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To cite this version:
Rania Talbi, Sara Bouchenak. Towards Scalable, Efficient and Privacy Preserving Machine Learning, Middleware ’18 Doctoral Symposium, Dec 2018, Rennes, France. hal-01956155

HAL Id: hal-01956155
https://hal.archives-ouvertes.fr/hal-01956155
Submitted on 14 Dec 2018

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Towards Scalable, Efficient and Privacy Preserving Machine Learning
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2018 ACM/IFIP International Middleware Conference, Doctoral Symposium,
December 10-14th 2018 – Rennes, France

Context and Motivation

Objective

- Minimize the computational costs incurred by privacy preservation.
- Provide an end-to-end privacy preserving outsourced data classification service.
- Enable a set of mutually untrusted data owners to have a global vision on the union of their data without breaching the privacy of each one of them.
- Enable dynamic data model updates when new training data samples are available.

Related work

Different ML algorithms

- Clustering
- Classification

Different Privacy-preservation objectives

- ML output protection
- Original data protection

Design principles

- Decent privacy and utility levels
- Efficient runtime
- Entirely outsourced ML computations over encrypted data

Preliminary results

- We have used a synthetic dataset for fraud detection in a B2B network.
- This dataset contains 1000 bank transactions with 9 attributes each.
- We compare our work to the Ciphermed framework [8].

References