by University of Leeds, School of Electronics and Electrical Engineering.

Community Involvement

Member of Omada Aigaiou	Spring 2015 – Fall 2017
	Aegean Islands, Greece

Member as a Volunteer Engineer. The Omada Aigaiou is an NGO, which has been active since 1995 in the small and remote islands of the Aegean Sea, offering, on a purely voluntary basis, medical services, infrastructure upgrading projects, information on current issues and cultural activities.

Skills

Languages: English (Fluent), Greek (Native), French (Intermediate)
Technical Expertise: Systems Architecture, Embedded Systems, PCB Design, Algorithm Optimization, Machine Learning, Computer Vision, Network Engineering
Programming Languages: C, C++, C#, Obj-C, Python, PHP, Javascript, MATLAB, Java, Verilog and VHDL
Software Development Frameworks, Standards & Tools: .NET, Windows Forms, WPF, Laravel, Angular, TensorFlow, PyTorch, OpenCV, OpenGL, GNU Radio, MQTT, TICK Stack (Telegraf, InfluxDB, Kapacitor, Chronograf), MISRA C/C++
Cybersecurity and Forensics Frameworks: ELK Stack (Elasticsearch, Logstash, Kibana), Metasploit, Wireshark, Nmap, SCAPY
EDA Tools: Altium Designer, Mentor Graphics PADS, Solidworks

Networking: Software-Defined Networking (SDN), Software-Defined Radio (SDR), TCP/IP, UDP, REST APIs, Open API, MQTT and MQTT-SN, , MANETs, WSNs, WiFi (IEEE 802.11), ZigBee (IEEE 802.15.4), LoRaWAN, Industrial communications protocols: RS-485, RS-422, 4-20mA, Modbus TCP/RTU, Flexray, CAN bus, NMEA-0183, Embedded peripherals protocols: I2C, I2S, SPI, LVDS, UART, JTAG, ISP and others.
Development Environments: Docker, Visual Studio, VS Code, MPLAB X, Mbed IDE, STM32CubeIDE, Eclipse, PyCharm, Jupyter Notebooks, MATLAB
Cloud Platforms: Microsoft Azure, Amazon AWS
Document Creation: LaTeX, Microsoft Office Suite, Markdown, JIRA, Confluence
Operating Systems and Real-time Operating Systems: Linux (including custom Embedded Linux and SE Linux application), Windows, MacOS, Mbed OS, FreeRTOS, Zephyr, Yocto Project, Open-Embedded, Android
CI/CD Tools: Yocto Autobuilder, Jenkins
Version Control: Git, SVN
Project and Software Development Management Tools: Microsoft Project, Atlassian Toolchain: Jira, Bitbucket, Confluence, Trello

HOBBIES & INTERESTS

▪ Swimming ▪ Cinema ▪ Hiking ▪ Geopolitics ▪ History

RECOMMENDATIONS

Some indicative recommendations that I have received during my career are attached at the additional documents. Further references can be provided upon request.