

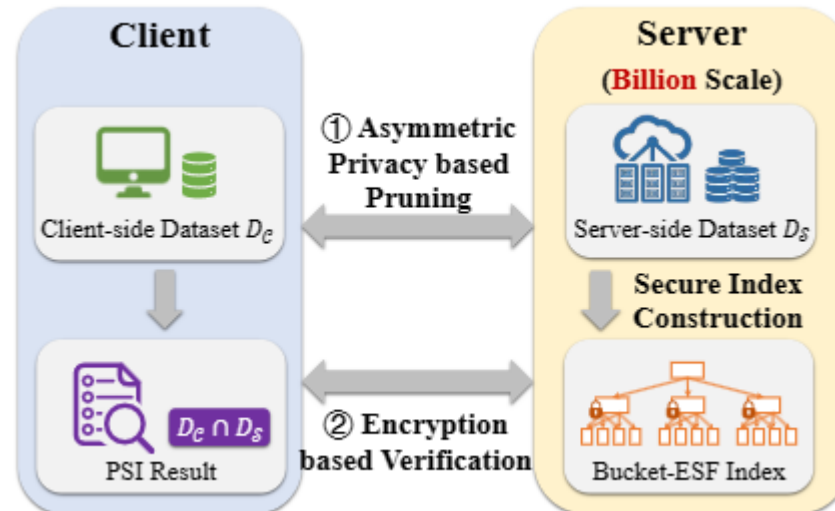
A Survey on Federated Learning: A Perspective from Multi-Party Computation

**Fengxia LIU, Zhiming ZHENG, Yexuan SHI,
Yongxin TONG, Yi ZHANG**

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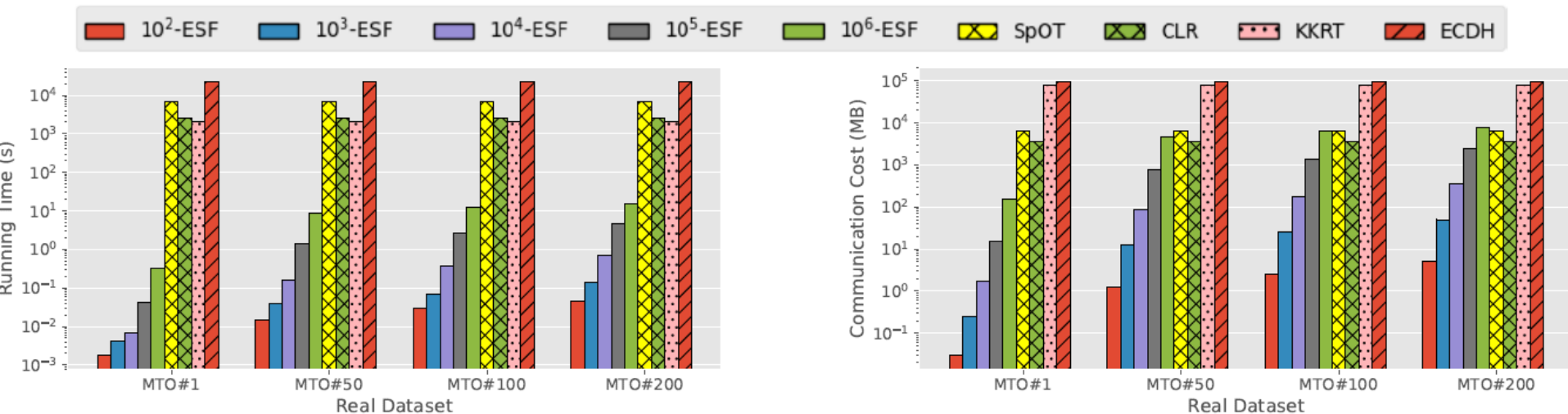
Problems & Ideas

- Problems of Production Federated Learning:
Successful alignment of data across parties is crucial for effective federated learning. This alignment involves harmonizing heterogeneous data from different parties to identify shared data for joint model training.
- Ideas: we propose a new data alignment solution called α -ESF. It incorporates α -indistinguishability, a client-side privacy requirement metric, and Bucket-ESF, a novel PSI-oriented index, to achieve efficient data alignment.



Main Contributions

- Contributions:
 - We utilize α -indistinguishability to quantify and control the client-side privacy requirement in entity alignment. To the best of our knowledge, this is the first work that exploits the asymmetry in privacy requirements to boost the efficiency of entity alignment in federated learning.
 - We design a novel PSI-oriented index called Bucket-ESF for fast entity alignment. It seamlessly integrates the asymmetric privacy, and converts the per-query server-side encoding overhead into a one-off preparation step.



(a) Running time

(b) Communication cost