5G!DRONES NEWSLETTER (SEPTEMBER - NOVEMBER 2022) – ISSUE 14

Unmanned Aerial Vehicle Vertical Applications' Trials Leveraging Advanced 5G Facilities

ISSUE HIGHLIGHTS

The 14th issue of the 5G!Drones newsletter presents the project activities during the period September – November 2022. This last issue focuses on the latest 5G!Drones dissemination and communication activities, the 5G!Drones webinars the final trials performed, the 5G!Drones showcasing event, the submitted deliverables, as well as the final GA meeting.

5G!Drones activities in numbers:

- 6 Journal-Conference Papers
- 1 Webinar
- 4 Trials and the respective videos
- 1 Showcasing Event
- 6 Submitted Deliverables
- 11th 5G!Drones General Assembly

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DISSEMINATION AND COMMUNICATION ACTIVITIES

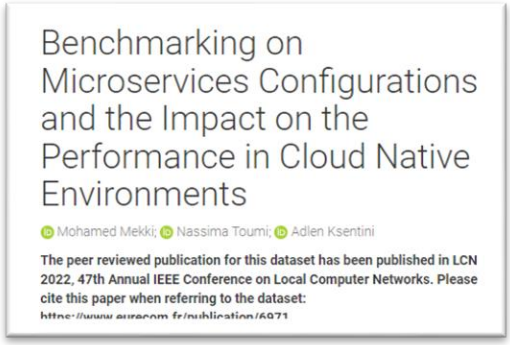
JOURNAL AND CONFERENCE PAPERS

The 5G!Drones journal paper by Y. Dang, C. Benzaid, B. Yang, T. Taleb, and Y. Shen, entitled "Deep Ensemble Learning based GPS Spoofing Detection for Cellular-Connected UAVs", was accepted in IEEE IoT journal and is available here: https://5gdrones.eu/wp-content/uploads/2022/09/Deep_Ensemble_Learning_based_GPS_Spoofing_Detection_for_Cellular_Connected_UAVs__Final_.pdf


Deep Ensemble Learning based GPS Spoofing Detection for Cellular-Connected UAVs

Yongchao Dang, Chafika Benzaid, Bin Yang, Tarik Taleb, *Senior Member, IEEE,* and Yulong Shen, *Member, IEEE*

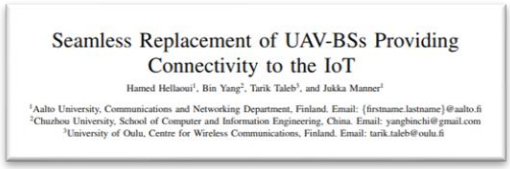
The 5G!Drones conference paper entitled "Benchmarking on Microservices Configurations and the Impact on the Performance in Cloud Native Environments", by EURECOM partners, Mohamed Mekki, Nassima Toumi, Adlen Ksentini was accepted in 47th Annual IEEE Conference on Local Computer Networks, Edmonton, Canada, 26-28 September 2022 You may find it here: https://zenodo.org/record/6907619#.Y4YfGXZBxD_


Benchmarking on Microservices Configurations and the Impact on the Performance in Cloud Native Environments

Mohamed Mekki; Nassima Toumi; Adlen Ksentini

The peer reviewed publication for this dataset has been published in LCN 2022, 47th Annual IEEE Conference on Local Computer Networks. Please cite this paper when referring to the dataset:

The 5G!Drones conference paper entitled "Seamless Replacement of UAV-BSs Providing Connectivity to the IoT" by H. Hellaoui, B. Yang, T. Taleb, and J. Manner, has been accepted in IEEE Globecom'22, which will take place on December 2022. You may learn more here: https://5gdrones.eu/wp-content/uploads/2022/09/Seamless-Replacement-of-UAV-BSs-Providing.pdf


Seamless Replacement of UAV-BSs Providing Connectivity to the IoT

Hamed Hellaoui[1], Bin Yang[2], Tarik Taleb[3], and Jukka Manner[1]

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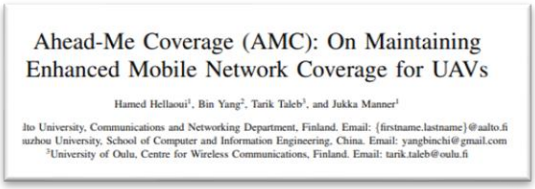
[2]Chuzhou University, School of Computer and Information Engineering, China. Email: yangbinchi@gmail.com
[3]University of Oulu, Centre for Wireless Communications, Finland. Email: tarik.taleb@oulu.fi

The 5G!Drones conference paper entitled "Ahead-Me Coverage (AMC): On Maintaining Enhanced Mobile Network Coverage for UAVs" by H. Hellaoui, B. Yang, T. Taleb, and J. Manner, has been accepted in IEEE Globecom'22, which will take place on December 2022. You may learn more here: https://5gdrones.eu/wp-content/uploads/2022/09/Ahead-Me-Coverage-AMC-On-Maintaining.pdf


Ahead-Me Coverage (AMC): On Maintaining Enhanced Mobile Network Coverage for UAVs

Hamed Hellaoui[1], Bin Yang[2], Tarik Taleb[3], and Jukka Manner[1]

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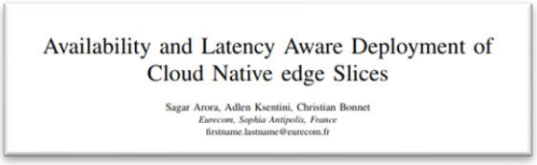
Availability and Latency Aware Deployment of Cloud Native edge Slices

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Eurecom, Sophia Antipolis, France
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On using Deep Reinforcement Learning to reduce Uplink Latency for uRLLC services

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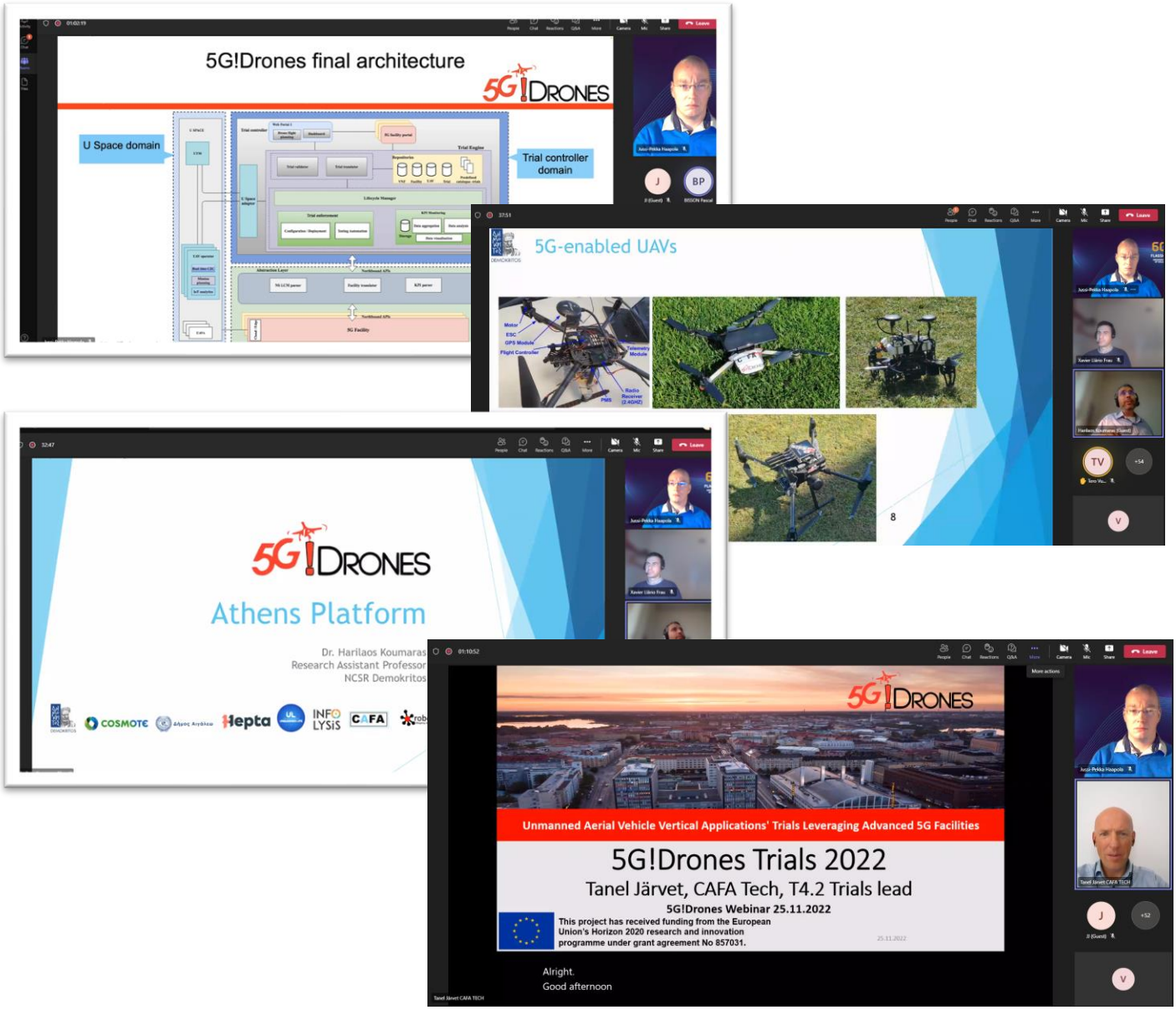
More information on 5G!Drones publications is available online at 5G!Drones website at: https://5gdrones.eu/research-papers/

5G!DRONES WEBINAR

The 5G!Drones webinar took place on November 25th 2022. In this webinar of the project, the members of the consortium presented the findings of the project and the use case outcomes to both external and internal stakeholders. The audience had also the chance to make questions to the project's members.



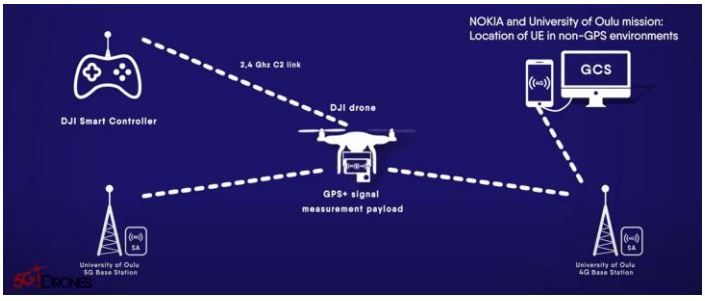
TRIALS

AALTO UNIVERSITY TRIALS

On Thursday 18 August 2022, 5G!Drones project partners conducted the final trials at Aalto University with the following scenarios: UC1Sc1 UTM, UC1Sc3 Logistics, UC3Sc2 IoT sensing. **Involved partners:** Aalto University, CAFA Tech, Involi, Frequentis, DroneRadar, RobotsExpert. You may find the video from Aalto University trials here: https://www.youtube.com/watch?v=SV08OFkAGPk

OULU UNIVERSITY TRIALS

5G!Drones project performed the final trials of Oulu platform and showcased its findings at the University of Oulu campus (22-26 August 2022). Use cases tested: UC1Sc1,UC1Sc2, UC2Sc2, UC3SC1 UC3Sc3. **Involved partners:** University of Oulu, CAFA Tech, Alerion, Hepta, Nokia, Involi and FLE. You may find more information in the Oulu final trials video here: https://www.youtube.com/watch?v=9sWQXDp3YEw



ATHENS PLATFORM TRIALS

5G!Drones project performed the final trials of Athens platform and showcased its findings at the Egaleo stadium (5-9 September 2022). The use case #4 was tested: Connectivity during crowded events. **Involved partners:** NCSRD, Cosmote, INFOLYSIS, MoE, CAFA Tech, Hepta, UML, Frequentis and RobotsExpert.

More information available in the News section and 5G!Drones social media. You may learn more by watching the related 5G!Drones YouTube videos about Athens trials: https://www.youtube.com/watch?v=5j2dh02jExM, https://www.youtube.com/watch?v=-LLJbj19Bx4&t and the final debriefing interviews video https://www.youtube.com/watch?v=e9vEJpfhovU

EURECOM TRIALS

5G!Drones project final trials in France were executed at EURECOM premises, on 16th and 17th September 2022! 5G fully automated drone flight controlled by a C2 container located on Eurecom's MEC server and UC2Sc1 were tested. Participating partners EUR, CAF, INV, AIR, FRQ and UO. More information coming soon in the News section and 5G!Drones social media.

You may find more information in the 5G!Drones YouTube channel here:
https://www.youtube.com/watch?v=0QMquQOIJlY & https://www.youtube.com/watch?v=8NvExnbb33M

SHOWCASING EVENT

On September 8th the 5G!Drones Athens showcasing event took place in Egaleo stadium in Athens. The day started with presentations by 5G!Drones partners and then a demonstration event took place on the field of the stadium in front of public audience!

SUBMITTED DELIVERABLES

D1.7 Final report on UAV business and regulatory ecosystem and the role of 5G - M42: Updated version of D1.4, taking into account market changes and insight from the results of the trials

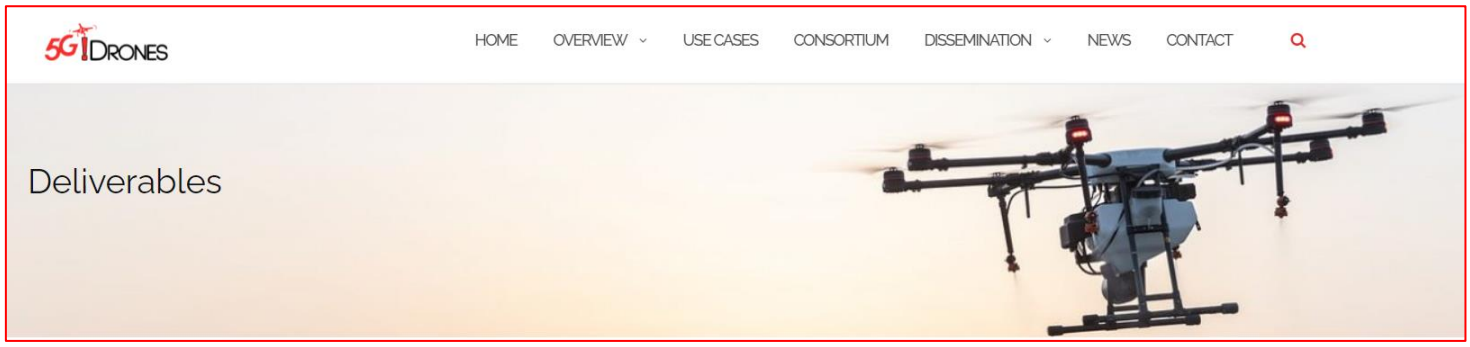
D4.4 Trial evaluation report – M42: This deliverable summarises the findings of the 5G!Drones trials; it includes qualitative and quantitative results, reporting on the impact of the trials, the feedback received by different communities of stakeholders and the service level gain of using 5G communication with respect to the identified KPIs and metrics.

D5.4 Report on contribution to standardisation and international fora- 2nd Version - M42: This deliverable reports on the standardisation activities achieved during the whole project duration.

D5.5 Final report on communication, showcasing, dissemination and exploitation - M42: This deliverable reports on the achievements of the project in terms of communication, showcasing, dissemination and exploitation.

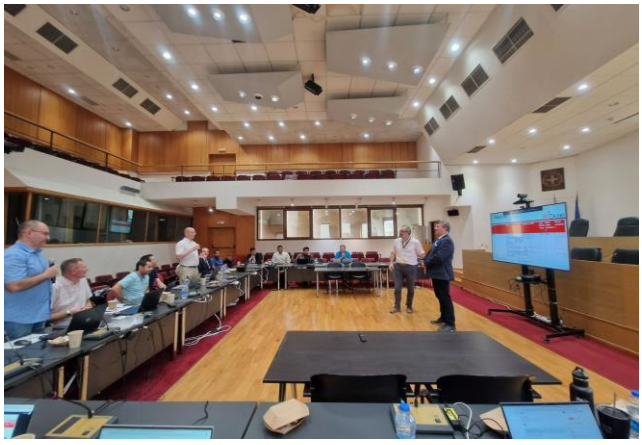
D5.6 Report on activities related to commercial exploitation and partnership development - M42: This deliverable describes the activities performed and results achieved with (a) the collaboration within the scientific communities, (b) the investigation of possibilities for the commercial exploitation, and (c) the collaboration with international innovation communities in the area of 5G communication. This deliverable report on the stakeholders' partnerships that have been developed and the agreements made. A business plan will be structured to sustain the outcomes beyond the life of the project.

D6.6 Final project report - M42: The closing report of the project containing all the project results and their evaluation



11TH 5G!Drones GENERAL ASSEMBLY (5-7 OCTOBER 2022)

The 11th 5G!Drones face-to-face GA meeting took place on the 5th,6th and 7th of October 2022, in Egaleo, Athens, Greece and lasted three full days. During the final meeting of the project, WPs progress and activities were presented. Also, upcoming deliverables and the technical specifications of the project were discussed with focus on the final period activities and trials. On the second day of the meeting the discussion was focused on trials planning and administrative issues. Also, the mayor of Municipality of Egaleo Mr. Ioannis Gikas gave a warm salute to the participants of the meeting!



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Type of action: R&I
Duration: 42 Months
Start date: 1/6/2019