5G pre-commercial trials in Milan (Italy)

Opportunities at the University of Siena (Italy): Positions for graduated Master students and PhD students

The 5th generation wireless systems (**5G**), is an enabling technology for innovative services that will profoundly change, for example, the lifestyle of citizens and the businesses in the next years.

The MISE, the Italian Ministry of Economic Development, has launched in 2017 a call for competition for assigning the **3.7-3.8 GHz** band for 5G experimentation which will have to be completed within four years. The most sought-after city of experimentation, Milan and its metropolitan area, was awarded to **Vodafone**. The Italian non-profit Consortium **CNIT (https://www.cnit.it)**, that will support Vodafone in this activity, is staffing a new team to run and deliver the 5G Trial Program in Milan.

Offered Position: **Research Fellowship** at the Department of Information Engineering, University of Siena, Italy, for graduated **Master students** and **PhD** students.

Research Project: **Optimal Radio Resource Management for the flexible 5G air interface to enable end-to-end vertical slicing in 5G networks.**

Abstract: The process of slicing the core network has already started in late 4G and early 5G, with the aim of creating multiple virtual networks to serve vertical industries and applications in a more cost efficient manner. The trend is expected to continue with the development of vertical slicing in the radio access network and the air interface, that is a fundamental step towards the possibility of enabling vertical end-to-end slicing. However, virtualizing the air interface entails several new challenges in network virtualization because of special properties of air interfaces and medium. On the other hand, the next 5G phases will require an ever increasing network capacity and user experience, as well. Moreover, with the aim of reducing latency, in many future application scenarios it will be desirable to keep sensed data processing and the corresponding decisions and actions local. Hence, the required capacity increase can be higher when closer to a user, which will push the radio access part to its capacity limit. In this scenario, the research activity will be focused on radio resource management optimization, that represents a key issue for the effective realization of the 5G vision.

The most proper candidates for this position are graduated master thesis student and PhD students with technical understanding of **digital communications, wireless networks, and digital signal processing**. Basic knowledge of **machine learning** is also desirable.

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