



ACM Transactions on Intelligent Systems and Technology

Special Issue on Federated Learning: Algorithms, Systems, and Applications

Guest Editors:

- **Qiang Yang**, WeBank, Hong Kong University of Science and Technology, qiangyang@webank.com
- **Yongxin Tong**, Beihang University, yxtong@buaa.edu.cn
- **Yang Liu**, WeBank, yangliu@webank.com
- **Yangqiu Song**, Hong Kong University of Science and Technology, yqsong@cse.ust.hk
- **Hao Peng**, Beihang University, penghao@buaa.edu.cn
- **Boi Faltings**, Ecole Polytechnique Federale de Lausanne (EPFL), boi.faltings@epfl.ch

The deep penetration of artificial intelligence (AI) in everyday applications has involved a huge volume of data that requires increasing attention on data privacy and security. Stricter regulations on privacy and security exacerbate the data fragmentation and isolation problem, where data holders are unwilling, or prohibited to share their raw data freely to build AI applications and services. An emerging framework to solve the data fragmentation and isolation problem is federated learning, where each party in the federation only contributes intermediate parameters to AI applications or services without sharing its raw data.

Developing intelligent systems over data federation faces new challenges in AI algorithm design, distributed computing optimization, privacy & security mechanisms, and system implementation. This special issue serves as a forum for researchers and practitioners to present their latest research findings and engineering experiences in the theoretical foundations, empirical studies, and novel applications of federated learning for next-generation intelligent systems.

Topics

Papers are invited in theory, algorithms, systems, and applications of federated learning for various AI tasks to establish the latest efforts of the research in this area. Topics of interest include but are not limited to:

- Federated Machine Learning Models and Paradigms
- Federated Recommended Systems & Information Retrieval
- Optimization Algorithms for Big Data Federation
- Incentive Mechanisms for Federated Learning
- Communication-Efficient Distributed Machine Learning
- Efficient Privacy-Preserving & Secure Machine Learning
- Personalized Federated Machine Learning
- Federated Learning in Edge Computing
- Applications of Federated Learning in Urban Computing
- Applications of Federated Learning in Health-care
- Applications of Federated Learning in Finance
- Applications of Federated Learning in Law & Education
- Applications of Federated Learning in Covid-19

Important Dates

- Submissions deadline: ~~March 31, 2021~~ April 30, 2021
- First-round review decisions: May 31, 2021
- Deadline for revision submissions: June 30, 2021

- Notification of final decisions: August 31, 2021
- Deadline for paper source files: September 20, 2021
- Tentative publication: Late 2021

Submission Information

For questions and further information, please contact **Hao Peng** at penghao@buaa.edu.cn.