

# Convergence of Federated Learning with Communication Distortions

**Dec. 17**  
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**10:30~12:00**  
Engineering  
Building D  
(ED108), NYCU

**Presenter:**

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**Host: Prof. Li-Chun Wang NYCU**

## [ Abstract ]

Federated learning (FL) becomes increasingly attractive in the areas of wireless communications and machine learning due to its powerful learning ability and potential applications. In contrast to other machine learning techniques that seldom require communication resources, FL exploits communications between the central server and the distributed local clients to train and optimize a model. Therefore, efficiently assigning limited communication resources to train a FL model and potential impact of various communication distortions to convergence of the FL model are critical issues. In this talk, we investigate the convergence performance of FL under various communication distortions. After introducing the fundamental tradeoff, we discuss the convergence of FL via inexact ADMM and decentralized FL.

## [ Biography ]

Geoffrey Ye Li (FREng, IEEE Fellow) is currently a Chair Professor at Imperial College London, UK. Before joining Imperial in 2020, he was with Georgia Tech and AT&T Labs – Research (previous AT&T Bell Labs) in USA for 25 years in total. He made fundamental contributions to orthogonal frequency division multiplexing (OFDM) for wireless communications, established a framework on resource cooperation in wireless networks, and introduced deep learning to communications. In these areas, he has published over 700 journal and conference papers in addition to over 40 granted patents. His publications have been cited over 80,000 times with an H-index of 130. He has been listed as a Highly Cited Researcher by Clarivate/Web of Science almost every year. He won 2024 IEEE Eric E. Sumner Award and several awards from IEEE Signal Processing, Vehicular Technology, and Communications Societies, including 2019 IEEE ComSoc Edwin Howard Armstrong Achievement Award.

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