

PANAYIOTIS KOLIOS

PhD, BEng, AKC

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PROFILE

Panayiotis Kolios received his BEng degree in Telecommunications Engineering from King's College London in 2008. He then joined the Centre for Telecommunications Research at King's College as a PhD student, funded by an EPSRC DTA scholarship. During his doctoral training studies, he worked on energy efficient wireless networking architectures; contributing to the Mobile VCE Green Radio project. He was awarded the Ph.D. degree on January 1st, 2012.

Subsequently he joined the Department of Communications and Internet Studies at the Cyprus University of Technology where he conducted research on the development of terrestrial maritime communications as a low-cost alternative (to satellite links) solution to support Internet-like services over the sea. He then joined the Department of Computer Science (CS) at the University of Cyprus (UCY) as a visiting lecturer teaching both undergraduate and postgraduate courses on systems and networks, programming and introductory courses on computer science. His research interests during that time focused on ad-hoc device-to-device communications.

In June 2013 he joined the KIOS Research and Innovation Centre of Excellence of the University of Cyprus where he served first as a Research Associate and then as a Research Assistant Professor. Since January 2024 he is an academic faculty member at the Department of Computer Science of the University of Cyprus. His work focuses on both basic and applied research on networked intelligent systems. Some examples of systems that fall into the latter category include intelligent transportation systems, autonomous unmanned aerial systems (i.e., drones) and the plethora of cyber-physical systems that arise within the Internet of Things. Particular emphasis is given to applications of the aforementioned systems in emergency management scenarios in which natural disasters, technological faults and man-made attacks could cause disruptions that need to be effectively handled. Tools used include graph theoretic approaches, algorithmic development, mathematical and dynamic programming (including combinatorial optimization), as well as machine learning. He has successfully secured multi-million research and industrial funds that have been invested in the aforementioned research and innovation activities.

Over the years, Panayiotis served as a visiting researcher at the Department of Informatics, King's College London, the Department of Mathematics, London School of Economics and Political Science and the Department of Electrical and Electronic Engineering at Imperial College London.

EDUCATION

King's College London, University of London

Sept 2008 - Sept 2011

- PhD Telecommunication Research
- Member of the Centre for Telecommunications Research
- Member of MobileVCE

King's College London, University of London

Sept 2005 - Jun 2008

- BEng in Telecommunication Engineering
Overall grade: 92.7%
- Associateship of King's College (AKC)
- Student representative at King's College London
- Student representative for the IEEE Engineering Society
- 3rd year graduated ranking 1st
Received: Jelf and KCLEA medals,

Sept 2007 - Jun 2008

King's College Engineering Society Centenary Prize,
Layton Science Research Award,
Siemens Prize

- 2nd year ranked 1st *Sept 2006 - Jun 2007*
Received: Siemens Prize,
Advanced Transferable Skills best new idea award

- 1st year ranked 2nd *Sept 2005 - Jun 2006*
Received: Jameson Prize

Army, Cyprus *July 2003 - Aug 2005*

- Signal Corps
Wireless communications engineer
National Guard General Staff headquarters
Rank: Sergeant
- Trained in military Communication Systems

The Grammar School, Nicosia *Sept 1996 - Jun 2003*

- Pure and Applied Sciences
Secondary Education Degree
General average: 92.67%
- Student Prefect

HONORS AND AWARDS

Cooperative Aerial Robots Inspection Challenge Oct 2024
Second Prize Award *International*

- Recipient of the second prize award in the international competition “Competition on Multi-Robot Perception and Navigation Challenges in Logistics and Inspection Tasks”, that took place during the prestigious 2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), on 14 - 18 October 2024, in Abu Dhabi (iROS 2024).

Cooperative Aerial Robots Inspection Challenge Dec 2023
First Prize Award *International*

- Recipient of the first prize award in the international competition “Cooperative Aerial Robots Inspection Challenge”, that took place during the flagship 62nd IEEE Conference on Decision and Control (CDC 2023).

Invest Cyprus Innovation Awards Dec 2020
Public Sector *Cyprus*

- Recipient of the Invest in the Commercialization of Entrepreneurship award from Invest Cyprus for the entrepreneurship activities made in the use of autonomous drone-based security applications.

ETEK Engineering Award Oct 2020
Public Sector *Cyprus*

- Recipient of the ETEK Engineering Award honourable mention for the work on the “COVID-19 Emergency Response Management Platform”, the web-based platform which manages all the national data related to the COVID-19 pandemic in Cyprus. The Platform was developed by KIOS for the Ministry of Health, in collaboration with the Deputy Ministry of Research, Innovation and Digital Policy.

IEEE Intelligent Transportation Systems Conference Sept 2020
Best Paper Award *International*

- Best Paper Award for the work by E. Rigas, P. Kolios, and G. Ellinas, “Extending the multiple travelling salesman problem to schedule drones for monitoring missions”.
- Employers & Industrialists Federation (EIF) Cyprus Innovation Awards** Dec 2019
Public Sector Cyprus
- The Innovation Award in the Public Sector was awarded for the creation of the innovative SwiftTag software. SwiftTag aims to automate drones in search and rescue operations.
- IEEE Regional Exemplary Student Branch Award** Sept 2019
Student Branch Award IEEE Region 8
- Counselor of the IEEE University of Cyprus Student Branch that received the 2019 Exemplary Student Branch Award from IEEE across Region 8 (Europe, Middle East and Africa).
- Honorary Diploma** June 2018
Course Instructor DG ECHO UCPM AMC
- Received the Honorary Diploma from the organizers of the Assessment Mission Course of the Union’s Civil Protection Training Programme for the training carried out over the last 3 years on the Use of Drones for Needs Assessment in Emergency Response.
- Best IEEE Student Branch** March 2018
Winning Team IEEE Region 8
- Counselor of the IEEE University of Cyprus Student Branch that won the best performing Student Branch award from IEEE across Region 8 (Europe, Middle East and Africa).
- KPMG Cybersecurity event** Oct 2017
Winning Team Nicosia, Cyprus
- Supervised a team of 3 researchers (Petros Petrides, Filokypros Iouliauou, Odysseas Economides) which won the Capture the Drone Game; part of the Cyber security conference hosted by KPMG Cyprus.
- International Conference on ICT for Disaster Management** Nov 2015
Best Paper Award International
- Konstandinos Koumidis, **Panayiotis Kolios**, Christos Panayiotou, and Georgios Ellinas, “ProximAid: Proximal adhoc networking to Aid emergency response”.
- IEEE ComSoc “Communications Technology Changing the World”** 2015
Honor International
- ProximAid: Proximal adhoc networking to Aid emergency response
 - The project developed an Android app to enable peer-to-peer adhoc communication. On top, a distributed localization mechanism has been implemented to pinpoint entities (including people and resources) in the locality of each user’s geography. Different entities are presented on a map together with additional information to build a situational map for decision support.
- 2nd International Competition of the EU COST Action “ARTS: Towards Autonomic Road Transport Support Systems”** Oct 2015
2nd Place Award Bordeaux, France
- Autonomic fault-adaptive traffic state estimation and sensor-fault detection in road traffic systems
- Cyprus Digital Championship** Nov 2014 - June 2015
1st Place Award Cyprus
- ProximAid: Proximal adhoc networking to Aid emergency response

- The project developed an Android application that can be installed on smartphones to enable device-to-device communication. Moreover, intelligent solutions have been developed to enable adhoc networking between the participating devices in order to support the exchange of text and multimedia across the connected devices. This technology can serve the needs of all actors involved in disasters whereby the telecommunication infrastructure has been damaged or completely destroyed.

Wireless World Research Forum 25

Best Paper Award

Dec 2010

UK

- **Panayiotis Kolios**, Vasilis Friderikos and Katerina Papadaki, “Mechanical Relaying in Cellular Networks”.

TEACHING

Department of Computer Science, University of Cyprus

Assistant Professor

Jan 2024 - Present

Lefkosia, Cyprus

- Teaching courses EPL 121- Digital Systems, 427 - Mobile Wireless Networks, 428 - IoT Programming and Applications, which are part of the undergraduate core/electives program offered by the Department of Computer Science of the University of Cyprus.

University of Cyprus

Research Assistant Professor

Sept 2019 - Dec 2023

Lefkosia, Cyprus

- Teaching courses including ECE 807 - 808 Critical Infrastructure Systems Applications I – II (Fundamentals - Advanced), which are part of the MSc program in Intelligent Critical Infrastructure Systems offered by the Department of Electrical and Computer Engineering of the University of Cyprus, in collaboration with the KIOS Research and Innovation Center of Excellence and Imperial College London.

University of Cyprus

Visiting Lecturer

Sept 2012 - May 2013

Lefkosia, Cyprus

- Taught courses include EPL002 (Introduction to Computer Science), EPL003 (Computer Science and Information Systems) and EPL032 (Introduction to Programming and Problem Solving) which are part of the University’s core module structure and EPL657 (Wireless Networks), a postgraduate course offered to Computer Science graduates.
- Supervised 5 undergraduate and 3 postgraduate students.

King’s College London

Teaching Assistant

Sept 2008 - Sept 2011

London, U.K.

- Undergraduate and postgraduate level courses at King’s College London; including Random Variables and Stochastic Processes.
- Project supervisor for both undergraduate and postgraduate level students within the Department of Engineering.

PROFESSIONAL ACTIVITIES

IEEE Intelligent Transportation Systems Society and IEEE Student Branch (UCY) Drone School

Workshop Instructor

Oct 2024

Nicosia, Cyprus

- Organized and conducted a 1-day training workshop on research and innovation activities related to drone technologies and artificial intelligence. The workshop attracted 20 students from national Universities with a broad academic background.

IEEE Student Branch (UCY) Drone School*Workshop Instructor*

Oct 2023

Nicosia, Cyprus

- Organized and conducted an 1-day workshop on research and innovation activities related to drone technologies and artificial intelligence. The workshop attracted more than 20 students from national Universities with a broad academic background.

IEEE Computational Intelligence Society Drone Training*Workshop Instructor*

Sept 2018

Nicosia, Cyprus

- Organized and conducted a 2-day workshop on research and innovation activities on drone artificial intelligence technologies. The workshop attracted 20 students from different Universities and academic background.

Argentina's Ministry of Security Drone Training*Workshop Instructor*

Dec 2017

Buenos Aires, Argentina

- Training instructor on the use of unmanned aerial vehicles in emergency management fully funded by the Ministry of Security of Argentina. More than 50 first responder experts have attended the 2-day course which included a theoretical and a practical session.

DG ECHO UCPM*Course Instructor*

May 2016 - Present

Limassol, Cyprus

- Training instructor on the use of unmanned aerial vehicles in emergency management taking place 5 times a year within the AMC (Assessment Mission Course) of the Union's Civil Protection Mechanism Training Programme with estimated attendance of 20 European experts.
- Organizer of the 1st Exchange of Experts workshop on "Drones in Emergency Management" with 17 first responder participants from across 11 European Countries. The 4-day workshop was fully funded by DG ECHO.

KIOS Innovation Hub*Senior Researcher*

June 2013 - Present

Lefkosia, Cyprus

- Lead innovation activities with industry (e.g. Aeolian Dynamics), government organization (e.g. Cyprus Police, Cyprus Fire Service, Cyprus Civil Defence) and regional stakeholders (e.g. KEMEA Greece).
- Supervised 7 Master students and currently co-supervise 6 Doctorate students.
- Principal organizer of the Kios Research Center seminar series (June 2013 - June 2016).

Conference Organization

2017 - Present

- Co-organized the 24th International Conference on Telecommunications (ICT 2017) with estimated attendance of 250 and targeted acceptance rate of 45% for submitted papers.
- Local organizing committee member of the 17th annual European Control Conference (ECC 2018) with estimated attendance of more than 650 participants from 50 countries and acceptance rate of 48% for submitted papers.
- Local organizing committee member for the 11th IFAC Symposium on Fault Detection, Supervision and Safety for Technical Processes, SafeProcess 2021.

Cost Action CA15127*Management Committee*

Nov 2015 - Present

European

- Participate in Cost Action "Resilient communication services protecting end-user applications from disaster-based failures (RECODIS)" to provide resilient communications in the presence of disaster-based disruptions (<http://www.cost-recodis.eu/>).

EENA Working Group on RPAS*Member*

Jul 2015 - Present

International

- Contributor to the EENA Operations Document on RPAS and the Emergency Services.
- Contributor to the EENA Operations Document on Smartcities and Emergency Services.

Research Promotion Foundation Researchers Week*Contributor*

Sept 2014 - 2017

Cyprus

- In 2017, demonstrated drone delivery automations, GIS-based mission planning.
- In 2016, demonstrated Drone-based path planning using Android applications and the online version of ProximAid.
- In 2015, demonstrated Drone-based Object detection and several updates on ProximAid.
- In 2014, demonstrated ProximAid.

Association and Societal Volunteering*Technical Activities*

Sept 2008 - Present

International

- Active reviewer for several top scientific journals, including: IEEE Transactions on Wireless Communications, IEEE Transactions on Signal Processing, IEEE Transactions on Mobile Computing, IEEE Transactions on Control Systems Technology, IEEE Transactions on Vehicular Technology, IEEE Magazine/Transactions on Intelligent Transportation Systems, IEEE Wireless Communications Letters, Elsevier Computer Networks Journal, etc. Also an active reviewer of several top technical conferences, including: IEEE Global Communications Conference, IEEE Symposium on Computers and Communications.
- Technical Programme Committee member of several major conferences, including: IEEE International Conference on Communications (ICC), IEEE Global Communications Conference (GlobeCom), IEEE Wireless Communications and Networking Conference (WCNC), IEEE Personal, Indoor and Mobile Radio Communications (PIMRC), IFIP International Conference on New Technologies, Mobility and Security (NTMS) and IEEE International Conference on Communications in China (ICCC).
- IEEE/SAE/ACM/IFAC Connected Vehicles advisory board member.

Cyprus Scientific and Technical Chamber*Member*

May 2012 - Present

Cyprus

- Member of the Cyprus Scientific and Technical Chamber (ETEK) in Electronic Engineering (including Computer Engineering).

PAST EXPERIENCE

DCA Accredited CRL-1 RPAS Pilot

Aug 2016

- Trained Pilot for Remotely Piloted Aircraft Systems (RPAS) for Complexity and Reduncancy Level (CRL) 1; accredited by the Cyprus' Department of Civil Aviation in Aug. 2016.

King's College London*Operations Management*

Sept 2008 - Sept 2011

London, U.K.

- Principal organizer of the Centre for Telecommunications Research and the IEEE technical and professional seminars.

MobileVCE*Technical Activities*

Sept 2008 - Dec 2011

U.K.

- Technical Steering Group (TSG) advisor for MVCE Core 5 Green Radio programme. TSG members include NEC, Huawei, Vodafone, Toshiba, Nokia, Thales, Nokia Siemens Networks, Alcatel-Lucent, Fujitsu, Orange and Turner.

London Wireless Forum*Technical Advisor*

Jan 2011

London, U.K.

- Demonstrator of next-generation mobile network operations at 'Digital Futures' executive event - a joint Mobile VCE/Cambridge Wireless forum for executives and senior managers within the communications industry in the UK, <http://www.mobilevce.com/frames.htm?meetingAgenda.php?MtgRefNo=516>.

AWTG*Special scientist*

Jan 2011

London, U.K.

- Special scientist of AWTG Limited (<http://www.awtg.co.uk/>); demonstrating Quality of Experience (QoE) for outdoor multihop WiFi Internet access.
- A proprietary QoE Analyser has been used to monitor application layer performance and what the users are actually experiencing on their end of the web browser (using several key performance indicators).
- Tests were conducted as a demonstration for Vodafone UK.

IEEE Student Branch Congress*IEEE Student Representative*

Aug 2010

Leuven, Belgium

- UK representative for the 2010 edition of the IEEE Student Branch and Graduates Of the Last Decade - GOLD - Congress (the biggest IEEE Region 8 student and graduate event).
- Invited attendee at the IEEE Professional Activities Summit 2010. Undergone training on International Management and Problem Solving skills.

Trilogy Future Internet Summer School*Representative*

Aug 2009

Louvain-la-Neuve, Belgium

- Representative of the Centre for Telecommunications Research at the Trilogy Future Internet Summer School, 2009. Trilogy is a collaborative research project within the ICT theme of the 7th Framework Programme of the European Commission that contributes to the objective "Network of the Future" of the Work Programme 2007-08.

RESEARCH AND INNOVATION PROJECTS**HEurope EUSOME***Budget: 6M Euros*

Jan 2025 – Dec 2029

Role: Principal Coordinator

- EUSOME (Enabling Autonomous Aerial Systems Through Operational Methods and Technological Enhancements) is an EU Excellence Hub aiming to advance and innovate Advanced Air Mobility in the Mediterranean region, specifically addressing challenges posed by its unique geographical characteristics. With heightened fire risks, increased vigilance demands, and an abundance of rural and secluded regions, the region necessitates a more efficient, capable, and sustainable transportation solution to navigate its intricate landscapes and alleviate challenges like air traffic congestion through innovative automated coordination solutions.

HEurope EvoRoads*Budget: 5M Euros*

May 2024 – Apr 2027

Role: Contributor

- EvoRoads aims to significantly advance road safety in Europe over the next 36 months, involving 20 partners from various sectors. As part of EU's Vision Zero, the project will develop and implement a comprehensive framework of models, tools, and services aimed at enhancing road safety assessment, infrastructure monitoring, and risk management. KIOS will research advanced AI-driven analytics and drone technology to provide next-generation road infrastructure inspection.

DG HOME PROTECTDOME*Budget: 6M Euros*

May 2024 – Dec 2026

Role: Principal Coordinator

- PROTECTDOME (PROTEction DOME for public spaces against rogue drones) aims to develop a Counter-Unmanned Aircraft System (CUAS) system, that goes beyond existing commercial products, including detection, tracking and identification (DTI) solutions that will be integrated with situational awareness tools for improving real-time monitoring, and will enable protection solutions against rogue drones in public spaces.

DG HOME REACTION

Budget: 7M Euros

May 2024 – Dec 2025

Role: Principal Coordinator

- REACTION (REal-time ArtiFicial InTellIgence for BOrders Surveillance via RPAS data aNalytics to support Law Enforcement Agencies) (May 2024 – Dec 2025) aims to integrate, validate, and demonstrate a next generation situational awareness platform employing autonomous patrol vehicles for collecting multi-modal data that can be fused to effectively detect, track and monitor events across remote territories.

DG ECHO COLLARIS

Budget: 1M Euros

Jan 2022 – Dec 2024

Role: Principal Coordinator

- COLLARIS (COLLaborative network on UAS and their applications in the field of disaster response) aims to establish a multidisciplinary network focused on UAS to connect, share and grow knowledge among European actors: civil protection authorities at all levels, first responders, crisis management practitioners and researchers interested in issues related to further development and operational use of UAS in their activities.

H2020 SESAME

Budget: 7M Euros

Jan 2021 – Dec 2024

Role: Proposal preparation/ KIOS Technical Project Manager

- SESAME (Secure and Safe Multi-Robot Systems), Multi-Robot Systems (MRS) comprise distributed and interconnected robotic teams that can carry out tasks beyond the competency of a single robot. Although MRS offer improved scalability and performance, increased robustness, and mission enablement, the lack of a systematic engineering methodology, covering the complete lifecycle of MRS, results in solutions that fail because of fragile design and unrealistic assumptions. SESAME addresses these problems through an open, modular, model-based approach for the systematic engineering of dependable MRS.

DG ECHO ARTION

Budget: 4K Euros

Jan 2021 – Jun 2022

Role: Proposal preparation/ KIOS Technical Project Manager

- ARTION (Disaster Management Artificial Intelligence Knowledge Network), envisions to become a world-class network for knowledge sharing in the area of artificial intelligence for disaster management that will guide the development and use of AI tools by first responders across Europe. By achieving its strategic objectives ARTION aims to bridge the gap between AI scientists and disaster management experts, build capacity and competency of first responders in the use of AI technology, share knowledge and data, and stimulate further AI research towards application-specific challenges faced throughout the disaster management cycle.

H2020 PathoCERT

Budget: 7M Euros

July 2020 - June 2023

Role: Proposal preparation/ Workpackage Leader

- PathoCERT (Pathogen Contamination Emergency Response Technologies), aims at strengthen First Responder (FR) capabilities to waterborne pathogen contamination events. To achieve this objective, the project will develop a collection of novel technologies, tools and guidelines including safe and rapid water sampling using drones and intelligent decision support algorithms.

DG-ECHO AIDERS

Budget: 1M Euros

Jan 2020 - Dec 2021

Role: Proposal preparation/ KIOS Technical Project Manager

- AIDERS (Real-time Artificial Intelligence for DEcision support via RPAS data analyticS), aims at developing application-specific algorithms and novel mapping platform that will harness the large volume of data that first responders are now able to collect through heterogeneous sensors (including visual, thermal and multispectral cameras, LIDAR, CBRN sensors, etc.) on-board RPAS units, and converting that data into actionable decisions for improved emergency response.

Cyprus Seeds AIRMOS

June 2019 - June 2020

Budget: 73K Euros

Role: Principal Investigator / Proposal preparation

- Artificially Intelligent Real-Time Drone Monitoring Tactics to Safeguard Sensitive Facilities (AIRMOS), implements a novel Artificially Intelligent software toolkit that automates the deployment and use of Unmanned Aerial Vehicles (UAVs) by security service providers to safeguard sensitive facilities. The system acts complementary to existing approaches employed in the Security Services sector and address the growing scale and sophistication of threats by 1) enhancing monitoring and response capabilities, 2) enabling economies of scale while introducing higher security levels.

DG-HOME CERETAB

Aug 2018 - July 2020

Budget: 1.3M Euros

Role: Proposal preparation/ KIOS Technical Project Manager

- CERETAB (CoopERation for incrEased siTuational Awareness estaBlishment), aims to support the improvement of border surveillance by enhancing cooperation between 2 EU Member States, Greece and Cyprus, which over the recent years suffer from heavy irregular migration attempts via the Mediterranean sea, as well as cross-border crime. The overall objective is to increase the situational awareness within the broad area defined by the Greek-Cypriot sea borders through novel ICT tools for monitoring sea routes for suspected vessels.

DG-ECHO LEAPFROG

Jun 2018 - May 2020

Budget: 418K Euros

Role: Proposal preparation/ Technical Project Manager

- LEAPFROG(Leading Activities for enrolment of RPAS units in the voluntary pool), aims at introducing RPAS units as modules to the voluntary pool of response capacities at a European level. In turn, Member States can request and make use of RPAS modules to improve their operational capabilities in terms of a plethora of functionalities including aerial mapping for situational assessment, and tracking of emergency events. Through the project, standard operating procedures will first be developed, and new training and exercise activities will be carried out to build skills and competencies of first responder end-users.

DG-ECHO SWIFTERS

Jan 2018 - Dec 2020

Budget: 511K Euros

Role: Proposal preparation/ Technical Project Manager

- Unmanned Aerial Vehicles (UAVs) are increasingly used by Civil Protection authorities across Europe to address operational needs related to mapping and reconnaissance, monitoring and tracking, to complement utility infrastructures and for delivering help-aid kits. The SWIFTERS proposal capitalizes on UAV swarms to study, design, develop, and test, UAV cooperation strategies to better coordinate the aforementioned complementary activities in order to assist first responders improve their response efficiency and reduce evacuation times. SWIFTERS will enhance the existing capabilities by developing algorithms and software to assist operators effectively deploy UAV swarms in emergency evacuation, train personnel in using swarms of UAVs (each with a specific role in the mission), and transfer new knowledge to the training conducted within the Assessment Mission Course of the Union Civil Protection Mechanism Training Programme.

DG-MARE CY-CISE

Jan 2017 - Nov 2019

Budget: 399K Euros

Role: Member of advisory board

- This project is dedicated to the implementation of the Common Information Sharing Environment (CISE) that connects national IT systems to national CISE nodes. The project will develop the Cypriot

information sharing environment towards an integrated national maritime surveillance awareness and enhancement of cross-sector and cross-border exchange of information.

H2020 KIOS CoE Teaming Phase 2

Feb 2017 - Feb 2024

Budget: 40M Euros Role: Proposal preparation/ Executive Committee Member/ Senior Researcher

· The aim of the upgraded KIOS research center to the KIOS CoE (Center of Excellence) is to be an inspiring environment for conducting basic and applied research and innovation in the area of intelligent monitoring, management and security of critical infrastructure systems (CIS). The upgraded Center will be based on 5 strategic pillars: Education and Training, CIS Testbeds, Innovation Hub, Open Knowledge, and Organizational Transformation, all of which will contribute to delivering technological advances and knowledge transfer with high impact to Cyprus and the region. In the implementation of the project, my focus is mainly on the activities of the Education and Training pillar, the CIS Testbeds and the Innovation Hub.

DG-ECHO PREDICATE

Jan 2016 - Dec 2018

Budget: 412K Euros

Role: Proposal preparation/ Technical Project Manager

· PREDICATE: PREventing Disasters by CApitalizing on unmanned aerial systems TEchnology. The ultimate goal of the PREDICATE project is to develop the necessary methodologies that will guide the selection and use of UAS in watch-keeping and patrolling of regions of interest.

H2020 KIOS Teaming Phase 1

June 2015 - Sept 2016

Budget: 500K Euros

Role: Proposal preparation/ Business Plan preparation

· The aim of the proposed TEAMING project is to develop a business plan for the KIOS Research Center of Excellence for Intelligent Systems and Networks, an inspiring environment for conducting basic and applied research and innovation in the area of intelligent monitoring, management and security of critical infrastructure systems.

FP7 COncORDE

May 2014 - Sept 2017

Budget: 4M Euros

Role: Technical Project Manager

· The EU research project COncORDE aims to develop a Decision Support System (DSS) with appropriate technological innovations, capable of strengthening the preparedness and interoperability of medical services during an emergency situation. The system will address a broad range of disaster preparedness and response challenges before, during, and after its occurrence. The tool also will lead to improvements in emergency management and crisis management systems and will assist decision-makers in using multiple predictive and factual data and information in order to extract reliable intelligence to guide their actions.

ERC Fault-Adaptive

Apr 2012 - Mar 2017

Budget: 2M Euros

Role: Researcher

· The emergence of networked embedded systems and sensor/actuator networks has facilitated the development of advanced monitoring and control applications, where a large amount of sensor data is collected and processed in real-time in order to activate the appropriate actuators and achieve the desired control objectives. The aim is to develop a systematic framework to enhance the reliability, fault-tolerance and sustainability of complex distributed dynamical systems through the use of fault-adaptive monitoring and control methods. Emphasis will be given to applications related to critical infrastructure systems (e.g., power, water, telecommunications and transportation systems).

KIOS Research Centre for Intelligent Systems and Networks

Dec 2010 - Nov 2014

Budget: 1M Euros

Role: Researcher

- The vision behind the proposed KIOS Research Center for Intelligent Systems and Networks is that of creating an inspiring environment for conducting high quality interdisciplinary research for the promotion of a knowledge-based economy in Cyprus, which will ultimately benefit the Cypriot educational system, the high-tech industry and the society at large. The KIOS Research Center aims at contributing to the advancement of knowledge in the area of intelligent networked embedded systems and its applications to the design and management of large-scale complex systems with emphasis on safety-critical and trustworthy systems.

CELTIC-Plus Green-T

Budget: 3M Euros

July 2011 - June 2014

Role: Researcher

- Green Terminals for Next Generation Wireless Systems. Green-T aims at limiting energy consumption in multi-standard mobile terminals for wireless communication, to prolong the operational times and to avoid active cooling, using cognitive radio and cooperative strategies, while also focusing on preserving a proper level of quality of service and security for the applications.

E-park

Budget: 400K Euros

July 2011 - June 2013

Role: Researcher

- Utilization of advanced technologies in the payment, use, and management of public Parking Sites. This project aims in the design and implementation of a pioneering system that automates and simplifies the procedures relating to the use and management of various categories of parking areas. In order to accomplish its goals, the proposed system will integrate innovative solutions from different areas of information technology such as communication technologies, wireless networks, and sensor networks.

MVCE Core 5 Green Radio

Budget: 3M Euros

July 2008 - Sept 2011

Role: Researcher

- The goal of this research is to secure 100x reduction in energy requirements for delivery of high data rate services, thereby reducing CO₂ emissions and Opex costs whilst enabling new services. It is investigating both architectural and individual technological approaches.

KEYNOTE SPEECHES

Hermes Airports Emergency Campaign

Speaker(s): Panayiotis Kolios

Oct 2018

Larnaca, Cyprus

- Drones as a prevention, preparedness and response tool for emergencies

European Emergency Number Association Conference

Speaker(s): Panayiotis Kolios

April 2017

Budapest, Hungary

- UAS emergency response automations: From theory to practise.

International Conference and Exhibition Different City - Smart City

Speaker(s): Panayiotis Kolios

3-5 November 2016

Bucharest, Romania

- Emergency response in smart cities based on autonomous aircraft systems.

University of Cyprus Summer School 2016

Speaker(s): Panayiotis Kolios, Christos Kyrkou, Charalambos Menelaou
University of Cyprus

11-16 July 2016

School of Engineering,

- An introduction to programming of real-time systems and their application to unmanned aircraft systems.

Communications, Networking and Photonics Summer School 2012

Speaker(s): Panayiotis Kolios

18-22 June 2012

School of Engineering, University of Edinburgh

- Relays in Wireless Networks (<http://www.commnet.ac.uk/node/47>)

IEEE GlobeCom MMCOM Workshop 2011

Speaker(s): Panayiotis Kolios

9 December 2011

Houston, Texas

- Energy Aware Mobile Communications: Green Radio Techniques and Architectural Considerations, Workshop on Multimedia Communications (MMCOM) - Enabling Green Wireless Multimedia Communications (<http://www.fuseco-workshop.org/mmcom2011/>)

PUBLICATIONS

Magazine Articles

- C. Kyrkou, **P. Kolios**, T. Theocharides and M. Polycarpou, Machine Learning for Emergency Management: A Survey and Future Outlook, *Proceedings of the IEEE*, vol. 111, no. 1, pp. 19-41, Jan. 2023.
- C. Kyrkou, S. Timotheou, **P. Kolios**, T. Theocharides, and C. Panayiotou, Drones: Augmenting our quality of life, *IEEE Potentials*, Jan/Feb. 2019.
- **P. Kolios**, V. Friderikos and K. Papadaki, Energy aware mobile video transmission utilizing mobility, *IEEE Network, Special Issue on Video over Mobile Networks*, Mar. 2013.
- **P. Kolios**, V. Friderikos and K. Papadaki, Energy Consumption and Resource Utilization in Mechanical Relaying, *IEEE Vehicular Technology Magazine*, Mar. 2011, Page(s):24 - 30.

Book Chapters

- G. Eftychidis, I. Gkotsis, **P. Kolios**, and C. Peleties, UAVs and Their Use in Servicing the Community, *Community-Oriented Policing and Technological Innovations*, Springer Briefs in Criminology, Apr. 2018.
- K. Manousakis, **P. Kolios** and G. Ellinas, Multi-period Attack-aware Optical Network Planning under Demand Uncertainty, *InTech "Optical Fiber and Wireless Communications"*, June 2017.
- P. Petrides, **P. Kolios**, C. Kyrkou, T. Theocharides and C. Panayiotou, Disaster prevention and emergency response using Unmanned Aerial Systems, *Springer "Smart Cities in the Mediterranean Coping with Sustainability Objectives in Small and Medium-sized Cities and Island Communities"*, October 2017.
- **P. Kolios**, C. Panayiotou, and G. Ellinas, Disaster Resilient Telematics based on Device-to-Device Communication, *Wiley-ISTE - Public Safety Networks Series*, Vol:3, Feb. 2017.
- **P. Kolios**, A. Pitsillides, O. Mokryn and K. Papadaki, Data Dissemination in Public Safety Networks, *Wiley-ISTE - Public Safety Networks Series*, Vol:2, May 2016.
- **P. Kolios**, V. Friderikos and K. Papadaki, Mechanical Relaying Techniques: Design and Experimental Results, *Book chapter for Green Radio Communication Networks*, Cambridge University Press.

Journal Papers

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