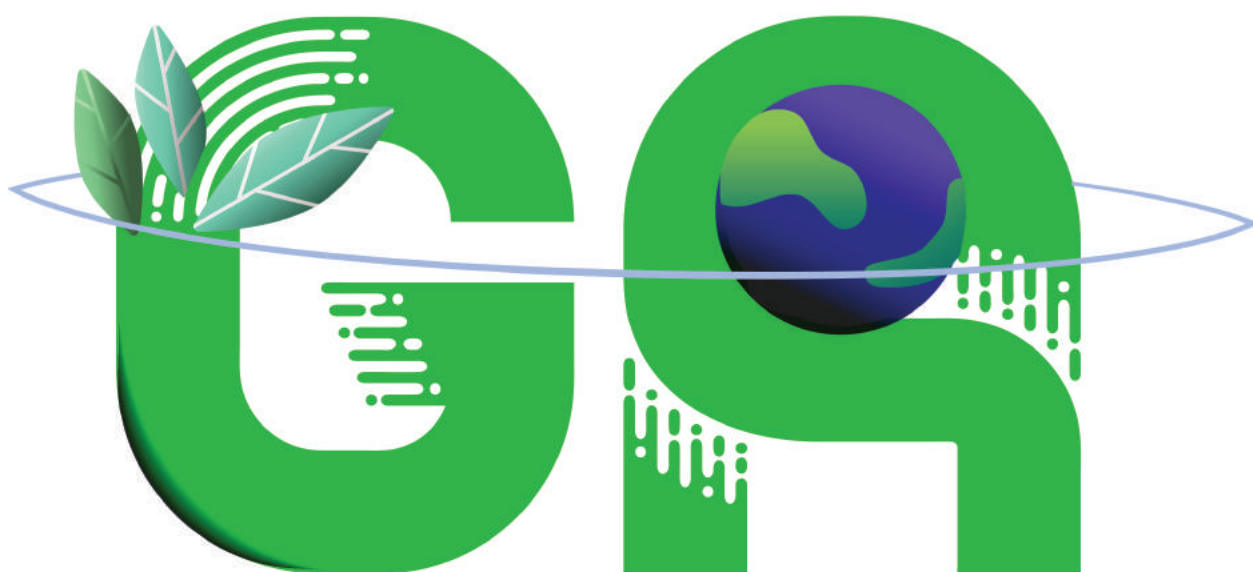
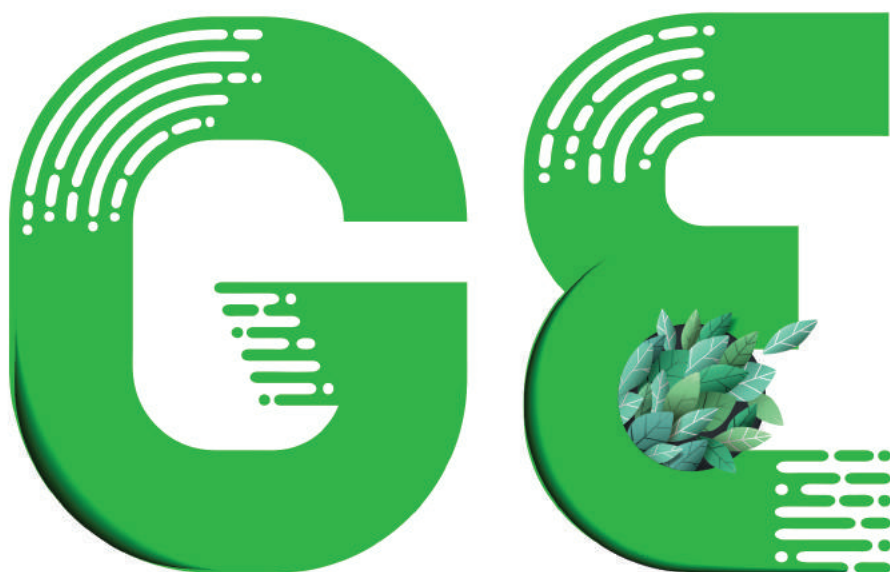




EUROPEAN RESEARCHERS' NIGHT



24 SEPTEMBER 2021 | DIGITAL EVENT



**THE
DIGITAL
& GREEN
AGE**

Organiser



RESEARCH
& INNOVATION
FOUNDATION



This project has received funding
from the European Union's Horizon
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PROGRAMME

Programme

24 September 2021

08.00-22.00 **EXHIBITION HALL - POSTER HALL - EUROPEAN CORNER**

EXHIBITION HALL | POSTER HALL | EUROPEAN CORNER

10:00 - 22:00 **AUDITORIUM**

10:00 - 11:00 VIRTUAL TOURS OF RESEARCH LABS AND INFRASTRUCTURES

15:00 - 19:00 S-FACTOR COMPETITION

20:00- 21:00 AWARDS CEREMONY

Welcome address by the Deputy Minister of Research, Innovation and Digital Policy,
Mr. Kyriacos Kokkinos

Welcome address by the Chief Scientist for Research and Innovation,
Dr. Nikolas Mastrogiannopoulos

Welcome address by the Director General of the Research and Innovation Foundation (RIF),
Mr. Theodoros Loukaidis

E-book competition - Announcement of Winner

S-Factor Competition - Announcement of Winners

21:00- 21:30 DIGITAL CONCERT Sistema Cyprus

LOBBY

Scavenger Hunt: Take part in the online scavenger hunt!

Find out more about the activities and work of the research teams taking part in the event for a chance to win tech gifts!

To launch the game and learn about the rules visit the event's Lobby.

Answer and Win! Complete a short online Impact Assessment Survey, vote for your favourite booth and enter the draw to win tech gifts!

The survey can be accessed through the event's Lobby.



Research and Innovation Foundation

European Corner

Visit the European Corner to find out about the European Union's efforts for creating a better future for European citizens!

At the European Corner, you can find information about European Programmes and initiatives that support research and innovation. You will also have the opportunity to watch a number of informative videos. In addition, you can meet the National Contact Points of Cyprus for Horizon Europe and pose your questions to find out more about the European Researchers' Night as well as the Research and Innovation Foundation's actions relating to European R&I Programmes.



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Valorization of Construction and Demolition Wastes for the development of innovative building materials		Let's do some research, Bank of Cyprus Cultural Foundation	
49. Department of Civil Engineering and Geomatics & ERATOSTHENES Centre of Excellence & EXCELSIOR H2020 Teaming Consortium, Cyprus University of Technology (CUT)	17	64. Bank of Cyprus Cultural Foundation	20
The Green Age through Space Technologies: Earth Observation & Geoinformatics.		ReInHerit: "Redefining the future of cultural heritage, through a disruptive model of sustainability" (H2020, No 101004545), Bank of Cyprus Cultural Foundation	
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Connected and automated vehicles crossing an unsignalized intersection			



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1 Organisation
| University of
Cyprus

Radiochemistry goes digital

The A-CINCH project (<https://www.cinch-project.eu/>) is bringing advanced educational techniques such as 3D virtual reality nuclear and radiochemistry (NRC) laboratory, Massive Open Online Courses, RoboLab distance operated robotic experiments, Interactive Screen Experiments, NucWik database of teaching materials, or Flipped Classroom, into the Nuclear Chemistry and Radiochemistry education. The Project aims primarily to attract the interest of high school students and teachers for Nuclear and Radioactivity knowledge involving them by the "Learn through Play" concept. The sustainability of expertise in NRC is of fundamental importance for the nuclear energy sector and for many other nuclear- and radioactivity-based applications. The radiochemistry expertise is essential for safe nuclear power plant decommissioning and decontamination, nuclear waste management and environmental radioactivity monitoring. In addition, NRC plays a dominant role in life sciences (e.g. radiopharmaceuticals, radiological diagnostics and therapy for cancer), radiation protection and radioecology, nuclear forensics and in chronological dating.

2 Cyprus Computer
Society

Technology that works for people

We are already working towards the digital transformation and we interact with it daily. How well do we understand the challenges of today, how well prepared are we and what does the future hold? Through presentations and audiovisual material you will get to know the actions of the Association and you will have the opportunity to talk with officers in order to learn more about informatics.

3 Frederick
University

Design, manufacturing and assembly of a racing car (Formula 1 like) by Frederick University Students

FUF Racing Team was established few years ago in order to design and build a Formula style car to represent Frederick University of Cyprus at the international Formula Student Series competition. The competition aims to inspire young university engineering students from across the globe to design and build a single-seat racing car in order to compete in static and dynamic events and test the performance of the vehicle. Students reveal their technical, engineering design, and manufacturing skills. They get experience in team working, time management, project management, budgeting and presentation.

4 European
Commission
Representation
in Cyprus

The European Green Deal and its challenges: The struggle to become the first climate-neutral continent

Informative and interactive activities related to the European Green Deal, the challenges member-states face in reducing pollution by at least 55% until 2030, and the EU tactics for tackling climate change. The purpose of our corner is to inform and actively involve the attendees about the European Green Deal.

5 T.R.I.
Technologos
Research and
Innovation
Services ltd

An innovative sex education intervention

The spread of Sexually Transmitted Infections (STIs) is one of the biggest societal challenges that humanity still faces. The implications of risky sexual behaviour are hard for people to understand, because this behaviour takes place in a complicated network of interacting people; this is one of the main reasons that current interventions fail to achieve the expected health-behaviour outcome. A sex education intervention should therefore be engaging and immersive, in order to drive behavioural change in the area of sexual health. This is the purpose of sGuide, a leading-edge sex education platform, which aims to contribute to enhanced public health, but also reduce the European and international budget spent for health services. sGuide is funded by RIF and its digital and interactive activities (such as simulations, serious games, quizzes and videos) will be demonstrated during the event.



6 CERIDES -
Excellence in
Innovation and
Technology,
European
University
Cyprus

Safety and Security Science

The purpose of this activity is to stimulate the wider public on safety and security science as well as to disseminate results from European and national funding projects.

7 IRIDA Research
Lab, University of
Cyprus

Wireless Communications

During this activity, the visitors will be introduced with the equipment and studies of the IRIDA Research Center for Communication Technologies, which focus on wireless communication systems. Visitors will have the ability to learn about digital communications and wireless transmission. With demonstrations using the laboratory's equipment USRP, the visitors will be able to observe various phenomena that affect the quality of a wireless communication system. Furthermore, the participants will also have the opportunity to understand the possibility of wireless charging from electromagnetic radiation through an experimental model, which uses the Power Cast equipment.

8 The Cyprus
Institute of
Neurology and
Genetics

Looking into the cell with a different view

Join us to explore the building blocks of life. In this activity we will discover what all living organisms are made of, cells. We will first look at what cells are and how animal and plant cells differ. We will then explore the inside of a cell with a cell cookie that you can also make at home. For those brave enough to delve deeper, we will look at the nucleus and genetic code through an experiment that isolates DNA from plants and animals.

9 SEIT Lab,
Computer
Science
Department,
University of
Cyprus

Research on the digital transformation of education, via interactive, engaging, accessible and inclusive online learning environments, tools and methodologies

The activity we propose includes a demonstration of the research that the SEIT lab has conducted through several Erasmus+ projects regarding the digital transformation of education, via interactive, engaging, accessible and inclusive online learning environments, tools and methodologies. We will demonstrate ICT tools and platforms, as well as describe the results of our research and explain their benefits for the public and the society.

10 Office for
Innovation and
Entrepreneurship,
The Cyprus
Institute

Innovation and Entrepreneurship for the achievement of the UN Sustainable Development Goals

The Cyprus Institute (CYI) considers innovation and entrepreneurship as key factors to achieve a broad impact of research in the society and the economy. The present activity presents the main focus areas and showcases activities related to the Innovation and Entrepreneurship Strategy adopted by the CYI. The Institute is embracing the perspective of meaningful innovation, where scientific discoveries, new knowledge and advanced technologies are serving towards a balanced model of prosperity, which is leaving nobody behind and it is not harmful for the environment. Moreover, the Institute has adopted the UN Sustainable Development framework and is promoting a green economic model, where the creation of jobs and business activity is part of the ecologic transition. The present activity provides an opportunity to the general public to familiarize with the concept of sustainable development and relevant solutions leading to a more inclusive, fairer and greener society.



11 CYENS Centre of Excellence

Emerging Technologies for the exhibition Ledra Palace: Dancing on the Line.

Over the past few years, immersive technologies, such as Virtual and Augmented Reality, have entered the museum sector and affected the way people experience and perceive heritage. Accordingly, in the Ledra Palace: Dancing on the Line exhibition, we seek to exploit the great potentials of these technological innovations and offer alternative ways for visitors to experience, interact and become engaged with the history of the Ledra Palace Hotel. The Immersive Technologies for Intelligent and Creative Applications [ITICA] and Cognitive and Clinical Applications [CCAPP] groups at CYENS have worked closely with the CYENS Museum Lab and the Leventis Municipal Museum of Nicosia to create immersive technological solutions for the purposes of this exhibition. Ledra Palace: Dancing on the Line is organized by the Leventis Municipal Museum of Nicosia and the CYENS Centre of Excellence and is held at the premises of the Museum between June 1st, 2021 and October 31st, 2021.

12 IACO Environmental & Water Consultants – Cyprus University of Technology

Diatoms- The hidden world of freshwater

The activity concerns the acquaintance with the microcosm of the inland water bodies, rivers and lakes and how their ecological habits help us to understand the water quality. Organisms that are difficult to see with naked eye become indicators of the impact of human activities on the environment. The activity promotes public awareness of the environment and water bodies and introduces an important microcosm relatively unknown to the general public.

13 EMPHASIS Research Centre, University of Cyprus

What does 00FF00 mean to me?

Protection of the environment and of our health depends on new intelligent technologies. Autonomous sensor networks sense the changing conditions in the air, the water, the environment, and in people. Miniaturized cost-effective chemical sensors make sense of scents for cents. Intelligent sensor networks, communicating via wireless technologies and the internet of things to create a safe and clean environment. Visit our booth to examples of green technologies from chemical detection to healthcare, and beyond! See how millimeter-waves monitor your vital signs from afar, and how small capsules photograph the inside of your body. Discover how microdevices and nanoparticles quickly detect pollutants and other molecules in the environment and your body. Learn how silicon microchips are used for electronics but also to process light for the internet of the future. These and other exciting demonstrations will be explained by our researchers.

14 The Cyprus Institute

What remains of us: Past people in the Digital and Green Age

Join us as we uncover what remains of our ancestors and piece together their lives using state-of-the-art investigative techniques and move beyond the excavation and laboratory settings into the digital world. We will explore the ways in which bioarchaeological research is facilitated by the use of digital innovations such as high-magnification digital microscopes, laser scanning, microCT scanners, and chemical and structural imaging using synchrotron radiation (SR). Such technologies enable us to understand past people in unprecedented detail (nanometers). Come explore how we reconstruct past lives, through specific case studies: individuals using their teeth for work (high-magnification digital microscopy, microCT scanning, 3D printing; activity induced dental modification); those who gathered resources from the sea (laser scanning; synchrotron radiation computed tomography; External Auditory Exostoses); people who were exposed to heavy metals (XRF, SR-XRF, XAFS; biogenic uptake of heavy metals). Past heavy metal pollution prompts us to aspire to a Green future!



15 Center for Applied Neuroscience, University of Cyprus

Title of Activity | Brain in Action

Through the activities, researchers will present part of their experimental activities within the Center of Applied Neuroscience related to language, memory, cognition and emotions with typical and atypical populations, including individuals with reading disabilities, epilepsy, traumatic brain injury, dementia, depression, anxiety and cardiac dysfunction. We will demonstrate behavioral experiments with children and adults and participants will be invited to respond to computerized tasks, while some of these experiments will be conducted using neuroimaging technologies.

16 University of Cyprus

Simulation of tumour growth and cancer treatments

The activity aims to raise awareness on the importance of cancer research and the vast improvement in cancer mortality due to the wide range of available treatments. It also aims to inform the public on the potential of computational modelling to assist in understanding cancer and improving the efficiency of cancer treatments. The activity will involve simulations of tumour growth and angiogenesis, along with simulations of common cancer treatments. Additionally, the specific case of prostate cancer will be considered along with a very successful treatment option, High Dose Rate Brachytherapy. The presentation will focus on the potential of in-silico modelling to enhance the treatment's efficiency by improving the precision in needle placement during brachytherapy. The results presented are part of the project CancerMoDeration (OPPORTUNITY/0916/MSCA/0012) which is co-financed by the European Regional Development Fund and the Republic of Cyprus through the Research and Innovation Foundation.

17 Department of Communication and Internet Studies, Cyprus University of Technology

Title of Activity | Interactive mobile game "Fact Finders" for evaluating historical source credibility and b) Virtual tour "Nicosia, the world's last divided capital"

a) Play a free interactive game for evaluating historical sources (RePAST Fact Finders) <https://factfinders.seriousgames.net/>, which is available for desktop computers and mobile devices, in 8 different languages, including Greek and English. Take the role of a historian to investigate how Greek-Cypriots and Turkish-Cypriots experienced life in Cyprus in 1974. Evaluate the credibility of multiple historical sources. Collect information from interviews, newspapers, monuments, and books. Appropriate for primary school (children > 11 years-old), secondary school and young adults. Appropriate for educators for integration into the Cyprus curriculum in primary and secondary education.

b) Experience a virtual tour in 10 historical points of Nicosia, read stories about the relationship between Greek-Cypriots and Turkish-Cypriots before 1974, learn about Cyprus' troubled past during and after the war (<https://create.cliomuseapp.com/tourExperience/388/1/nicosia-the-worlds-last-divided-capital>). The two activities aim in having users reflect on multiple perspectives in history, the "constructiveness" of history and reflect on whether Cyprus' troubled past can be overcome.

18 SignalGenerix

CloudMeter the Intelligent Water Management Platform

Water is a vital natural resource, delivering essential services to our societies and economies, and thereby playing a key role in European productivity and security. Excessive leakage and excessive consumption, especially in areas like Cyprus, where there is water scarcity and drought, have a direct negative impact not only on the environmental objectives of the Water Framework and Drinking Water Directives, but also on the EU citizens' health and on the economy. CloudMeter is an easy-to-use water management platform for measuring, monitoring and processing water consumption on an already installed meter. The platform consists of the smart water metering device (IoT), the Wisense® cloud platform for remote control and a specialized Android application for direct monitoring, configuration and control of the device. The platform also uses a series of advanced algorithms to instantly inform the user of any leaks as well as abnormal water consumption behavior.



- 19** Climate & Atmosphere Research Center (CARE-C), The Cyprus Institute

A simple, open-source, raspberry-Pi based weather station unit

The well-known Raspberry-Pi 4 board is used as a weather station: it is connected to 3 sensors so to measure basic weather parameters, such as: air temperature, atmospheric pressure and relative humidity. The objective of this project is to present the basics concepts orbiting around environmental measurement, the numerical code needed to process that data, as well as pre- and post-processing involved (filtering, quality check and visualization). The unit uses and runs on a python code developed by the authors, which handles basic tasks (remote connectivity and storing), data quality & sampling, as well as synchronization over the internet and, finally, its visualization, while real-world weather data are being sampled. In addition, its basic functioning can be supervised and controlled remotely allowing users, even untrained, to actively interact with the device and the data it generates

- 20** CYENS Centre of Excellence

Musculoskeletal biofeedback in a virtual mirror (TONE project)

TONE project offers an innovative tool able to assist musicians in developing preventive and pain-management strategies against task-specific musculoskeletal pain. To achieve this, a virtual mirror biofeedback system was developed. On the virtual image of the mirror, muscular and postural parameters are displayed (augmented reality) in real-time while musicians are executing their musical instruments. This system is complemented by a mixed-reality game (AirTone) implementing attention distraction from pain during the play of the instrument. The aim of the virtual mirror biofeedback tool is to improve musculo-skeletal parameters during non-ergonomic postural activities, whereas the AirTone intends to reduce perceived pain in affected musicians. In this presentation only the biofeedback mirror tool will be presented since the AirTone is still under construction.

- 21** Youth Board of Cyprus

At Youth Makerspace Larnaka you can #makeithappen!

Youth Makerspace Larnaka, during the Researcher's Night, will engage visitors in an experience in order to celebrate science, research, and innovation in Cyprus. We aim to illustrate our technological equipment and to examine through it the transition to the digital and green age.

- 22** Heraclitus Research Centre, Cyprus University of Technology

Heraclitus Research Centre - Cyprus University of Technology

"HERACLITUS" Center for Social Science and Regional Development of the Cyprus University Technology (CUT) participates in the implementation of several European projects. All projects aim to enhance sustainable tourism through the use of technological applications (Augmented Reality, ArcGIS etc.) and through the promotion of integrated branding strategies for sustainable tourism.

MITOS app is a dynamic free e-tourist guide developed by "Heraclitus" Research Center of CUT. Its vision is to collect and distribute information and suggestions to the demanding visitors who want to explore the beauties of Cyprus, enjoy authentic Cypriot gastronomy, experience the traditional hospitality and get to know less promoted aspects of an island full of culture and tradition.

- 23** The Cyprus Institute

Archaeological sciences in the digital era

The proposed activity will showcase a range of digital applications in the archaeological sciences with emphasis on human osteoarchaeology, zooarchaeology, archaeobotany and archaeological materials. The public will have the opportunity to see how different digital reference collections are created and what their advantages and disadvantages are compared to traditional/physical collections. They will see how 3D scanners and printers work and they will learn how digital archaeological data facilitate much more advanced analytical approaches. Taking these analytical approaches as a starting point, attendees will learn the basic principles of osteoarchaeology, zooarchaeology and archaeobotany and the fascinating information that can be extracted from these sub-disciplines regarding life in the past.



24 European University Cyprus

Digital era, digital inclusion and accessibility!

The aim of the activity is understanding the importance of research and implementation in the field of design, application and evaluation of accessibility digital content and material. Through of various activities participants will get familiar with the concept of accessible content, and acknowledge the value of accessibility for persons with disabilities, older adults as well as other technology users, through research activities that take place in the field. The activities will follow the learning design methodologies and will be presented in the form of a challenge or quiz, including: (a) Analysis: background information and knowledge through the material of the Erasmus+ project ENTELIS+, (b) Design and Development: implementation by making accessible digital material and easy-to-read formats, (c) Evaluation: interaction and evaluation of the produced material, from the perspectives of potential users. Activities will be differentiated based on the age of the participants and will mainly involve school students.

25 CYENS Centre of Excellence

Graphical Image/video and computer Vision pipeline constructor for Robot applications

Image Processing/Computer Vision developers may deploy complex imaging/video pipelines through the usage of specialized SDKs/APIs. However, they may face several difficulties, i.e., remember large number of functionalities, handwriting code and spend considerable amount of time. To overcome all drawbacks, we showcase an innovative and intuitive GUI interface tool (DgiStreamer), to deploy your pipeline from simple to complex type of configurations, while deploying it into any system, i.e., embedded, GPU, CPU. The demo will show how an imaging/video pipeline can be built through a graphical process and how it can be deployed on a camera integrated into a robot system. While the robot system is freely moving around, an end-user will remotely deploy the computer vision pipeline into the robot system to execute a computer vision task (human detection). Through an embedded debugging system, the DgiStreamer will show how the robot is capable to detect humans and how to control remotely the pipeline functionalities

26 Hystore Tech Limited

Hydrogen Technologies for Green Mobility

The topics of our participation are focusing on two hydrogen technologies that are devoted to transportation applications. The first one is an HHO generator that can be used on vehicles with internal combustion engines and offer fuel savings and lower emissions and the second one is the development of a hydrogen-powered unmanned aerial vehicle. Both topics aim to highlight methods and technologies that will enable the "green" transportation and at the same time will raise public awareness towards this direction. Both topics are in line with the subject of this year's event "Green Age" and there will be presented an HHO generator and its real-time operation and, the development of the hydrogen-powered drone and the developed hydrogen storage system.

27 Cyprus Institute of Neurology and Genetics - Cyprus Foundation for Muscular Dystrophy

Bio Duel

Who has the quickest wit and the best knowledge of biology? In Bio Duel, combatants race against time and each other to answer biology questions. The battle takes place in an online quiz of biology, genetics, thalassemia and other diseases in Cyprus. Quizzes at three levels of difficulty will be available, and 2 up to 20 opposing teams can compete in each quiz. Find logon details at our booth and in our attachments. A new quiz of 10 minutes duration will begin every time enough combatants have gathered. Log in to levels 1, 2 or 3 ahead of time for your allocation to a team and to get started with the get-go. Follow progress of all teams online. Whoever has the highest score at the end of the quiz is the winner of that round and difficulty level.



28 CMMI - Cyprus Marine and Maritime Institute

eXploring our Sea!

CMMI's activities aim to promote ocean literacy, the protection of the marine environment and the use of innovative and environmentally-friendly technologies in the marine and maritime sectors. Through this event we aim to inform people of all ages of the work carried out by CMMI, urge them to be involved and support them. We will A) Display videos to i) introduce CMMI and its objectives ii) demonstrate the marine and maritime projects (related to the use of robotics and remotely operated vehicles, the promotion of tourism, the protection of reefs, the promotion of blue careers and ocean literacy). B) use storytelling to interact with children and youth to inform them i) of the importance of the sea, its benefits to humans and its employment opportunities C) have face-to-face discussions with CMMI scientists i) regarding their role and activities related to the Sea ii) to share their experience as researchers.

29 Climate & Atmosphere Research Center (CARE-C), The Cyprus Institute

Aerosol to Liquid Sampler Device

The project aims to develop a prototype of a low-cost aerosol-to-liquid bio sampler that can collect the SARS-CoV-2 virus. The Bio Sampler uses a method for encapsulating the viral aerosol into droplets, collecting them through a cyclone, and then analyzing the presence of the virus using a rapid detection system known as CovBELD, and provided by EMBIO, our partner in the project. The activity's objective is to show in a simple way the operation of devices that work with the same theoretical basis, such as condensed particle counters.

30 CYENS Centre of Excellence

Real-time Populated Virtual environments (RIPE), Simulation and Animation of human interaction with the environment through VR/ AR and MR Technology.

This project aims to develop and create a Virtual/ Augmented/ Mixed reality in which humans will interact and adapt swiftly and realistically in any given environment, allowing for remote interactivity between individuals and objects within their surroundings, using programming and 3D modelling. This will be implemented and tested via the HoloLens system. The work is based on development kit applications for Microsoft HoloLens 2 (an advanced MR headset) in combination with the Microsoft Azure Kinect (an advanced 3D motion capture device) in Mixed Reality environments, in which a user can interact with 3D virtual objects within a real environment. These two innovative pieces of equipment are used to develop applications that will enable the implementation of these devices in various tasks.

31 CYENS Centre of Excellence

Continual Deep Learning on Smartphone Devices & Robot SLAM

Deep learning, a massively successful subfield of artificial intelligence, has the ability to consume vast amounts of data and create highly-accurate predictive models out of it. Deploying such models on smartphone devices is becoming increasingly common through the use of Google's TensorFlow Lite. However, once these models are deployed, they cannot be trained further on new data. Such on-device training is crucial in settings where there are privacy, data and network limitations. Although Google is working on an approach for tackling these challenges, we have recently shown this is insufficient for dealing with realistic incremental learning scenarios. In this activity, the "Learning Agents and Robots" research team will present their prototype application capable of performing continual learning. The participants will have the opportunity to download it and train their own models. The team will also showcase a snippet of their current work on Simultaneous Localization and Mapping for quadruped robots.



32 CyRIC Cyprus Research & Innovation Center - Gravity Incubator

Innovation in action: from concept to prototype and market

CyRIC Cyprus Research & Innovation Centre and Gravity Incubator invite you to join the Innovation and Internet of Things (IoT) world. From smart city sensing to remote sensing and urban accessibility, CyRIC team will showcase research and innovation activities funded by European Commission, European Space Agency, and Research and Innovation Foundation. In addition, innovative startups funded by Gravity Incubator will showcase their products: the next generation of skateboards by Capsule and Ramba a portable and foldable robotic wheelchair ramp. Researchers and Entrepreneurs, join us in this exciting journey!

33 The Cyprus Institute

How does water flow? Hydrology in action

When water flows from the mountains to the plains, it converges or diverges based on the shape of landforms. The distribution of water leads to watersheds which play an important role in our agro-ecosystems and determine the availability of water resources. The dynamic behavior of watersheds is demonstrated with an interactive augmented reality sandbox, where participants are able to change landforms and explore in real time the importance of water relative to the study of hydrology and earth sciences. Furthermore, researchers will demonstrate how irrigation scheduling and water conservation can be achieved with the use of soil moisture sensors. Audiovisual material will also broadcast smart recipes and procedures to adapt our water resources and cities to climate change.

34 Cyprus University of Technology

Estimating probable prehistoric (10-12 thousand years ago) sea routes between Cyprus and its surrounding coastal areas

This activity aims at informing and interacting with the public on the use of physical sciences and new technologies to support archaeological research with regards to prehistoric movements to and from Cyprus around 12 thousand years ago. Project SaRoCy seeks to employ physical modeling and simulation to approximate sea-borne movements, based on data and assumptions about prevailing environmental conditions and vessel characteristics possibly in use. The simulation is used to delineate probable sea routes, estimate the degree of connectivity between locations on Cyprus's coastline and locations on its neighboring mainlands. The simulation results, when contextualised with archaeological data, can be used to inform answers regarding the origin of Cyprus's first inhabitants, the technological and possibly cognitive abilities related to successful seagoing, and the emergent probably preferred sea routes. SaRoCy is funded under programme RESTART 2016-2020 of the Research and Innovation Foundation of Cyprus, within the "Excellence Hubs" action.

35 The Cyprus Institute

A Digital Future for our Past – exploring the past, safeguarding the present, preserving for the future

The digital revolution is positively influencing the ways we study, preserve and communicate our cultural heritage. Remote, digital access to museum collections, innovative computer games technologies, large-scale digital libraries offer un-precedented opportunities for the public at large to absorb new knowledge, explore otherwise inaccessible works of art and learn in more intuitive, attractive and pleasant ways about our shared past. Such digital technologies have a major contribution to social cohesion, raising awareness on the importance of Cultural Heritage. The main objective of the activity is to expose visitors to the innovative ways the Digital Transformation is changing the ways we understand, communicate our Cultural Heritage and preserve it for the future. Visitors will gain hands-on experience of the Cypriot Cultural Heritage, through a variety of digital applications, ranging from admiring art masterpieces, digitally walking in old castles, ancient villages, virtually exploring landscapes and people from the past.



36 The Cyprus Institute of Neurology and Genetics

Bioinformatics and Precision Medicine

We are going to present with multimedia the following: (1) What is Bioinformatics? (2) What is Precision Medicine? (3) What is the contribution of Bioinformatics to the transformation of modern Medicine? (4) Interesting paradigms and applications.

37 The Cyprus Institute

Energy storage and production using renewable energy sources

Presentation of PROTEAS and Fresnel Facilities of the Cyprus Institute. The facilities use renewable energy sources in order to produce electricity, store energy, desalinate sea water and provide solar cooling and heating for buildings.

38 Computational Cognition Lab, Open University Cyprus

"Let me think about it": digital dialectics for a hassle-free, humanized world

Having information as a basis, computational cognition applies logical reasoning and produces knowledge. Thus, the application of logical rules given the information "it has been raining" and "the grass is wet", results to the knowledge that "the grass is wet because it has been raining". Systems with built-in computational cognition facilities can act as consistent reasoners and can interact with humans suggesting their own views and supporting them by arguments. Therefore, when a water supply system "decides" not to water the plants, it will be able to provide as an argument that, "the earth was wet because of rain". Such "reasoners" are suitable in the application and advancement of sustainability and conservation methods such as the control of electricity consumption, the normalization of traffic etc. Inside our lab you can explore a variety of systems from various research projects and get familiar with techniques used for producing knowledge.

39 KIOS Research and Innovation Center of Excellence

KIOS CoE Mobile Application: An interactive communication channel between the society and the KIOS Center of Excellence

The KIOS CoE Mobile Application aims at developing a smart community where everybody contributes to the process of collecting and sharing scientific data and results. The application provides and receives data from different communities like the public, researchers, and scientists. Data collection and content sharing tools are developed to allow users to actively contribute to data crowdsourcing and share them with the KIOS CoE scientific community. Users can easily collect, visualize, and share data, connect with other researchers, engage new collaborations, and facilitate the process of finding specific scientific data. The users will also have the opportunity to keep updated with the centre's latest news, events, research developments, and scientific accomplishments, and access the latest job opportunities offered by the research centre. In this activity, the visitors can install the Android application and navigate through the screens of the mobile app to familiarize themselves with the application.

40 KIOS Research and Innovation Center of Excellence

5-Place: An interactive sensor placement game for water distribution systems

The 5-place game considers a drinkable water distribution network in Limassol. In water distribution networks, we can monitor water quality using electronic sensors, in order to quickly detect water of bad quality. The players' mission is to place up to 5 electronic sensors in the network. They have two minutes to select where to place the sensors with the goal: 1. To cover as much water consumption points as they can (red houses). 2. To minimize the time that is needed for the sensors to detect the bad quality water. The players have the opportunity to solve a real-world multi-objective optimization problem. After playing for a while it becomes clear that the optimal solution is difficult to be obtained by trial and error. This is because there are almost 58 million possible combinations of placing the 5 sensors in the game!



4.1 KIOS Research and Innovation Center of Excellence

Smart KIOS virtual city for the management of critical infrastructure systems

The KIOS Virtual City is a specially designed virtual platform to assist with the management and operation of interdependent critical infrastructures systems (e.g. water, power, telecommunications, transportation, and health systems) and can be used to assess the cascading effects of natural or manmade disasters (e.g. flooding, power blackouts) which can seriously impact people's everyday lives, affecting their safety and well-being. The Virtual City emulates the actual operation of Critical Infrastructure Systems within the urban and sub-urban environment and offers a virtual decision support facility for assessing the security and efficiency of a city as well as its environmental footprint and operational costs. This platform is ideal for use by policy makers, CIS operators and other stakeholders to assist them towards their decision making with respect to the management of a smart city environment.

4.2 KIOS Research and Innovation Center of Excellence

Innovative residential photovoltaic and flywheel energy storage system

This video demonstrates the development of an integrated photovoltaic-flywheel based storage system for residential application. This system has been developed by the KIOS Center of Excellence within the European research project "ENHANCE" which aims the deployment of renewable energy sources in smart buildings. The developed platform integrates the key components of a green building (i.e., photovoltaic, flywheel storage system, smart meters, and flexible loads) to online manage and optimize its operation within the smart grid framework. Through this platform the smooth interaction between the building and the grid is achieved and the building owner is able to optimize its operational cost. Furthermore, a smart inverter is developed to provide ancillary services and support to the grid in order to increase the hosting capacity of photovoltaic systems in a distribution grid. This system allows the widespread dissemination of photovoltaic energy and brings positive consequences for the environment (reduction of CO2 emissions).

4.3 University of Cyprus

Cancer Biophysics Laboratory

The main focus of the Cancer Biophysics laboratory is on the biomechanics and drug delivery of solid tumors. We use experimental methods in preclinical tumor models and in vitro tumor models as well as mathematical modelling to study the evolution of mechanical forces in tumors and how these forces correlate with tumors' patho-physiology and delivery of chemotherapy, nanomedicine and immunotherapy. Furthermore, we investigate strategies to target the tumor micro-environment in order to optimize drug delivery and optimize the efficacy of therapeutics. In the lab, we apply principles from biology, mechanical and chemical engineering in order to investigate the mechanisms with which physical forces are related to tumor progression and resistant to treatment and develop strategies to overcome barriers to drug delivery.

4.4 KIOS Research and Innovation Center of Excellence

Using drones and AI for improved emergency response

Drones, formally known as Unmanned Aerial Vehicles, are becoming more and more popular in everyday life, including entertainment, critical infrastructure monitoring, farming. They can be particularly useful in search and rescue and emergency response, by building instant maps, identifying people in distress and helping rescue teams survey the surrounding locations. This can be achieved using machine learning algorithms, trained to detect and recognise objects and people, based on visual characteristics. Our researchers are working on ensuring optimal performance of these algorithms on drone applications, despite their limited battery life and computational capability.



45 Bank of Cyprus Cultural Foundation

#deneinaxisoleio, Bank of Cyprus Cultural Foundation

The Bank of Cyprus Cultural Foundation will present its educational program composed of a series of innovative and specialized programs, aiming at bringing the youth of Cyprus closer to art, letters and civilization. Sustainability and Environment are key pillars of the BOCCF's educational programs. Children will learn about these issues through interactive activities that will enrich their knowledge, while enjoying unprecedented aesthetic experiences. Educational Programs Titles: Allow me to introduce myself: I am an archaeologist Something ancient's cooking Form and shape in earth.

46 Climate & Atmosphere Research Center (CARE-C), The Cyprus Institute

Unmanned aerial vehicles in Research Service

The USRL provides unique opportunities for atmospheric research, as well as for investigation of Earth-surface properties/characteristics, using unmanned aerial vehicles (UAVs). The USRL UAVs are regularly utilized for air pollution and air quality monitoring. Among the USRL activities, are included the forest surveillance for fire-risk prevention and the 3D mapping of archaeological sites and cultural heritage monuments. During the last two years, USRL has focused on the development of a new, customized system for the navigation of UAVs, comprised of a ground control station software and a flight controller. This system will be presented during the Researchers' Night in operation, via a flight simulator. In addition, part of the USRL unmanned aerial vehicles' fleet, scientific equipment that is installed in the UAVs for research purposes and the latest USRL research activities, will be demonstrated via audio-visual media.

47 KIOS Research and Innovation Center of Excellence

Traffic monitoring with Drones

Monitoring, estimation, and traffic management of road networks have become increasingly important with the growth in vehicle numbers unmatched by infrastructure investments. A key challenge is to estimate and monitor the network's state accurately and cost-effectively. This demo proposes a novel solution to automate traffic monitor and estimation procedures by jointly utilizing drone and vision technologies. This demo illustrates innovative algorithms that have been developed in KIOS CoE, able to achieve vehicle tracking even when an occlusion occurs. Moreover, the proposed algorithms can identify vehicle traces and calculate each tracked vehicle's speed, providing very accurate measurements comparable with GPS and odometer speed measurements.

48 Frederick Research Center

Valorization of Construction and Demolition Wastes for the development of innovative building materials

The management of Construction and Demolition Waste (CDW) faces several challenges and appears to be underperforming, despite the fact that a comprehensive legislative framework concerning the management of CDW is in place since 2011. The research group aims in the valorization of several streams of construction and demolition wastes for the development of high added value, innovative building materials.

49 Department of Civil Engineering and Geomatics & ERATOSTHENES Centre of Excellence & EXCELSIOR H2020 Teaming Consortium, Cyprus University of Technology (CUT)

The Green Age through Space Technologies: Earth Observation & Geoinformatics.

The rapid development of space technologies, Earth Observation and Geoinformatics contributes increasingly to the transition to the digital and green age. The aim of the activity is to inform the public about the use of satellite data and Earth observation technologies through the actions of the EXCELSIOR 'TEAMING H2020 project, which contribute to combat climate change with reliable technologies, and at the same time contribute to the transition to green time. Applications for the study of climate, air quality, biodiversity, forests and natural disasters will be presented with relevant audiovisual material. The public will have the opportunity to go through and participate in an interactive information experience for various applications using Sentinels family satellite data. Our booth's main purpose is to promote the usefulness of the open data provided by Copernicus and to highlight the benefits they provide in a digital and green age.



50 KIOS Research and Innovation Center of Excellence

Connected and automated vehicles crossing an unsignalized intersection

The next frontier in transportation systems is the transformation of road transport into a fully connected and automated world by incorporating wireless communications and advanced control capabilities into every transportation actor such as vehicles and infrastructure entities (e.g., connected automated vehicles and roadside units). Connected and autonomous vehicles (CAVs) have the potential to disrupt road transportation. CAVs provide several attractive features, such as seamless connectivity and fine-grained control, which can be exploited to improve traffic networks' efficiency. In this demo, we present an innovative algorithm developed at KIOS CoE responsible for coordinating CAVs to cross an unsignalized intersection, aiming to select the CAV trajectories that minimize fuel consumption and/or travel time.

51 UNESCO CHAIR on Digital Cultural heritage at the Cyprus University of Technology

The holistic documentation, preservation, archiving, protection, visualisation, use and reuse of our Cultural Heritage, Memory and Identity

Presentation of our research activity in the context of the holistic recording of our cultural heritage in 2D and 3D space with specialized reference and presentation on the intangible cultural heritage and how human memory and consequently history can be recorded and preserved for future generations.

52 CYENS Centre of Excellence

Representing life in virtual worlds

Visitors will be able to experience methodologies and tools to bring life to virtual worlds. They will learn about computer animation and ways to animate virtual humans, animals and other entities. Users will be able to interact with complex environments, using different technologies such as motion capture and motion tracking.

53 ERATOSTHENES Centre of Excellence, Cyprus University of Technology

The role of clouds and aerosol in the solar radiation budget

The aim of the activity is to inform the public about the role of particulate matter and clouds in the energy balance and the levels of solar radiation reaching the ground. A brief experiment on cloud formation under the influence of particulate matter will be presented. At the same time, the public will have the opportunity to be informed about the active remote sensing techniques used for the vertical profiling of the atmosphere as well as about the new methods of studying the aerosol-cloud interaction.

54 Ministry of Defence

Defense and Security Research, Innovation and Development and Dual-use technology: A field of opportunities for aspiring scientists

MoD aims to develop future Defence Capabilities in the fields of Defence and security, through research and innovation actions and programmes, focused in new ideas and more creative methods. Cyber defence, artificial intelligence, information technology and communications are fields where research can be applied for both civilian and military use. In these areas, projects supported by MoD are implemented with the participation of Cypriot companies and research centers. Similarly, the Ministry of Defence launches "Athena 2019" calls; an initiative for the development of collaborative projects, defence research, innovation and technological development from academia, research institutes, organizations and businesses. The calls for proposals include state-of-the-art technologies in unmanned vehicles, countermeasures against unmanned vehicles etc. The actions aims to guide small and medium-sized companies to research and development in the field of Defense and Security. Additionally, in collaboration with National Guard, events and competitions are organized which contribute to positive R&I culture.



55 SISTEMA Cyprus

Digital Concert, 24th of September 2021 at 21:30

Sistema Cyprus is a social-music orchestra and choir programme established in 2018. Sistema Cyprus offers music education to the children and young people of Cyprus, including migrants, refugees and children and young people with less opportunities, and ensures that these groups are respected, recognised, and included in the society.

Sistema Cyprus is inspired by the El Sistema social action music programme that was first founded in Venezuela in 1975. Through the formation of orchestras and choirs, El Sistema acts as a superb model, reaching children and young people to many of the world's challenging neighborhoods. El Sistema and other El Sistema inspired programs, like ours, offer free classical music education that gives children and youth with less opportunities all over the world the opportunity for personal development. Sistema Cyprus is focused on the personal development of its participants focusing primarily on empowerment and helping them in reaching their full potential.

56 Archaeological Research Unit, University of Cyprus

Digital Humanities Geoinformatics - A Digital Perspective of Archaeological Research

Applications of Geoinformatics in archaeological research. Digital means (geophysical prospection, satellite remote sensing, aerial imagery, and GIS spatial analyses) for the mapping of the archaeological sites and the reconstruction of the ancient landscapes. A digital perspective of the biography of the past.

57 Archaeological Research Unit, University of Cyprus

Byzantine and Medieval Pilgrimage centres in Cyprus

The proposed activity aims to present the interdisciplinary program SpaMaP Cy (Post-Doc/0916/0251), which investigates the development of religious pilgrimage in Cyprus from 11th to the 16th century. At the same time, the project identifies the special position of Cyprus within the broader pilgrimage routes and religious practices of the Eastern Mediterranean.

58 Archaeological Research Unit, University of Cyprus

Cypriot prehistory: from the field to the lab

The present activity aims to inform the public about novel methodologies applied by archaeologists in the study and understanding of human prehistory. Informative videos and "acquaintance" games in pdf format engage participants in the main research questions posed by the team - how, when and why our early ancestors settled on the island of Cyprus. Information material aims to inform the public about various modern methods used by archaeologists both in the field and in the laboratory to collect data that will allow them to answer the above questions. Particular emphasis is given to the presentation of innovative techniques that contribute to the study of the human-environment relationship.

59 Archaeological Research Unit, University of Cyprus

From the soil to the laboratory

From prehistory until the 20th century, clay and soil were an important element in people's daily lives. With these raw materials they used to manufacture ceramic pots for various purposes, such as storing, cooking, serving liquid and solid foods, and even for the exchange/trade of products in long and short-scale distances. But what is the relationship between clay and ancient pottery? How can we better understand the humans of the past through such studies? The aim of our activity is to acquaint children of all ages with the ancient ceramic technology, which nowadays has almost disappeared, with examples from Cyprus and Greece, and then to give them the opportunity to see which steps we follow in the reconstruction of ancient practices including processing of raw materials, pottery making and study of ancient ceramic objects under the microscope.



60 Πανεπιστήμιο
UCLan Cyprus

Smart Information Systems and Ethics

The activity presents in audio-visual format outcomes of the H2020 SHERPA project, which investigates, analyses and synthesizes ways in which smart information systems (the combination of AI & Big Data analytics) impact ethics and human rights issues. The activity helps the audience visualise the ethical and human rights challenges of smart information systems, identify the concerns and preferred solutions of key stakeholders, and present solutions for responsible development and use of such systems. Specifically, the first audio-visual presentation will introduce the impact of Smart Information Systems on ethics and human rights. The second audio-visual presentation will be an animation video, which will elaborate an example future scenario of the uses of smart information systems in education, including potential ethical and human rights concerns as well as aspects of technological innovation. Finally, a set of animation videos, outlining SHERPA's recommendations relevant to sustainability goals.

61 Oxygono

«Nomoplatform: The legislative observer of Cyprus»

The non-profit organization Oxygono coordinates an effort to increase transparency, making the policy-making process more accessible to the wider public. Through Nomoplatform, which is provided with the support of start-up Zenox Public Affairs, citizens are now able to follow the procedures for tabling bills and law proposals without any cost. Nomoplatform aspires to further activate citizens, whether they come from the academic, business world or even civil society, in order to participate more actively in policy production. Anna, the digital presenter of Nomoplatform, is a representation of one of Synthesia's digital personas, a software company that, using artificial intelligence systems (AI-driven systems) can produce audio-visual content. This innovative method of producing audio-visual content enables us to provide our users with a more direct and timely information on everything that is being done in the House of Representatives.

62 KIOS Research
and Innovation
Center of
Excellence

Intelligent Water Distribution Networks for Reducing Loss

This video presents the project SmartWater2020: "Intelligent Water Distribution Networks for Reducing Loss". The aims of this project is to develop and evaluate smart water technologies, capable of helping water authorities to improve their water distribution system's monitoring and control capabilities, which in turn can help reduce water losses and improve water quality.

63 Bank of Cyprus
Cultural
Foundation

Let's do some research, Bank of Cyprus Cultural Foundation

The Cultural Foundation, as a leading centre of research excellence in the field of cultural heritage, presents its research projects. The Foundation has received funding, as a Host Organisation, from the Research and Innovation Foundation (Restart 2016-2020) related to its collections and on various aspects of cultural heritage. The projects are: 1. Aspects of multiconfessionism and human geography in early modern Cyprus from the Venetians to the Ottomans POST-DOC/0916/0060 – Host Organization 2. Re-inventing age-old travelling paths of the Levant in the digital era: the example of Cyprus EXCELLENCE/0918/0190 – Host Organization 3. The business elite of modern Cyprus, 1878-1959: social origins and entrepreneurial characteristics in a historical perspective POST-DOC/0916/0231 – Host Organization

64 Bank of Cyprus
Cultural
Foundation

ReInHerit: "Redefining the future of cultural heritage, through a disruptive model of sustainability" (H2020, No 101004545), Bank of Cyprus Cultural Foundation

The Cultural Foundation, as a leading centre of research excellence in the field of cultural heritage, presents its research projects. The Cultural Foundation has secured funding (€2.998.115) from the European Commission for the research programme "Redefining the Future of Culture Heritage, through a disruptive model of sustainability" (ReInHerit) in the context of Horizon 2020, under the thematic call Culture beyond borders – Facilitating innovation and research cooperation between European museums and heritage (Project No 101004545). ReInHerit aspires to is to create a model of sustainable heritage management, which will foster a digital dynamic European network of heritage stakeholders. ReInHerit aspires to disrupt the current status quo of communication, collaboration and innovation exchange between museums and cultural heritage sites, in a sense that it will connect cultural heritage collections and sites, and present Europe's tangible and intangible heritage to citizens and tourists in their wider historical and geographical contexts.



1 University of Cyprus

MSCA Fellow | Dr. Panagiota Louka

In cellular biology we try to understand how a cell works. We can think of a cell as a factory made of different departments. Each department performs a specific task and all tasks together are essential for the function of the factory. Similarly, a cell contains several organelles, which are specialized compartments performing specific tasks. One such organelle is the cilium, which protrudes from the cell surface and looks like an antenna. This biological antenna is responsible for receiving and transmitting signals to the cell. This process is important because a cell must be able to sense and respond to changes in the environment. If this biological antenna is not built properly, its function is compromised and leads to disease. To treat these diseases, we need to understand the mechanisms that build the antenna. My work focuses on understanding how the tip of this biological antenna is constructed.

2 KIOS Research and Innovation Center of Excellence

MSCA Fellow | Dr. Christian Vitale

Modern cities still present dangerous situations for cars and pedestrians over their road infrastructure. In C-AVOID (Connected – Autonomous – Vehicles Orchestrated with Intelligent Decisions), we aim at improving road safety by exploiting a new tool that will be soon on-board all vehicles, i.e., 5G cellular communications. Thanks to 5G, vehicles act exactly as smartphones and can communicate to each other their location, speed, and status. This feature allows increasing the vehicles' awareness of the road ahead, unlocking a new set of safety applications. We develop a new model that allows predicting vehicle trajectories, hence possible future collisions. In a more futuristic scenario, where autonomous vehicles are considered, we develop coordination mechanisms to allow safe and efficient use of the road infrastructure. Furthermore, in a small cellular network, we also perform real experiments to verify also in practice the ability of 5G to meet the real-time constraints of our road safety applications.

3 University of Cyprus

MSCA Fellow | Dr. Chrysovalantis Voutouri

We have developed a comprehensive mathematical model that shows why COVID-19 outcomes are so varied and how treatment can be tailored to the needs of specific patient groups. The mathematical model is based on known mechanisms of SARS-CoV-2 and incorporates possible mechanisms of action of various treatments that have been tested in COVID-19 patients. In addition, it shows how aspects such as age and other medical conditions a patient may have can affect their response to treatment and clinical outcomes. According to the model, effective treatments for diabetic patients as well as older patients with some inflammation and impaired adaptive immunity include the blood thinner heparin or an immune checkpoint inhibitor combined with the corticosteroid drug dexamethasone. Additionally, the combination of heparin and dexamethasone has proved to be beneficial for patients with obesity or high blood pressure.

4 KIOS Research and Innovation Center of Excellence

MSCA Fellow | Dr. Andreas Kasis

The penetration of renewable sources of energy in power networks is expected to grow over the next years, motivated by environmental concerns. However, renewable generation is in general intermittent and a large penetration may cause problems in the power grid and even result in blackouts. Demand side can offer a solution to this problem, since loads can switch fast when required. However, a large portion of the total demand corresponds to thermostatic loads (TLs) (e.g. air conditioning units - refrigerators). In this activity we demonstrate with simple examples how thermostatic loads may be controlled such that: (i) They provide support to the power grid, demonstrating how such loads may save the grid from a blackout. (ii) Users do not experience any discomfort, since load temperature levels remain within designed thresholds.



5 KIOS Research and Innovation Center of Excellence

MSCA Fellow | Dr. Yiolanda Englezou

Intelligent Transportation Systems (ITS) technologies have received great attention in the past few decades, aiming to increase the capacity of existing road infrastructure. Recently, the study of connected and automated vehicles is an area developing very fast indicating a new phase of ITS and has the potential to revolutionize road transportation and personal mobility in the years to come. Many studies support that 95% of transport will be done by fleets of CAVs in developed countries by 2030. The huge potential of CAVs has not gone unnoticed. Undesired phenomena such as gas emissions, fuel consumption, traffic delays and traffic congestion will be mitigated with the correct road design or with better traffic control. In order, though to achieve better traffic control and planning, traffic estimation is of great importance. The deployment of CAVs paves the way into an even bigger amount of data by continuously transmitting information about their position and speed. The efficient estimation of traffic states using CAVs is an inevitable task that will further enhance traffic planning and control.

6 University of Nicosia

MSCA Fellow | Dr. Maria Hadjiathanasiou

Poster presentation of the research project CuDiCy conducted from September 2019 to September 2021 at the University of Nicosia. The researcher Dr Maria Hadjiathanasiou was hosted by the Department of Politics and Governance and worked inter-disciplinarily using analytical tools from the fields of History, Cultural Policy and Cultural Studies, International Relations and Politics. The poster sums up the topic of the research, and includes images from activities that took place during the project, such as visits to archives and libraries, educational workshops and presentations that happened online due to Covid-19, and also the researcher's participation in Researchers' Night 2019. The research project CuDiCy, due to pandemic limitations, transferred most of its scheduled activities online, such as participations in conferences, archival research that was meant to take place abroad, professional training on cultural diplomacy etc.

7 The Cyprus Institute

MSCA Fellow | Dr. Hilal Reda

The basic pillars of science are theory and experiment. Theoretical studies are also facilitated by simulations or 'computer experiments'. Simulations allow us to study phenomena in greater detail at a reduced cost. For example, for any material (gas, liquid or solid), we can compute important properties and its behaviour under varying conditions by simulating it in different time and size scales, ranging from the quantum- to the macro- world. Despite this, with an increase in the demand for more technologically advanced materials, more detailed simulations are needed which in turn require more computational power. Simulations can run for several months, but with the use of supercomputers, we can 'split' the computational problem in parallel processors, making calculations much faster. Finally, by simulating using various parameters which may be nearly impossible to do with real experiments (mainly due to exorbitant costs), we can optimize products (e.g. strength of new materials).

8 European University Cyprus

MSCA Fellow | Dr. Maria Chalari

This activity is part of a research project which uses comparative and intersectional approaches to explore the impact of the experience of the socio-economic crisis and of the current pandemic crisis of COVID-19 on students' well-being in Cyprus and Greece, in order to understand patterns of inequality that affect happiness attainment in children. This programme focuses on the important role education occupies in fighting inequality and discrimination, as well as in promoting students' well-being. Through this project, we want to highlight that we should all work together towards a more flexible, equitable and inclusive education.

The aim of this activity is to gather (virtually) the students who will take part in the Researchers' Night and give them the opportunity both to share their experiences of learning and their emotions during the pandemic crisis by answering a questionnaire about the impact of COVID-19.

