
From Cloud Robots to 5G/6G enabled Connected Robotics

- 5G-Enhanced Robot Autonomy
Workshop

26th Oct 2023



Abstract

In recent years, there has been a significant advancement in wireless communication technologies. Concurrently, the field of robotics has witnessed rapid progress, particularly in the domain of autonomous mobile robots. With progress achieved in both fields, there is a trend to leverage the connectivity into more intelligent and connected robots “beyond the abilities of a single robot in an interconnected environment (such as the internet)”. The workshop is designed to demonstrate the latest progress of 5G-Enhanced Robot Autonomy on accelerating the transformation from the traditional Cloud Robots to 5G/6G enabled Connected Robotics.

Agenda

Venue: OTE Academy, Athens, Greece

Time (EEST)	Topic
10:00-10:10	Welcome <ul style="list-style-type: none">Ms Christina Lessi (Hellenic Telecommunications Organisation S.A., Greece)
10:10-10:25	Overview & Introduction <ul style="list-style-type: none">Prof Renxi Qiu (Scientific Coordinator of 5G Enhanced Robot Autonomy Project. University of Bedfordshire, UK)
10:25-11:10	Use Cases <ul style="list-style-type: none">5G Enhanced Rescue Robot and its network applications (15 mins) - Mr. Guillem Garí (RobotNik Automation SLL, Spain)Semi-autonomous Transport Robot with Connected Intelligence (15 mins) - Mr. Matúš Kašuba (BringAuto, Czechia)5G Enhanced Manufacturing Services (Kandap 15 mins) – Mr. Kandarp Amin (TWI Ltd, UK)
11:10-11:40	Break
11:40- 13:00	Technical issues <ul style="list-style-type: none">Slicing and Network Function Virtualisation for Robot Applications (10 mins) - Ms Christina Lessi & Prof Renxi QiuTowards Smarter 5G-Connected Mobile Robots: Dynamic Offloading and Radio-Aware Semantic Maps (15 mins) - Dr. Lanfranco Zanzi (NECLab, Germany)Connected Robotics Platform for ROS in an Unstructured Network Environments (15 mins) - Mr. Bartosz Bratus (University of Bedfordshire, UK)From Robot to Cloud: Seamless Transition of Local ROS Applications to Cloud Environment (15 mins) - Dr. Michal Kapinus (Brno University of Technology, Czechia)Teleoperations - Dr. George Agapiou (WINGS) and Dashboard– Ms Georgia Pantelide (eBOS Technologies, Cyprus) (10 mins)Q&A Session (15 mins)

13:00- 13:45	Break
13:45 – 14:45	Booth sessions <ul style="list-style-type: none"> • A reference design for 5G enhanced cloud robotics • Semi-autonomous transport robot with connected intelligence • 5G Enhanced manufacturing process Seminar and tutorials <ul style="list-style-type: none"> • Seminar on 5G-ERA fleet management – Miss Sandra Moreno Olivares (RobotNik Automation SLL, Spain) • Tutorial on security and identity management under Connected Robotics Platform - Mr. Radu Popescu (University of Bedfordshire, UK) • Tutorial on relay network applications and efficient communication - Dr. Michal Kapinus (Brno University of Technology, Czechia)
14:45-15:45	Live demo
15:45-16:00	Closure