# POST-DOCTORAL RESEARCHER POSITION
## TOPIC: Network Functions Virtualization (NFV) based Security Management and Orchestration

The Department of Computer Science and Networks at IMT Lille Douai (Villeneuve d'Ascq, France) looks for a post-doctoral researcher working on **Network Functions Virtualization (NFV) based security management and orchestration**.

Context:
Recent years have witnessed the rapid evolution towards next generation networking paradigms, among which Software Defined Networking (SDN) and Network Functions Virtualization (NFV) have attracted tremendous research efforts from both academia and industry. In particular, NFV offers a way to pool and consolidate various network equipment types onto industry standard high volume servers, switches and storage by improving and applying standard IT virtualization technologies. Those servers, switches and storage could be located in different venues, such as cloud datacenters, network nodes and even end user premises, allowing the network operators to architect their networks without using proprietary hardware appliances, and to simply implement the network functions, e.g., network address translation (NAT), firewall, intrusion detection, domain name service (DNS), caching, in software based on those standard server hardware. More interestingly, the hardware infrastructure is transparent to the network operators with respect to locations, and it can be self-organized upon the request of network operators. To date, a large set of use cases have been defined, e.g., network functions virtualization infrastructure (NFVI) as a service, virtual network function as a service (VNFaaS), virtual network platform as a service (VNPaaS), VNF forwarding graphs, virtualization of mobile core network and IMS, virtualization of mobile base station. Despite the promising advantages of NFV, security remains to be one of the major concerns, seriously impeding its further development and deployment. Our SecMANO (NFV based Security Management and Orchestration) project is intended to develop an adaptive and efficient security extension of existing NFV orchestrators such as Cloudify to holistically manage security services on demand and dynamically orchestrate security functions on the fly (i.e., security as a service). To achieve the objectives, we need to get the deep look into the existing NFV orchestrators, develop the effective framework and data models, and finally implement and validate them with the experimental platforms. We are seeking postdoc researcher to contribute to our SecMANO. The researcher will be host by NEPS (Network Performance and Security Group) of IMT Lille Douai, which conducts research on performance and security issues in different types of computer and communication networks and services, with the current focus on Software Defined Networking (SDN), Network Functions Virtualization (NFV), and Cyber-Physical Systems (CPS).

Mission: The candidate will play a key role in leading the SecMANO project sponsored by Orange Labs, in charge of research activities, project deliverables and technical reports, as well as PhD student supervision, etc.

Candidate profile: The candidate is expected to have a PhD degree in computer science or computer engineering, with solid knowledge of computer network architectures and protocols, as well as computer programming. Some background about network security will be highly appreciated.

Condition: This position is expected to be filled ASAP with the duration of 12 months (possibly to be extended).

Candidates who are interested in this position should send by e-mail a CV and a letter of motivation to the address below (One representative publication and a couple of recommendation letters would be appreciated).

M. Zonghua Zhang (zonghua.zhang@imt-lille-douai.fr) ou M. Ahmed Meddahi (ahmed.meddahi@imt-lille-douai.fr)
Department of Computer Science and Networks, IMT Lille Douai
20 Rue Guglielmo Marconi, 59650 Villeneuve-d'Ascq