

Online Franco-African Seminar in Digital Sciences - LIRIMA
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Cyber security: current challenges

Abstract

The digitalization of our society has radically changed the way computer systems are used. A huge proportion of the population is now continuously connected to the Internet, being thus permanently exposed to attacks with potential very important damages. Cybersecurity has thus become a general concern. In this context, this talk provides an overview of research areas in cybersecurity. The first step in cybersecurity is to identify threats and define a corresponding attacker model. Then, protection and detection mechanisms must be designed to defend against these threats. One of the core mechanisms is cryptography. Nevertheless, while cryptographic primitives and protocols are fundamental building blocks for security, additional security services are needed, such as authentication and access control. These security services, usually provided by the operating system or the network devices, can themselves be attacked and sometimes bypassed. Therefore, activities on the information system are monitored in order to detect any violation of the security policy. Finally, as attacks can spread extremely fast, the system must react automatically or at least reconfigure itself to avoid propagating attacks. All these security mechanisms need to be carefully integrated in security-critical applications. These applications include traditional IT systems, but also industrial systems, and of course new distributed infrastructures (cloud, IoT).

Biography

Ludovic Mé was Professeur at Supélec and Centrale Supélec from 1988 to 2017. He is now in secondment at Inria where he is deputy scientific director, in charge of the strategy of the institute relatively to cybersecurity.

His research field mainly focuses on intrusion detection and security supervision, but he has interest in virology, and auto-organized networks (ad hoc, P2P) security. He is author or coauthor of more than sixty national or international publications. He personally advised 15 PhD students (2 on-going) and was also thesis director for 14 additional students.

Ludovic Mé was leader of the Supélec SSIR research team from 1997 to 2011, and of the Inria/Supélec/CNRS/University of Rennes joint research team CIDRE from 2011 to 2016. He was also from 2008 to 2015 in charge for Supélec of the last year major program (master level)

dedicated to information systems security. From January 2015 to February 2019, he was head of science of the Rennes - Bretagne Atlantique Inria research center.

Ludovic Mé is a Supélec alumnus (1987) and doctor of Rennes University (94). He spent in 2001 seven months as a visiting scientist in the "Security Lab" of the University of California (Davis, CA).