**Invited Speaker #1**

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| A person with a mustache  Description automatically generated with low confidence | **\*\*\*\*\***  Professor at Universitat Politècnica de Catalunya  Director of Barcelona Neural Networking  Barcelona, Spain |

**Biography**

Prof. Albert Cabellos (PhD 2008), Full Professor at Universitat Politècnica de Catalunya. In 2019 he co-founded the Barcelona Neural Networking (BNN) Center ([https://bnn.upc.edu](https://bnn.upc.edu/)) where he is the Director. BNN’s has been created with the main goals of carrying fundamental research in the field of Graph Neural Network applied to Computer Networks and educating and training the new generation of students. He has also founded the Open Overlay Router open-source initiative ([http://openorverlayrouter.org](http://openorverlayrouter.org/)) along with Cisco. He has been a visiting researcher at Cisco Systems and Agilent Technologies and a visiting professor at the Royal Institute of Technology (KTH) and the Massachusetts Institute of Technology (MIT), National Institute of Informatics (Tokyo) and UC Berkeley. He has participated in several national, EU (FP7, H2020), USA (NSF) and industrial R&D projects.

**Title: How to build a Network Digital Twin? Simulation vs Emulation vs ML**

**Abstract**

Network Digital Twins (NDT) are a key technology for future telecommunication networks. As exemplifying features, NDT are expected to estimate future traffic load and automatically optimize the network to use minimal resources while fulfilling stringent SLAs. NDT should also be able to predict failures before happening, and take the appropriate actions. Overall, NDT offers unprecedented performance with ultra-efficient use of the hardware resources, resulting in very low CAPEX and OPEX. However, there is a certain lack of specificity in the literature that describes how to build it. In this talk we will describe how we can build a NDT and we will compare different technologies: simulation, emulation and ML techniques as well as the advantages and disadvantages that they provide.