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5GENESIS Newsletter

July - September 2021 - Issue 13

5GENESIS website: www.5genesis.eu/

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5GENESIS Project Overview

The 13th issue of the 5GENESIS newsletter presents the project activities and achievements during the period July-September 2021. This issue focuses on the latest 5GENESIS dissemination (papers, articles) and communication activities, the submitted deliverables and the ones that are planned to be published as well as a trial with the ICT-19 project 5G!Drones.

5GENESIS activities in numbers for the July-September 2021 period:

- One Special Issue - Call for Papers
- One Demo Session Co-Chaired
- Six Conference papers
- Two White Papers
- Five Presentations
- One Leaflet and Video Session
- One Demonstration Video
- Five 5GPPP Activities
- Seven Submitted Deliverables
- Four Upcoming Deliverables
- One joint trial



Communication Channels



<http://www.5genesis.eu>

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Dissemination and Communication Activities

Dissemination and Communication activities of 5GENESIS during July - September 2021, cover a great number of initiatives such as publications, articles, presentations, and trials.

Special Issues - CfP

5GENESIS team of SRL, KAU, NCSR, UMA and INTEL are leading a special issue on the Sensors journal entitled: "Experimentation in 5G and Beyond Networks: State of the Art and the Way Forward". This Special Issue aims at collecting original contributions on experimental aspects of 5G and beyond networks and systems. Manuscripts' submission is now open! Start submitting your papers now! Deadline 30 October 2021. More information available here:

https://www.mdpi.com/journal/sensors/special_issues/5G_beyond_networks



Demo Session Co-chaired

IEEE MeditCom 2021 Demo session co-chaired by Dr. Harilaos Koumaras (NCSR partner). IEEE MeditCom brought together visionaries in academia, research labs and industry from all over the world to the shores of the Mediterranean Sea, with programming that addressed many of the outstanding challenges that exist in the areas of communications and networking. Find more about it here:

<https://meditcom2021.ieee-meditcom.org/>



Conference Papers

5GENESIS partners Georgios Xylouris (NCSR Demokritos), Maria Christopoulou (NCSR Demokritos), Harilaos Koumaras (NCSR Demokritos), Michail-Alexandros Kourtis (NCSR Demokritos), Marc Emmelmann (Fraunhofer Institute for Open Communication System FOKUS), Dionysia Triantafyllopoulou (5G Innovation Centre - 5GIC), Yogaratnam Rahulan (5G Innovation Centre - 5GIC), Ivan Gonzalez Muriel (Universidad de Málaga), Almudena Diaz Zayas (Universidad de Málaga), Eneko Atxutegi (Nemergent Solutions SL), Georgios Gardikis (Space Hellas (Cyprus) Ltd.), Dimitrios Lioprasitis (Space Hellas (Cyprus) Ltd.), Dimitris Tsolkas (FOGUS Innovations & Services P.C), Panagiotis Kostakis (FOGUS Innovations & Services P.C), Erik Aumayr (Ericsson LMI Research Centre), Anne-Marie Bosneag (Ericsson LMI Research Centre), Ozgu Alay (University of Oslo), Valerio Frascolla (Intel), and Anna Brunstrom (Karlstad University), submitted a workshop paper entitled: "Experimentation and 5G KPI measurements in the 5GENESIS platforms", on the context of ACM SIGCOMM 2021 Workshop on 5G Measurements, Modeling, and Use Cases (5G-MeMU), 23 August 2021> you may learn more here: <https://dl.acm.org/doi/10.1145/3472771.3472776>

Experimentation and 5G KPI measurements in the 5GENESIS platforms



Authors: [Georgios Xylouris](#), [Maria Christopoulou](#), [Harilaos Koumaras](#), [Michail-Alexandros Kourtis](#), [Marc Emmelmann](#), [Dionysia Triantafyllopoulou](#), [Yogaratnam Rahulan](#), [Ivan Gonzalez Muriel](#), [Almudena Diaz Zayas](#), [Eneko Atxutegi](#), [Georgios Gardikis](#), [Dimitrios Lioprasitis](#), [Dimitris Tsolkas](#), [Panagiotis Kostakis](#), [Erik Aumayr](#), [Anne-Marie Bosneag](#), [Ozgu Alay](#), [Valerio Frascolla](#), [Anna Brunstrom](#) [Authors Info & Affiliations](#)

5GENESIS partners Alexander Rabitsch (Karlstad University), George Xilouris (NCSR Demokritos), Themistoklis Anagnostopoulos (NCSR Demokritos), Karl-Johan Grinnemo (Karlstad University), Thanos Sarlas (NCSR Demokritos), Anna Brunstrom (Karlstad University), Özgü Alay (University of Oslo, Simula Metropolitan), and Giuseppe Caso (Simula Metropolitan), submitted a workshop paper entitled: "Extending Network Slice Management to the End-host", on the context of ACM SIGCOMM 2021 Workshop on 5G Measurements, Modeling, and Use Cases (5G-MeMU), on 23 August 2021. You may learn more here:

<https://dl.acm.org/doi/10.1145/3472771.3472775>

In the context of International Mediterranean Conference on Communications and Networking (IEEE MeditCom 2021) which took place in Athens, Greece, on 7-10 September 2021, 5GENESIS partners Georgios Makropoulos, Harilaos Koumaras, Stavros Kolometsos, Anastasios Gogos, Thanos Sarlas, Tanel Järvet, Gokul Srinivasan and Fotini Setaki submitted the conference paper entitled "Field Trial of UAV flight with Communication and Control through 5G cellular network" which was accepted. You may learn more here:

<https://5genesis.eu/wp-content/uploads/2021/09/m19816-makropoulos.pdf>

5GENESIS partners Panos Matzakos, Harilaos Koumaras, Dimitris Tsolkas, Maria Christopoulou, George K Xilouris and Florian Kaltenberger submitted and was accepted the conference paper entitled: "An open source 5G experimentation testbed", on the context of IEEE MeditCom 2021, which took place on 7-10 September 2021, in Athens, Greece. You may learn more by clicking in the following link:

<https://5genesis.eu/wp-content/uploads/2021/09/m20182-matzakos.pdf>

5GENESIS partners Athanasios Priovolos, Dimitris Lioprasitis, Georgios Gardikis and Socrates Costicoglou, submitted and was accepted the conference paper entitled: "Metrics-based Outlier Detection for 5G security", at IEEE MeditCom 2021 (International Mediterranean Conference on Communications and Networking) that took place on 7-10 September 2021 in Athens, Greece. You may learn more about the event here:

<https://5genesis.eu/wp-content/uploads/2021/09/Metrics-based-outlier-detection-for-5G-security.pdf>

5GENESIS conference paper "Satellite edge computing for 5G rural applications" by partners, Dimitris Lioprasitis, Athanasios Priovolos, Georgios Gardikis, Spiros Pantazis, Socrates Costicoglou, Andreas Perentos, Eleftheria Hadjoannou, Michael Georgiades, Alexander Phinikarides, Alejandro Fornés-Leal, Regel Gonzalez-Usach, Carlos E. Palau and Manuel Esteve, was accepted by the IEEE MeditCom 2021 which took place at 7-10 September 2021 in Athens, Greece. You may find more about the event in the following link:

https://5genesis.eu/wp-content/uploads/2021/09/Satellite-edge-computing-for-5G-rural-applications_CR.pdf

Extending network slice management to the end-host
 Authors: @ Alexander Rabitsch, @ George Xilouris, @ Themistoklis Anagnostopoulos, @ Karl-Johan Grinnemo, @ Thanos Sarlas, @ Anna Brunstrom, @ Özgü Alay, @ Giuseppe Caso [Authors info & references](#)
 5G-MeMU '21: Proceedings of the 1st Workshop on 5G Measurements, Modeling, and Use Cases, August 2021 • Pages 20–28 • <https://doi.org/10.1145/3472771.3472775>

Field Trial of UAV flight with Communication and Control through 5G cellular network

Georgios Makropoulos, Harilaos Koumaras, Stavros Kolometsos, Anastasios Gogos, Thanos Sarlas, Tanel Järvet, Gokul Srinivasan, Fotini Setaki
 Institute of Informatics and Telecommunications (NCSR Demokritos), Athens, Greece
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An open source 5G experimentation testbed

Panos Matzakos, Harilaos Koumaras, Dimitris Tsolkas, Maria Christopoulou, George K Xilouris and Florian Kaltenberger
 Institute of Informatics and Telecommunications (NCSR Demokritos), Athens, Greece
 matzakos@infocomm.ntt.gr, makropoulos@infocomm.ntt.gr, tsolkas@infocomm.ntt.gr, christopoulou@infocomm.ntt.gr, xilouris@infocomm.ntt.gr, kaltenberger@infocomm.ntt.gr

Metrics-based Outlier Detection for 5G security

Athanasios Priovolos, Dimitris Lioprasitis, Georgios Gardikis, Socrates Costicoglou
 R&D Department
 Space Hellas S.A., Athens, Greece
 (priovolos,lioprasitis,gar,coscoglou}@space.gr





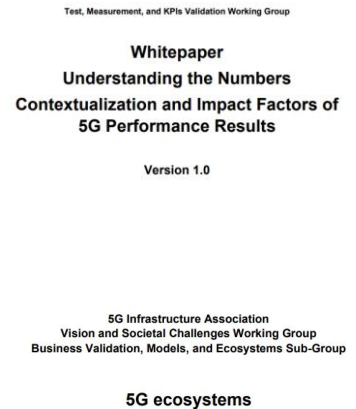
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White Papers

5GENESIS partners Almudenia Diaz (UMA) and Dimitrios Tsolkas (FOGUS) have contributed to the 5G-PPP white paper through their participation on the TMV WG, entitled “Understanding the Numbers - Contextualization and Impact Factors of 5G Performance Results” You may access it and read it online here: <https://5g-ppp.eu/wp-content/uploads/2021/08/TMV-Results-Explanation-White-Paper-V1.0.pdf>

5GENESIS partners INTEL and FOGUS have contributed to the 5G-PPP white paper entitled "5G Ecosystems" by 5G Infrastructure Association Vision and Societal Challenges Working Group Business Validation, Models, and Ecosystems Sub-Group. You may access the white paper and learn more here: <https://5g-ppp.eu/white-paper-by-the-5g-ia-vision-and-societal-challenges-working-group/>



Presentations/ Webinars

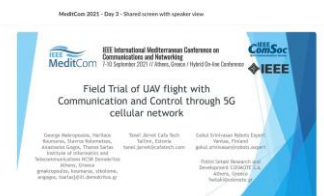
1st Athens Space and Satellite Industry Summit

5GENESIS partner Georgios Gardikis (Space Hellas) presented the 5GENESIS activities around Satcom & 5G during the 1st Athens Space and Satellite Industry Summit (7-8 July 2021). You may learn more about the event here: <https://space-satellite.e-expo.gr/>

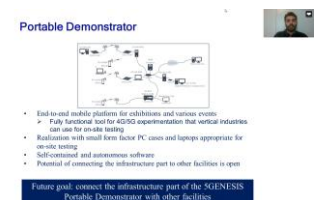


IEEE MeditCom 2021

George Makropoulos (NCSR) 5GENESIS partner, presented during a special session, the conference paper entitled “Field Trial of UAV flight with Communication and Control through 5G cellular network” during IEEE MeditCom 2021. You may learn more about the presentation here: <https://meditcom2021.ieee-meditcom.org/program/special-sessions/>



NCSR Demokritos 5GENESIS partner, presented during a special session, the conference paper entitled “An open source 5G experimentation testbed” during IEEE MeditCom 2021. You may learn more about the presentation here: <https://meditcom2021.ieee-meditcom.org/program/special-sessions/>



5GIA-TSDSI Online webinar on 5G Tests and Pilots

UMA, 5GENESIS project partner, presented a video showcasing the trials conducted in the Malaga 5GENESIS platform, during the 5G Smart City session, providing also a quick overview of the rest 5GENESIS project activities and trials. You may learn more about the event here:

https://5g-ppp.eu/event/5gia-tdsdi-online-webinar-on-5g-tests-and-pilots/?fbclid=IwAR2JfKLCTusCP2_LN0yHPh94nPEs4RU-19hQ-0rwXL61mYo0eyNfbqhsULE



Deployment of 5G Experiments on Underserved Areas Using the Open5GENESIS Suite

This presentation showed how the Open5GENESIS suite can be used for executing 5G experiments at rural and underserved areas, integrating technologies such as edge computing and satellite backhaul. The presentation took place at the context of IEEE SmartNets, 22-23 September 2021, Glasgow, Scotland by the 5GENESIS Limassol platform team of Alejandro Fornes-Leal, Regel Gonzalez-Usach, Carlos E. Palau, Manuel Esteve, Dimitris Lioprasitis, Athanasios Priovolos, Georgios Gardikis, Spyros Pantazis, Socrates Costicoglou, Andreas Perentos, Eleftheria Hadjoannou, Michael Georgiades and Alexander Phinikarides. The use case considered is a smart farming application for weed detection, realized by means of Virtualized Network Functions (VNFs) and tailored functions. The 5GENESIS experimentation methodology was presented, showing its flexibility for orchestrating, managing, and retrieving metrics of this particular experiment. You may find a research paper related to the presentation here:

<https://5genesis.eu/wp-content/uploads/2021/09/Deployment-of-5G-Experiments-on-Underserved-Areas-Using-the-Open5GENESIS-Suite.pdf>



Leaflet and Video Session

5GENESIS project provided leaflet and demo video for the Mobile Working Congress 2021 5G-PPP dedicated webpage. The video was about the trials conducted in the Athens 5GENESIS 5G platform. You may learn more by accessing the 5GPPP MWC2021 page here: <https://www.mwcbarcelona.com/exhibitors/5g-public-private-partnership-5g-ppp>



Demonstration Video

A Demo of satellite edge computing, as implemented in the Limassol platform of 5GENESIS project presented by Space Hellas and supported by Primetel PLC, Avanti Communications and UP Valencia during the IEEE MeditCom 2021 (International Mediterranean Conference on Communications and Networking), 7-10 September 2021, Athens, Greece You may watch the video in the 5GENESIS YouTube channel here: https://www.youtube.com/watch?v=cesMJ_URrCM&t=33s



Do not forget to subscribe to 5GENESIS YouTube channel!

5G-PPP Activities

INFOLYSiS, 5GENESIS partner and SME WG member, attended on behalf of 5GENESIS the workshop on 5G, Edge Computing and IoT topics organised by the NetworkEurope SME Working Group and the SME WG-European Digital SME Alliance on 16th of September 2021.



5G-PPP Newsletter Issue 25

The latest Newsletter issue (July - August 2021) of 5g-ppp is available online at the 5G-PPP website:

<https://5g-ppp.eu/newsletter-25-july-august-2021/>

5G-PPP Newsflash issues

The latest newsflash issues of the 5g-ppp are available here:

- Newsflash Issue 61 (June 2021):
<https://5g-ppp.eu/newsflash-june-2021/>
- Newsflash Issue 62 (July 2021):
<https://5g-ppp.eu/newsflash-july-2021/>
- Newsflash Issue 63 (August 2021):
<https://5g-ppp.eu/newsflash-august-2021/>



Submitted Deliverables

Deliverables - Period July – September 2021 (M37-M39)

D4.3 The Athens Platform (Release C) (M37): Provides an updated summary of each of the components/sites that will form the Athens Platform. It will describe in detail the architecture, the functional components and the interfaces of the Athens Platform.

D4.6 The Malaga Platform (Release C) (M39): Provides an updated summary of each of the components/sites that will form the Malaga Platform. It will describe in detail the architecture, the functional components and the interfaces of the Malaga Platform.

D4.9 The Limassol Platform (Release C) (M37): Provides an updated summary of each of the components/sites that will form the Limassol Platform. It will describe in detail the architecture, the functional components and the interfaces of the Limassol Platform.

D4.12 The Surrey Platform (Release C) (M37): Provides an updated summary of each of the components/sites that will form the Surrey Platform. It will describe in detail the architecture, the functional components and the interfaces of the Surrey Platform.

D4.15 The Berlin Platform (Release C) (M39): Provides an updated summary of each of the components/sites that will form the Berlin Platform. It will describe in detail the architecture, the functional components and the interfaces of the Berlin Platform.

D4.18 Portable 5G Demonstrator (Release C) (M37): This deliverable provides an updated summary of each of the components/sites that will form the portable demonstrator of the 5GENESIS. It will describe in detail the architecture, the functional components and the interfaces of the portable demonstrator.

D5.4 Documentation and supporting material for 5G stakeholders (Release C) (M38): Final report on a complete guide for the provided facility in a multi-perspective approach including technical description and user's manual.

Upcoming Deliverables

Upcoming Deliverables - Period October – December 2021 (M40-M42)

D6.4 Multiplatform trial and interworking experimentation (M42): This deliverable will include the execution of experiments which involve the 5GENESIS facility as a whole, i.e., involving several interconnected platforms, in order to validate the interoperability of the 5GENESIS platform and access the developed east/west-bound open APIs developed in the project.

D7.4 Dissemination, communication and ecosystem engagement activities report (M42): Dissemination, communication and ecosystem engagement activities including 5GPPP contributions and synergies the other research projects.

D7.7 Standardisation and regulation (Report C) (M42): This report will elaborate on the achieved results w.r.t standards and regulatory bodies engagements, and it will be released in annual basis.

D7.10 Innovation and exploitation activities (Report C) (M42): Report of the innovation program run within the consortium. A plan of the activities till project end will be created.



Deliverables

5GENESIS and 5G!Drones Joint Trials

The 5GENESIS Athens 5G experimental platform was used by the ICT-19 5GDrones project for supporting its UC4 (Connectivity during crowded events) trials at COSMOTE Academy premises in Athens Greece (28 June - 2 July 2021). UAV flights and 5G KPIs were analysed under different flight scenarios and the 5GENESIS Athens platform services were showcased.



Communication Channels



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Platforms Contact Information

5GENESIS Athens Platform: athens@5genesis.eu

5GENESIS Malaga Platform: malaga@5genesis.eu

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5GENESIS Surrey Platform: surrey@5genesis.eu