PAIRED TEAMS TRACK					
Applicant's name, profile and country	Duration of the expedition (months)	Host organisation	Project title	Project description	Date of the award
Iris Cuevas-Martinez, Innovator – SPAIN	3	MIT Auto-ID Lab - Massachusetts Institute of Technology (US)	Digital twin for Air Quality in Smart Cities with CHIMERE (European) and WRF (USA) AI-based pollution propagation models	Design and implement a digital atmospheric twin with WRF (USA) and CHIMERE (Europe) technologies capable of working at micro and macro scales, able to simulate different scenarios. This tool is focused on resolving three scenarios: a. study the environmental authorizations requested (emissions predicted/declared by the industrial sector); b. study natural disasters or accidents with high environmental impact (fires, gas leaks...); c. simulate actions or policies that minimize emissions (LEZ, industry closure, reduction of activity in ports...). This will be done using NGI technologies such as FIWARE and data integration using Smart Data Models, as well as context and environmental data from the IoT (in which the destination is an expert at the MIT AUTO ID Lab, the origin of the IoT).	27/03/2023
Martin Serrano, Researcher - Multidisciplinary – IRELAND	6	National Institute for Standards and Technology (US)	[C-BRIDGE]: EU-USA collaboration for Business Research, Incubation and the Development of Goals, Entrepreneurship and adoption of activities	The maturity assessment of a smart city based on the technology that is deployed, the number of services that are provided, and/or the data that is generated directly from the city infrastructure is today	27/03/2023

				promoting the creation of Standards in the next generation of smart cities and services	one of the most challenging activities; mainly because of the complexity that exists when connecting all the different aspects of the data and also because this process requires the collaboration and participation of all the systems and stakeholders involved in the production of the data. Data systems collaboration requires that aspects of data that want to be shared can be understood across the systems and that new ways for data management (big data) can be deployed and implemented efficiently. Beyond this challenge, the commercialization and the multiple purposes of why the data needs to be shared are also relevant. The Next Generation Internet should support large amounts of distributed data to facilitate not only big data production, processing, and storage but also accountability and resilience of the data to the different systems that will make use of the data; the current problem resides in the methods to classify, identify, access and share the data and still not less important the methods define the cost from the use of the data of the systems and identify who pays for those management and	

				other services (i.e. data quality, evaluation, measuring, etc.) that can derivate from the use of the smart city systems data. As a response to these demands, EU-USA C-BRIDGE project is a collaborative set of activities for business research, incubation practices, and the development of business goals to identify/define principles for entrepreneurship and for the identification of business-related activities with the main purpose to promote the adoption of the holistic KPIs methods in next-generation smart city data services as the standard methodology to self-assess smart city maturity with a commercial value in the context of data-driven innovation activities. The Holistic-KPI methodology was successfully developed in the context of the NGI Explorers collaboration and published as NIST technical report which received the Best NGI Explorer Award for its impact and results, C-BRIDGE will focus on the preparatives to innovate and look at enhancing knowledge-sharing and establishing-consolidate long-term collaborations on NGI technologies, services, standards and also look at the commercial opportunities. C-	

				BRIDGE will pursue this innovative/commercial investigation approach to enable cities to leverage the full transformative power of the deployed technology (i.e. IoT, Big Data, AI, etc.) towards establishing data systems as the main innovation ecosystems. Overall, the exploitation of systems data using measurable Holistic KPIs as vehicles for city innovation will provide a socioeconomic value for the cities, along with tangible business opportunities, thus setting the collaborative activities towards the cost and commercial value for the next generation of the smart city landscape, which will be seen as the highest commercial value ever investigated and developed for the data generated from the smart city technology.	
Antonio Jesús Jara Valera, Researcher – Technical - SPAIN	3	AUTO ID Lab - Massachusetts Institute of Technology (US)	A geo-aware network protocol for trustable cross-Atlantic data exchange operations (USA-EU)	Developing a scalable blockchain, decentralized reputation systems, and semantic web technologies to achieve trustworthy content handling and data exchange, as well as a trustworthy service exchange, are baseline problem that continues arising as far as digitalisation and data economy is taking place. Nowadays, there is a lack of trustability for sharing and transferring data; legal regulations such as GDPR define	27/03/2023

				restrictive rules about data usage, data geolocation and data sharing. This project presents a solution that addresses the challenges defined in the open domain to integrate the geo-location as part of the semantic capabilities to empower any transaction, at the same that extending the 5G/6G network capabilities for the emerging needs of use-cases as IoT, This project proposes a solution to enable data exchange trustability, consent management, reputation and privacy-driven solutions. This innovative protocol called Proof of Offset (POO) enables higher data access control by geolocation, accountability and data exposition minimisation, i.e. data sovereignty principles. Thereby. POO brings new opportunities for data security and privacy management, such as user awareness, via allowing Apps to use this protocol/service to inform about the actual country of origin for a data portability/exchange transaction request. The potential uses and benefits from POO are envisioned as a core component for any networking architecture of the Next Generation Internet, e.g. DLT/blockchain, IoT and 5G/6G, together with all the	

| | | | | fundamental aspects of security, transparency and data protection. This project aims to create significant evidence of the benefits of the proposed protocol as part of an emerging data economy for the safety of data exchange, accountability and trustability via new models that guarantee the satisfaction of rules, contracts and agreements and, at the same time, promotes new economic models driven by user's acceptance, compliance with new regulation frameworks, community-driven reputation schemes and integral data management. This protocol has received industrial interest and an award from Hasler Foundation in Switzerland. It also supported its initial version development by the NGI project, ONTOCHAIN, with the project Geontoly, including the creation of the PoC validation/tests; and the generation of an Open Source implementation. Now, as part of its standardisation and validation, that facilitates its adoption. This proposed algorithm has been agreed to collaborate with AUTO-ID Lab (the most crucial lab and origin of the IoT); to work together to | |

| | | | | validate the solution for data exchange in cross-Atlantic scenarios, where de data sovereignty, trustability and cooperation are crucial. Critical scenarios that will be evaluated and innovative are the consumption of cloud services located in the USA from European machines such as vehicles, IoT-devices (thermostats, air quality systems...) that require cooperation and trust between the EU and the USA; to guarantee that the digital economy cross-both continents is feasible. Remarkably, the emerging economy of digitalized services around physical devices, such as a connected car (e.g. TESLA), and connected consumer devices (e.g. TV, Alexa, etc.) are IoT/machines that are linking USA-EU continuously; in both directions; therefore, mutual trust and mutual geo-location verification to enable these services safely and resiliently. Due to the relevance for the European market, the use cases focused on in the experiment will be connected vehicles, connected infrastructure and Smart Cities. | |
| Ihor Makushynskyi, Innovator - POLAND | 6 | Temple University (US) | Pilot project for automated intellectual property rights protection for Temple University | Together with Temple University, we would like to collect information about the intellectual property needs of SMEs and students of Temple | 27/03/2023 |

				that work in the Small Business Development Center and after creating a unique pilot for Temple and its partners which will provide a more affordable and efficient solution for protecting intellectual property rights compared to hiring a traditional lawyer. Together with Scott Burris Professor of Law Director, Center for Public Health Law Research, we will create a new way for SMEs and independent creators how to protect their intellectual property 28 times less expensive, 24/7 with friendly UI and without time-consuming actions.	
Dime Galapchev, Innovator – NORTH MACEDONIA	6	Temple University (US)	FinqUP AI Diversification Tool	Right now, over 80% of classical investment and retirement funds require users to go there in person and fill out a paper form and analyze their statistics on paper before they make a decision about their financial future. This results in many bad and uninformed decisions. This is why FinqUP first digitizes the funds and puts them in one app where users can transparently monitor the funds' performance, and compare it with others, before choosing one or several to invest in. However, to improve the choice part, with the help of Temple University, we want to build an AI tool that	27/03/2023

				will be doing the analysis, cross reference, and choice in funds to invest for the best results and higher pension. Before we build the AI Tool, we need first to build the platform where all of the fund's data and process to become their client will be digitized. Once the platform is built, the next step is to optimize the transfer of money between users and funds. Once this is running, training and making available the AI to the public comes afterwards.. Right now how do they go beyond the state of the art? As of now, none of this exists yet, and we are the first to build an exchange marketplace for classical investment funds, creating a whole new layer in the industry.	
Omid Esrafilian, Researcher – Technical - FRANCE	5	Institute of the Wireless Internet of Things, Department of Electrical and Computer Engineering, Northeastern University (US)	5G-enabled Connected Robotics Emulator	In this project, we aim to develop a first-of-a-kind digital twin platform that emulates a 5G connected robotic system. The emulator works in real-time and provides a close approximation to real-world systems and deployment scenarios.	27/03/2023
Roberto M. Medina Bujalance, Innovator – SPAIN	6	Sonoma State University (US)	InSee System: The First AI-Powered Respiratory Monitoring Platform	The goal of this project is to develop an Expert as a Service (EaaS) platform for pulmonologists using AI-based solutions. The platform aims to simplify and streamline the evaluation processes performed by	27/03/2023

				pulmonologists, which are complex and highly scrutinized. To achieve this, the project focuses on developing a real-time monitoring system, known as InSee that quantitatively tracks patient usage of incentive spirometers (IS). These IS devices are widely used in various healthcare settings to optimize pulmonary function and reduce the risk of pneumonia. Pneumonia has been a significant cause of mortality in the United States, responsible for nearly 10% of deaths since 2019. It leads to readmissions, extended hospital stays, and expensive treatments. InSee can track breath-hold following a deep breath and remind patients to use the IS at prescribed intervals. This coaching helps patients improve lung expansion, particularly those at risk for pulmonary complications. The collected data from InSee is stored in a spirometry database. The project leverages artificial intelligence (AI) and deep learning techniques to develop the first EaaS platform that can identify high-risk patients and provide more effective treatment before their discharge from hospitals or nursing facilities. The ultimate goal of the project is to save lives by	

				improving patient outcomes and reducing the burden of pneumonia-related complications.	
Martin Pečar, Innovator - SLOVENIA	6	George Mason University - Mason Enterprise Center (US)	Pilot implementations of multi-objective route optimization	We can improve the efficiency of local (last-mile) logistics, reducing its fuel costs and emissions by additional 5-15%. We want to implement our solution within the GMU transportation system and collaborate with its professors to identify additional use cases and start developing additional models to use the algorithm in other domains, e.g. drones and ships. We have developed a novel algorithm, providing multi-objective route optimization, which acts as an add-on to classic route optimization and improves its performance by up to 40%, and we would like to test it on US route optimization systems.	27/03/2023
Francisco J. Guillén Martínez, Innovator - SPAIN	6	UC Berkeley Citris Innovation Hub (US)	Implementation of Blockchain-based authentication technology to secure US consumer products, services and IoT Platforms	To introduce BlockTac authentication products to the University of California ecosystem, the California market, adapting them to the needs of different industries through Proofs of Concept and Pilots. These include: a. "certificates" and "digital seals" applied to Fast-Moving Consumer Goods, ID Cards, professional and academic accreditations, artworks, and medical records;	27/03/2023

				b. an online voting platform secured with Blockchain technology; c. Blockchain-of-Things devices. Depending on the final application, its implementation can be done immediately. In some cases, certain additional developments may be required depending on the required functionalities. The role of Citris Foundry will be critical in establishing the operation criteria and the implementation of the objectives.	
Kiril Panov, Innovator – NORTH MACEDONIA	6	Temple University (US)	"HEALTH FIRST" - an artificial intelligence-based solution focused on earlier and faster diagnosis of diseases	"HEALTH FIRST" - consists of a web app (to be used by hospitals) and a mobile app (to be used by patients) which communicate with each other and solve symptom-disease relations thanks to the artificial intelligence classification and high-level matching. At this moment, our solution is in the late development stage. In such a stage to test the interoperability and prepare the scalability of our solution, it is crucial to receive feedback from physicians, patients, and researchers - the NGI Enrichers program at Temple University offers us this opportunity. Temple University Hospital could become our test user in the real environment and a potential long-lasting	27/03/2023

				customer. Moreover, the joint development of our solution, together with Temple faculty, will bring higher added value for research too. Therefore, Temple University, with its outstanding infrastructure and support, is the right match for "HEALTH FIRST". We aim not only for the patients, but also hospital management, and their doctors, to benefit from earlier symptom detection and faster diagnosis of diseases.	
Florian Kaltenberger, Researcher - Technical - FRANCE	6	Northeastern University (US)	Keeping OpenAirInterface fit using the OpenRAN gym	Mobile communication networks are a cornerstone of our society and our industry. The current 5th generation provides the technological capabilities to support a number of new use cases such as industrial automation, the internet of things, healthcare, augmented reality, etc.. Especially networks following the open RAN architecture and specifications provide the necessary flexibility to easily adapt them to these new use cases. However, today there are only a handful manufacturers that can provide such equipment and their solutions are still very expensive. One way to accelerate the development of such open RAN systems while at the	27/03/2023

| | | | | same time bringing down the costs of 5G radio networks is by leveraging open source projects. Today there are number of such open source projects, for example, the OpenAirInterface, which provides a complete implementation of 5G networks that runs as on virtualized general purpose computing, and radio infrastructure. It can be complemented by other open source projects such as the ones from the O-RAN software community or the ONOS project from the Linux networking foundation. Open RAN systems can also leverage AI/ML to optimize their performance for specific use cases. The OpenRAN Gym from the Institute for the Wireless Internet of Things at Northeastern University is the first publicly available research platform for data-driven O-RAN experimentation at scale. Building on frameworks for data collection and RAN control, OpenRAN Gym enables end-to-end design and testing of data-driven xApps by offering an O-RAN-compliant near-real-time RIC and E2 termination. In the proposed project, the applicant will bring his expertise of the OpenAirInterface project and work | |

					together with the new Open6G research center at the Institute for the Wireless Internet of Things at Northeastern University to integrate OAI 5G in the Open RAN gym framework. We will especially leverage the Colosseum testbed to deploy OAI at scale.	
Gabriele Orazi, Researcher – Technical - ITALY	6	Computer Science Department, University of California, Irvine (US)	Rub your eyes: robustness analysis of document redaction for anonymisation	Digital documents (e.g., pdf or docx files) are commonly implied on the internet to share knowledge, sign contracts, or write reports. Due to the nature of documents, it is a common need to share such files while preserving, at the same time, sensitive information contained inside. For instance, being able to cross-reference health data contained in diagnosis documents can open up vast possibilities for health science research. To allow knowledge sharing without revealing personally identifying information, documents are often obfuscated using blurring or pixelating to cover sensitive parts. Although the human eye may be unable to reconstruct the real content, many details can still empower inference techniques for disclosure purposes. My project aims to create a novel tool that can automatically analyze a redacted	27/03/2023

				document and produce a de-anonymized version of the input file as output. The contributions of this project are: 1. Prove weaknesses of current document redaction techniques through the introduction of a novel inference tool; 2. Benchmarking the effectiveness of applied document redaction before publication using the abovementioned proposed model; 3. Practical proposals for data owners on how to increase sensitive information secrecy. Current published research primarily focuses on the noise removal of the artifacts applied over sensitive documents or images. To the best of my knowledge, I don't know about approaches considering the context to drastically increase the disclosure's effectiveness. Moreover, available tools usually require manual inputs: together with the document, specifying the font type and the size is typically a requirement.	
Tessa Wagenaar, Innovator - NETHERLANDS	6	Temple University (US)	SplendoMonitor	In the project with Temple University, we want to see if we can track the progression of the recovery of long COVID patients using a CRF assessment. For the CRF assessment to be plausible and performed by patients	31/03/2023

| | | | | without extra equipment, a different protocol, for example, the 6-minute step test, can be used in combination with wearable sensors. Using big data and AI techniques, we can then analyse the collected data and track the recovery of the long COVID patients. We are using data and new CRF assessment protocols to track the status of patients in recovery. By combining these two, we aim to gain new insights into the use of non-invasive sensor technologies to perform CRF assessments and track a patient's health. | |

OPEN IDEAS TRACK					
Applicant's name and profile	Duration of the expedition (months)	Host organisation	Project title	Project description	Date of the award
Ömer Mermer, Researcher - Technical – TURKEY	6	University of Iowa, Hydroinformatics Lab (US)	Deep Learning Based Harmful Algal Blooms Prediction	The scope of this project is to identify HABs and construct DL models with interpretable model output. Three stage framework of the proposed project is given in below. First, we will start with an extensive literature review for HABs and will evaluate previous studies to use machine learning models for prediction of water quality. Then, we will form an extensive dataset in which dependent/independent variables are defined by combining different satellite images, physical and environmental	02/05/2023

				parameters, and existing data from literature. Second, we will build the deep learning models and will optimize them by using different parameters optimization. Finally, we will construct possible interpretations of HABs predictions performed by DL based models by using various XAI techniques.	
Fernando José Gómez Gil, Innovator - SPAIN	6	University of Maryland, Baltimore County (US)	AI for onboarding for SMEs	Our solution uses Artificial Intelligence to personalize the onboarding process for each individual. The system adapts to the individual's previous experience and know ledge to optimize the learning process. The solution is a video and audio-to-text processing, which uses advanced algorithm s that allow companies provide their ow n videos or use videos from YouTube to train their new employees. SME has a high volume of hiring process and each candidate needs a onboarding system . Our solution considers the human factor, taking into account the individual's needs and preferences to ensure an optimal onboarding experience supporting diversity, accessibility and inclusiveness.	02/05/2023
Dror Jacoby, Researcher – Technical – ISRAEL	5	Columbia University (US)	Intelligent Decision-Making with Data Fusion and Predictive Analytics for Multi-Sensor Environments	Our project tackles NGI's and Integrated Sensing and Communications (ISAC) challenges, for time sensitive applications like autonomous cars by adapting proactive approaches. By employing advanced	02/05/2023

				data fusion, we can integrate diverse sources in future sensor networks, enabling smart, proactive algorithms to mitigate system failures in mission-critical applications while exploring environmental sensing opportunities. Our solution employs cutting-edge deep learning methods both for data fusion and predictive algorithms, utilizing big-data from Advanced Wireless research testbeds and NGI' sensors. The predictive approach considers potential risks and makes informed decisions accordingly, optimizing performance and minimizing hazards in integrated sensing and communication systems.	
Alireza Entezami, Researcher - Technical - ITALY	6	Mitacs (CA)	Continuous Monitoring and Detection of Road Damages via Smartphone Sensors and Artificial Intelligence techniques under Big Data	This proposal suggests two smartphone-based measurement methods and two road damage assessment methods based on AI and advanced machine learning algorithms. The main factors that differentiate this proposal include proposing cost-free, practical and novel road data measurements via smartphone built-in sensors, focusing on advanced machine learning algorithms, Internet-of-Thing, and cloud computing, and conducting both vibration and vision monitoring strategies. The future of this plan is to develop mobile apps based on the	02/05/2023

				proposed methods in this proposal for road damage assessment in intelligent transportation systems in smart cities.	
Vasilapostolos Ouranis, Innovator – GREECE	6	Saint Louis University (US)	Advanced Human Computer Interaction in Virtual Training and Simulation environment	Magos is a solution that enables touch sense inside virtual world improving the whole UX, enabling users to interact via their fingers just like in real life. Magos can realistically simulate in a meaningful way all key aspects of real touch, thank to its software and hardware components that are under three main pillars: Finger tracking, Tactile and Kinaesthetic feedback. As a result, Magos can push the boundaries of realism in VR, increasing even more the learning effectiveness over traditional methods and at the same time minimizing the training time needed. As for the competition, regular VR controllers are are not so easy to use and, and they cannot provide a realistic interaction. On the other hand, the limited VR haptic gloves in the market are better in the performance, but they are harder to use. They are really complicated. Just for the basic stuff users have a hard time figuring out how to use them. Well, we didn't want to do either of these things. What we wanted to do was make a leapfrog product that is way easier to use than any similar device and	02/05/2023

				provide the best performance in terms of touch sense simulation. Now, we are improving the software (finger tracking accuracy) and the industrial design of the solution in order to reach as soon as possible (next 6 months) the 1 st commercial version. Our goal is to substitute the VR controllers for Virtual Training and simulation – which is 25% of Global VR headsets market share, close to 2B euros now and it projected to reach almost the amount of 25B by 2026 with 28% CARG.	
Muhammad Zawish, Researcher – Technical - IRELAND	3	Saint Louis University (US)	Complexity-aware Collaborative AI over edge and cloud	This project will encompass an intelligent split computing-based solution applied to AI (deep neural network) models for complex computer vision application deployments on IoT. The purpose of splitting AI models sequentially across a continuum of edge and cloud is to meet the resource constraints at the edge (by delegating minimum computations to edge) while fulfilling the requirements of ultra-low latency applications (<1ms). Consequently, edge devices will be capable of taking on concurrent tasks and increasing their standby time. This solution can be further developed by translating the simulations towards a real test-bed. This	02/05/2023

				solution will be promoted for implementation as part of the Smart Waterford initiative for different application use cases. The energy-harvesting testbed planned at Tyndall National Institute, Ireland, can further be used to validate the framework developed in this project.	
Nicola Di Cicco, Researcher – Technical - ITALY	6	Columbia University (US)	Robust X-Haul Management Based on Uncertainty-aware ML	The project is about holistic integration between Robust Optimization, Uncertainty Quantification in ML, Active Learning and Continual Learning. In this context, prediction uncertainty can be leveraged to: efficiently stream process large volumes of network telemetry data; amortize the storage and labelling cost of training databases; define reliable uncertainty sets for Robust Optimization problems. After developing the methodological framework and getting preliminary results on simulations, I plan to leverage a real-world large-scale testbed (e.g., COSMOS) to validate my findings on a real-world X-Haul network.	02/05/2023
Alessandro Palumbo, Researcher – Technical - ITALY	3	International Computer Science Institute (US)	GUARD1	The project aims at exploring methodologies to analyse and detect potential malicious activity in Microprocessors workflow. Design the GUARD1 hardware architecture, based on the most efficient	02/05/2023

				algorithm for estimations (Machine Learning and/or Probabilistic Data structures approaches. Design the HDL code of GUARD1 circuitry to be integrated in the target Microprocessor for FPGA and/or ASIC simulations and implementation 3. Evaluate GUARD1 overhead with respect to the target microprocessor in terms of area occupation, frequency operation, power consumption.	
Ido Levy, Researcher – Multidisciplinary - ISRAEL	6	University of Maryland (US)	SafeMode: Using AI & Behavioural Psychology to Improve Performance and Sustainability in Transportation	Driver engagement in commercial transportation has not been modernized, is completed by subjective, untimely, and outdated methods. SafeMode uses AI to provide drivers with real-time performance measurement by collecting data through API integration with fleet telematics. Our platform collects performance data from the existing vehicles and applies a proprietary scoring algorithm to determine safe and efficient driving compared to a contextual pattern. Next, we design an effective incentive program for behavioral change and habit building by gamifying driver engagement in the mobile app while providing actionable insights for the management.	02/05/2023
Sébastien Batty, Innovator – FRANCE	6	Santa Clara University (US)	Intelligent Wireless Drones	To scale autonomous vehicles and drones, charging must be	02/05/2023

| | | | Charging Platform | human-free as soon as possible. This will greatly reduce environmental impact by cutting truck, plane, and car transportation. Our US-based NGI project focuses on real time data collection and analytics of drone charging platforms. We now aim to seize the opportunity of the new drone market (our current solution for drones is at TLR 3) and also develop more data collection and analytics with AI for both markets. Differentiators: -Issued patents on a larger charging area with a uniform charge focusing on speed with no energy loss, 6-28% more efficient than current wired charging and wireless competitive solutions. -No need for human intervention. -The drone solution will save about 15% electricity per charge compare to current state of the art solutions (as already proven with cars). | |
| Julien Paris, Innovator – FRANCE | 6 | Mitacs (CA) | Datami | Datami is an open source solution to make grassroot open data more intelligible, more affordable, and to simplify civic contributions. It's a frontend system of modular web components, backed with external services for data management Datami is a frontend-only project in vuejs built on top of external free services : no backend, data can be stored on Gitlab, | 02/05/2023 |

				Github, or other REST service. Datami components can be embedded onto any website, while still benefiting from robust version control and moderation features. It's designed to simplify making contributions and it is about making open data a real bridge between citizen and civic society Datami is adaptable to a wide spectrum of organisations. Our goal is to go a step further in making simple configuration and moderation interfaces, adapted to our target audiences.. We hope we could help building trust toward local open data, one contribution at the time.	
Soumya Kanti Datta, Innovator - FRANCE	6	Arizona State University (US)	SPARTA - Secure, Privacy Aware Extended Reality Platform	Secure, privacy aware, low code platform for XR content creation and publishing. Currently, there is a High cost of XR app and content development and app development platforms are not security, privacy aware. The project will guarantee: -Low-code platform allowing development of virtual spaces within 4-5 weeks. -Built using WebXR, an industry standard ensuring interoperability with XR devices and ecosystems. -Platform compliant with European regulations like GDPR for data privacy. -End-to-end cybersecurity for the resulting XR app.	02/05/2023

Simone Zerbini, Researcher – Technical - ITALY	6	Arizona State University (US)	Improving Fuzzing Through Symbolic Execution	Smart contracts are programs that are executed across a blockchain. Unlike traditional programs, once deployed they cannot be modified. In addition, usually smart contracts manage a large amount of money. For these reasons, it is important that smart contracts are tested properly before being deployed, as a simple bug could cause a big loss. The goal of my project is to develop a tool to automatically and exhaustively test smart contracts. This tool will rely on 2 techniques: Fuzzing and Symbolic Execution. Fuzzing is an automatic bug and vulnerability discovery technique that continuously generates inputs and reports those that crash the program. Symbolic execution is a software analysis technique for determining which input causes the execution of each part of the code. Leveraging symbolic execution is crucial, since software may contain sections of code that fuzzing cannot trigger by relying on simple random mutations of the input, as these may require some specific inputs.	02/05/2023
Katalin Feher, Researcher – Social Sciences/Humanities - HUNGARY	3	Concordia University Applied AI Institute (CA)	InfoComm & MediaTech by AI	The project aims at drawing optimistic future scenarios of AI-driven info-communication and	02/05/2023

				media technology for building trust in the Global North. Technology will be a platform-based solution for summarizing, and presenting best practices, recommendations, and expert network for building trust and transparency. The method applied is the horizon scanning and/or backcasting for future scenarios inviting experts from social science and computer science as well. The Size platform-based solution will be available min. to thousands of experts directly (based on the statistics of the existing website) and their contribution will be published for ten-thousands of academic professors and researchers by high-ranked journal(s).	
Niccolò Ferrari, Innovator – ITALY	6	Santa Clara University (US)	A hassle-free solution for EV Batteries end-of-life, enabling a true circular economy	The project aims at developing a platform for OEMs to track exhausted battery supply, and will develop a distributed network of modular exhausted battery containers, to minimize logistics. We find the Vehicle makers the closest repurposer or end-user, minimizing logistics cost, allowing for higher margins and a true circular economy. Our solution is unique because it facilitates the complete process: from the battery supply, to the repurposing, to the installation through Energy/Utility companies. After	02/05/2023

				releasing the battery tracking SW, we will develop a distributed system of exhausted battery containers around the globe. This collection network will ensure no battery is going to be lost, and the supply is fully tracked and reused.	
Greg Agriopoulos, Innovator – GREECE	6	Mason Enterprise Center Fairfax (US)	Magos haptic solution	Magos is a solution that enables touch sense inside virtual world improving the whole UX, enabling users to interact via their fingers just like in real life. Magos can realistically simulate in a meaningful way all key aspects of real touch, thanks to its software and hardware components that are under three main pillars: Finger tracking, Tactile and Kinaesthetic feedback. As a result, Magos can push the boundaries of realism in VR, increasing even more the learning effectiveness over traditional methods and at the same time minimizing the training time needed. As for the competition, regular VR controllers are not so easy to use and, and they cannot provide a realistic interaction. On the other hand, the limited VR haptic gloves in the market are better in the performance, but they are harder to use. They are really complicated. Just for the basic stuff users have a hard time figuring out how to use them. Well, we didn't want to do either of these things. What we	02/05/2023

				wanted to do was make a leapfrog product that is way easier to use than any similar device and provide the best performance in terms of touch sense simulation. Now, we are improving the software (finger tracking accuracy) and the industrial design of the solution in order to reach as soon as possible (next 6 months) the 1st commercial version.	
Alexandru Panait, Innovator - ROMANIA	6	Arizona State University (US)	Decentralised Government Syste	The current bureaucratic system of government is unable to efficiently manage the increasing number of procedures and documents necessary for citizens' management, resulting in a high error rate and costly legal corrections. The project will address Democratic Governments which wants to reduce corruption and other errors of the democratic system. The Technology applied will be a Blockchain and Smart Contracts on a WebBase Application Interface to allow a Paradigm Shift, from Paperwork Bureaucracy to Fully Digital one. I am planning to implement the result of this research in TRUSTCHAIN project from NGI.	02/05/2023

CHALLENGES TRACK	

Applicant's name and profile	Duration of the expedition (months)	Host organisation	Project title	Project description	Date of the award
Talat Satilmisoglu, Researcher - Multidisciplinary - TURKEY	4	University of Iowa - Hydroinformatics Lab (US)	Blockchain-based Multi-stakeholder Water Management System	The problem being solved by the project is the lack of transparency, trust, and accountability in the management of water resources, which often leads to conflicts between stakeholders and inefficient use of water. The technology behind the project is blockchain, a decentralized ledger technology that provides a secure and transparent platform for recording and tracking water usage data. The main differentiator of our solution is its trustless and decentralized nature, which allows all stakeholders to participate in the management of water resources without the need for intermediaries or third parties. This ensures that the system is transparent, secure, and efficient, and eliminates the potential for conflicts of interest. We plan to further develop our solution by conducting pilot projects in	02/05/2023

				different regions, testing and refining the system based on user feedback, and scaling up the system to reach a wider audience.	
Edoardo Giusto, Researcher – Technical - ITALY	5	Fermilab - SQMS Center (US)	CRIT-Q – COSMIC RAY IMPACT ON TRANSMON QUBITS	Cosmic-ray (CR) induced errors are critical for superconducting qubits. The project aims at developing a software tool able to characterize the impact on the quantum state of the qubit, by analyzing physical information. There is no available technique today. The result of the characterization would be used to develop further hardware/software codesign techniques to improve reliability of superconducting systems. The plan is to build a bridge between physics/technology experts and computer engineers working in the reliability domain.	02/05/2023