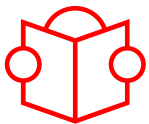

Issa COULIBALY

Mohammed VI Polytechnic University, Morocco



Research field
Informatics

PhD title
**Communication efficient
Scheduling for Federated Learning
with Non-IID Data**



Keywords

- federated learning
- distributed learning
- client selection
- quality of the channel
- bandwidth allocation
- data distribution
- algorithms convergence and complexity

Summary

Federated Learning (FL) is a machine learning technique that preserves the user's privacy by training data locally at devices. However, FL generates heavy communication overheads due to the size of machine learning models. These overheads are particularly critical in constrained networks where participating clients suffer from an unreliable network condition.

In our PhD thesis, we propose algorithms to select devices efficiently, and therefore, reduce the communication overhead. Our selection approaches consider realistic setups and account for multiple selection criteria such as the data distribution, the quality of the channel, and the energy available at devices.



Supervisor
**Prof. Hajar
EL HAMMOUTI**
UM6P, Morocco



Co-supervisor
**Prof. Anne-Marie
KERMARREC**
EPFL