

**Abstract:** Recent advances in computer, communication and sensor/actuator technologies hint at an emerging paradigm of computing, popularly referred to as “digital ecosystems”. A Digital Ecosystem is a distributed, open socio-technical system composed of actors and services, with properties of self-organization, scalability and sustainability, inspired by natural ecosystems. A dramatic change of nature has recently affected digital ecosystems which should now be envisioned as multiscale highly heterogeneous systems at the convergence of the Internet of Things (IoT), mobile/ubiquitous computing and cloud/service-oriented computing. That is, future digital ecosystems will have to consider interaction processes that mobilize entities (typically, services) of totally different nature, origin and operational characteristics, from an embedded “thing” to a public cloud. In this talk, we will specifically focus on user-centric, ubiquitous and multi-scale digital ecosystems where users and services alike have (ubiquitous) access to a huge mass of information, produced by the local environment (sensor networks, ad-hoc networks, local servers) or remotely (Web services, distant servers, VPN-accessible private clouds, public clouds). Such digital ecosystems raise complex issues e.g., data indexing and access, data delivery, entities cooperation, scalability. However, the most sensitive issue may certainly be the enforcement of security properties and the preservation of privacy. In that perspective, the objective of this keynote is to draw an overview of security and privacy challenges in multi-scale digital ecosystems; to identify candidate methodologies to address these issues; and finally, to point out the main lines of a research agenda.



**Bio:** [Lionel Brunie](#) is full professor at the National Institute of Applied Sciences (INSA) of Lyon, France, since 1998. After he received his PhD in computer science in 1992 from Joseph Fourier University, Grenoble, France, Lionel Brunie joined Ecole Normale Supérieure of Lyon, France as assistant professor. In 1999, Lionel Brunie created INSA e-learning department that he led until 2002. From 2002 to 2006, he headed the Lyon doctoral school in computer science (300+ registered PhD students). In 2003, Lionel Brunie co-founded the LIRIS lab in which he acted as deputy director in 2006-2007. In 2007, along with Pr Harald Kosch (University of Passau, Germany) and Pr Ernesto Damiani (University of Milan, Italy), Lionel Brunie created the International Doctoral College in “Multimedia Distributed and Pervasive Secure systems (MDPS)”. MDPS proposes both a framework for international co-supervised PhDs and a federative research institute that develops a joint research agenda. MDPS involve ~40 researchers and PhD students. Lionel Brunie leads the LIRIS DRIM research team he founded in 2008 (10 permanent researchers and 15+ PhD students). Over the last 10 years, Lionel Brunie has been involved in 10 EU-funded projects and more than 15 bilateral and international projects. He has been invited to give lectures in Austria, Italy, USA, Germany, Tunisia, Syria and, Ethiopia. Lionel Brunie is the (co-)author of over 180 research papers; he has been member of over 70 scientific conference and workshop committees.