

Incentive-Aware Federated Learning with Training-Time Model Rewards

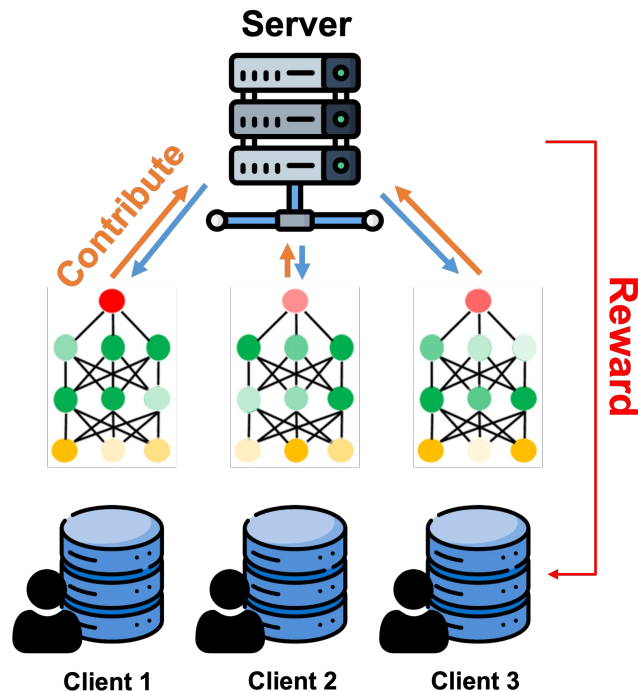
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Motivation

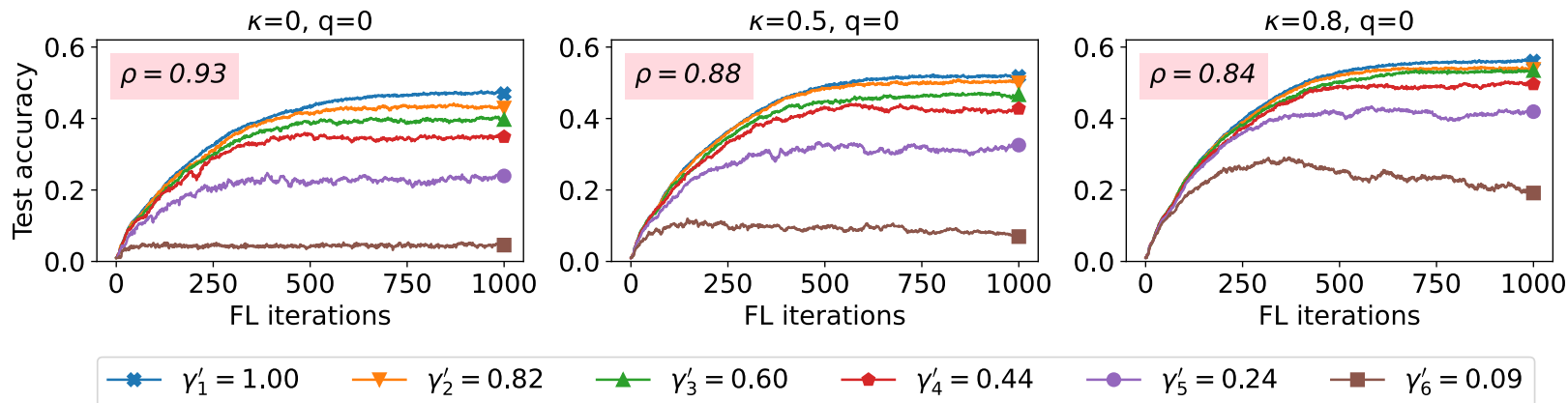
- Importance of incentivization
 - If **reward** does not match **contribution** (contributing data or compute is expensive)
 - Clients might drop out of the learning → worse performance
- Current solutions fall short
 - Monetary rewards require 1) an abundant budget and 2) a clear contribution-to-dollar value denomination
 - Few work have explored model rewards but lack theoretical guarantees



Key breakthroughs

1. Derives a general form of incentive mechanism that incentivizes clients **strictly better** than the standard FL procedure.
2. Proposes a **local model reward** scheme for FL that achieves the **global incentivization objective**.
3. Gives the **first convergence result** for FL with model rewards.

Performance visualization



- Higher the contribution (γ_i'), higher the model performance