



RESEARCH SEMINAR

## OpenlaC for Federated Knowledge Cloud Infrastructure and Workflow



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**Date : 23 June 2023 (Fri)**

**Time : 3:00 pm - 4:00 pm**

**Venue : N003**

### Abstract

To address the needs of modern information architectures, the OpenlaC (Open Infrastructure-as-Code) – “The network is my computing”, seeks to augment existing Cloud Computing and networking solutions with support for multiple cloud infrastructures and seamless integration of cloud-based microservices. The OpenlaC initiative seeks to provide a common open forum to integrate and build on advances in cloud computing and blockchain, creating of an open-source hub with fine-grained access control for an open and connected infrastructure of shared resources (sensing, storage, computing, 3D printing, etc.) managed by blockchains and federations, based on the principles of Zero Trust Architecture (ZTA) among the federation of connected resources based on Decentralized Identifiers (DIDs). The initiative has the potential to provide a path for developing new platforms, business models, and a modernized information ecosystem necessary for 5G networks. The OpenlaC has a comprehensive new approach in all OSI layers from layer 2 up to applications that are built on underlying principles that include reproducibility, continuous integration/continuous delivery, auditability, and versioning. There are obvious needs to redesign and optimize the protocols from the network layer to the application layer. The solution includes a blockchain based decentralized and distributed technology for on-the-fly dynamic control framework on shared data as well as computing at edge, allowing a user to trace, retract, remove, and limit sharing of shared content. It gives the digital right and sharing control power back to the data creator, which is often considered as lost once it is shared today. It aims to create balance between data utility and privacy, thus creating a win-win situation between organizations and their customers.

### About the Speaker

Prof. Chunming Rong is the chair of IEEE CS STC on Blockchain and served as co-chair of IEEE Blockchain in 2018. He is also chair of IEEE Cloud Computing. He works as the head of the Data-centered and Secure Computing (DSComputing) at the University of Stavanger (UiS) and as adjunct Senior Scientist leading Big-Data Initiative at NORCE. He is also co-founder and CEO/CTO of two start-ups bitYoga and Dataunitor in Norway, both received EU Seal of Excellence Award in 2018. He was the vice president of CSA Norway Chapter (2016-2017). His research work focuses on data science, cloud computing, security and privacy. He is an IEEE senior member and is honored as member of the Norwegian Academy of Technological Sciences (NTVA) since 2011. He has extensive contact network and projects in both the industry and academic. He is also founder and Steering Chair of IEEE CloudCom conference and workshop series. He is Editors-in-Chief of the Journal of Cloud Computing (ISSN: 2192-113X) by Springer, and co-Editors-in-Chief of the journal “Blockchain: Research and Applications” by Elsevier, has served as the steering chair (2016-2019), and associate editor of the IEEE Transactions on Cloud Computing (TCC) since 2016. He has extensive contact network and projects in both the industry and academic. His research work focuses on cloud computing, data analytics, cyber security and blockchain. Prof. Rong has extensive experience in managing large-scale R&D projects, both in Norway and EU.