



Istituto di Elettronica  
e di Ingegneria  
dell'Informazione e  
delle Telecomunicazioni

# Thursday seminars

**IEIT Youth**



Dr. Andrea Ria (Research fellow)

## **Experimental Assessment of Passive UHF-RFID Sensor Tags for Environment and Kinematic Data**

Radio Frequency Identification (RFID) technology and low power electronic sensors can be combined to build wireless passive sensors which might cover many applications ranging from Internet of Things to Healthcare. This talk presents a multi-perspective overview of RFID-based sensor tags and then proceed to experimentally characterize the sensing capabilities of two commercial fully passive RFID sensor tags for acceleration and relative humidity data acquisition, respectively.



Dr. Emilio Paolini (PhD student)

## **Photonic-Aware Neural Networks**

The energy consumption and footprint for computation and data movement in deep neural networks is becoming a major limiting factor impacting their scalability. Photonic solutions are investigated as an energy-efficient alternative because of the inherent parallelism, the high processing rate with low latency, and the possibility to exploit passive optical elements. However, photonic hardware introduces constraints that need to be taken into accounts. We show that neural network models tailored for the photonic hardware can reach state-of-the-art accuracy on well-known computer vision problems.



Dr. Marco Origlia (PhD student)

## **FPGA acceleration of the information reconciliation for a continuous variable quantum key distribution system**

Information Reconciliation represents one of the tightest bottlenecks in a QKD system. FPGAs can help accelerating this phase. My short talk will be about an FPGA implementation of the encoder-side processing for information reconciliation. Processing is aimed at a CV-QKD system and enables multidimensional reconciliation. The design employs Chisel HDL, a set of Scala libraries, to describe hardware, then simulate and test its behaviour.

[Registration form](#)

Teams Webinar • 27 October 2022 – 17:30

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