

Dissertation release**31.5.2018**

How to protect your privacy while using cloud-assisted services?

Title of the dissertation	Privacy-Preserving Cloud-Assisted Services
Contents of the dissertation	Despite the benefits of cloud-assisted services, they put users' privacy at risk since the data stored in the cloud and/or the requests submitted to the cloud may contain sensitive information. On the other hand, unless carefully designed, this service paradigm may nonetheless fail to protect the confidentiality of service providers' business assets (e.g., malware databases or machine learning models) against malicious users. This dissertation shows how to leverage cryptographic technologies and trusted execution environments to design cloud-assisted services such that end users can protect their privacy, and if needed, service providers can ensure that their security/privacy requirements are not violated. We provide a general definition for privacy-preserving cloud-assisted services, investigate the privacy issues in three cloud-assisted services: lookup service, prediction service and storage service, and propose solutions on how to make them privacy-preserving.
Field of the dissertation	Computer Science
Doctoral candidate	Jian Liu, M. Sc.
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Place of the defence	Aalto University School of Science, lecture hall T2, Konemiehentie 2, Espoo
Opponent	Professor Dr. Moti Yung, Columbia University, United States
Custos	Professor N. Asokan, Aalto University School of Science, Department of Computer Science
Doctoral candidate's contact information	Jian Liu, Department of Computer Science, +358 504620730, jian.liu@aalto.fi