

PAINLESS

An innovative training network (ITN) on
Energy-autonomous portable access points for
infrastructure-less networks

NEWSLETTER DATE
June 2020



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 812991

PAINLESS training aims to provide a structured scientific framework for the ESRs to collaboratively develop research in the area of advanced wireless distribution systems, exploiting knowledge in both scientific and soft-skills.

Our training includes both core technical skills, exposing the researcher to different technical areas, and transferable skills covering a broad range of commercial and social skills vital to enhance career prospective in both academic and non-academic sectors.

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PAINLESS RESEARCH PROJECTS' UPDATES

PAINLESS has recently conducted its second Summer School hosted by UCL in London

Due to the COVID19 pandemic our summer school was virtual this year and was freely open to the public.

It included several world-renowned speakers who covered state of the art in wireless communications and some of the fundamental mathematical tools underpinning it.

Our School was well received with over 200 registered attendants from cross the globe.

Please check out our video recordings on our website and on youtube!

PAINLESS Summer School Speakers**Professor Lajos Hanzo**

Professor Lajos Hanzo , (University of Southampton, UK)

Professor Hanzo provided a comprehensive overview on Integrated Ground-Air-Space Networking with particular focus on Aeronautical Ad-Hoc Networking (AANET) scenarios and discussed the latest results and measurements in this area.

**Dr Fecerico Boccardi**

Dr Fecerico Boccardi (Ofcom, UK)

Dr Boccardi focused on opportunities for innovation at the boundaries between technology and policy process.

**Dr Oliver Blume**

Dr Oliver Blume (Nokia Bell Labs, Germany)

Dr Blume talked about Energy efficiency in cellular networks and summarized the main findings of the Greentouch international project on green energy networks.

**Dr Gunduz Deniz**

Dr Gunduz Deniz, (Imperial College London, UK)

Dr Deniz provided an overview tutorial on Energy Harvesting Wireless Communication Networks in which he covered many of the fundamental concepts in this area including some of his own research results and findings.

**Professor Marco di Renzo**

Professor Marco di Renzo (CNRS, France)

Professor di Renzo provided two tutorials, one on the fundamentals of stochastic geometry and its application in cellular networks with focus on energy efficiency optimisation, and the second on the topic of model aided deep learning.

**Dr Alvaro Valcarce**

Dr Alvaro Valcarce (Nokia Bell Labs, France)

Dr Valcarce focussed on the application of machine Learning in communication systems particularly on the topic of network performance optimisation via the MAC and PHY layers.

PAINLESS Summer School Speakers



Dr Laura Toni

Dr Laura Toni (University College of London, UK)

Dr Toni provided a tutorial on the fundamentals of artificial intelligence and machine learning within the context of intelligent network communications.



Mr Tim Grout-Smith Ms Lily Poberezhska

Mr Tim Grout-Smith & Ms Lily Poberezhska, (University College of London, UK)

Mr Grout-Smith and Ms Poberezhska provided training on how to use the general media to effectively publicise your research.

Here are some pictures from this event to share

The screenshot displays a Cisco Webex Events interface. At the top, the title bar reads "Cisco Webex Events". Below it, a menu bar includes "File", "Edit", "Share", "View", "Communicate", "Participant", "Event", and "Help". A row of video thumbnails shows participants: Lorenzo Galati Giordani (Host), Constantinos Papadias, Federico Boccardi, Izzat Darwazah, and Oliver Blume. The main content area shows a presentation slide titled "A unique institute built on a rich history" with a UCL logo and a lightbulb image. The slide also mentions "From this day GUIGLIELMO MARCONI made the first Public transmission of wireless signals on 27 July 1896". On the right, a "Participants (81)" list is visible, including Chris Masouros, Lorenzo Galati Giordani (Host), Izzat Darwazah, and others. The bottom of the interface shows a toolbar with icons for mute, video, chat, and other functions, along with a system tray at the very bottom.

Here are some pictures from this event to share

Cisco Webex Events

File Edit Share View Communicate Participant Event Help

Participants (93)

Search

CP Constantinos Papadias
EC Eloise de Carvalho
FB Federico Boccardi

Q&A

All (2)

Osama Altuaymi - 08:56
Q: I was wondering if this event will be recorded and if it will be recorded how can I access the records

Salah Almaghthawi - 09:03
Q: Hello! has the session started yet?

Select a question and then type your answer here. There's a 256-character limit.

Send Send Privately...

A Next-Generation Vision

- With Optional UL/DL and Data/Control Plane Decoupling and latency/integrity classes
- Aeronautical Ad Hoc Networking for the Internet-Above-the-Clouds, Zha Chen, Zhong, Wang, Zhang, Zuo, Maunder & Hanzo, Proc. of the IEEE

©Hanzo, ECS, Univ. of Southampton, UK <http://www-mobile.ecs.soton.ac.uk> 16/58

Cisco Webex Events

File Edit Share View Communicate Participant Event Help

Participants (96)

Q&A

All (3) My Q&A (1)

Yusuf Nur Wijayanto - 09:57
Q: could the panelists share their slide or maybe some recorded lecture later. thank you

Christos Masouros - 10:04
A: hello, yes the slides and videos will be shared on our website www.painless-itn.com, soon after the summer school

Select a question and then type your answer here. There's a 256-character limit.

Send Send Privately...

Our main actions to enable mobile services for everyone

1. Open up access to spectrum
2. Lower the barriers for innovation
3. Improve connectivity in hard-to-reach places
4. Ensure strong and secure networks
5. Build global consensus
6. Emerging technology programme

PROMOTING CHOICE • SECURING STANDARDS • PREVENTING HARM

Here are some pictures from this event to share

File Edit Share View Communicate Participant Event Help

○
Viewing Oliver Blume's appli...
□

The Hype Cycle of Energy Efficiency

What is Driving the Surging Research on Energy Efficiency (in Telecommunications) ?

Drivers for new focus on energy efficiency in cellular networks:

- Tough market with high cost of energy (1B\$ / large operator)
- Increasing usage, 5G, Internet of Things, ...
- Limited availability of energy ("off grid")
- Regulation and competitive edge for branding

8 © 2020 Nokia Energy efficiency of cellular networks, 2nd ITN-EU PAINLESS training school, 01.06.2020 NOKIA Bell Labs

Oliver Blume

▼ Participants (97)

Search

	cnrts tos	Participants (97)
CP	Constantinos Papadias	
EC	Eloise de Carvalho	
EA	emad alsusa	
FB	Federico Boccardi	
IK	Ioannis Krikidis	

> Chat

> Q&A

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Cisco Webex Events

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Connect

Model

Typical EHD block diagram

Mathematical model

Introduction

Deniz Gunduz

Participants (89)

Search

PJ Pete James

Attendee: 78 (3 displayed)

SA Salah Alm... ?

FM Francisco ... ?

MA mahdi aba... ?

View all attendees...

Chat

Q&A

97% 13:48 01/06/2020