1. Membership Inference

Adversary wants to test whether data of a target victim has been used to train a model

Serious problem if inclusion in training set is privacy-sensitive

E.g., main task is: predict whether a smoker gets cancer

[Shokri et al., S&P'17] show it first for discriminative models

[Hayes et al. PETS'19] for generative models (later)

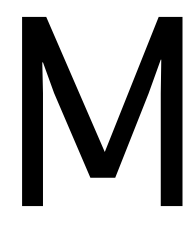
Membership inference is a very active research area, not only in machine learning

3

has been used to train a model

Adversary wants to test whether data of a target victim

only in machine learning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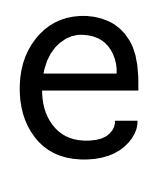


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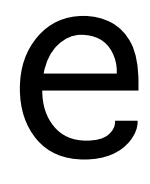

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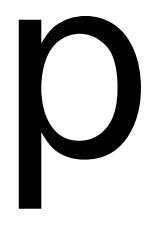

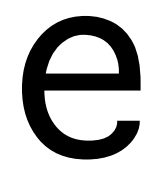

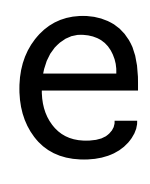

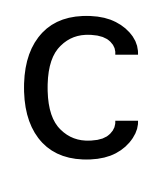
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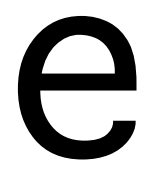

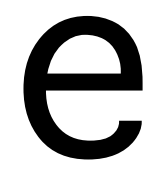

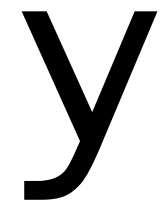


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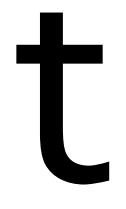

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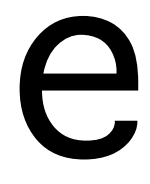

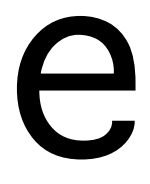

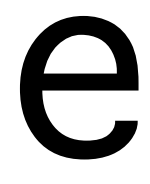

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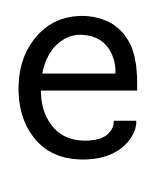
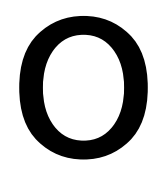
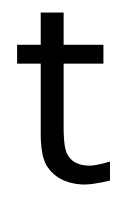
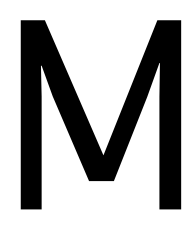
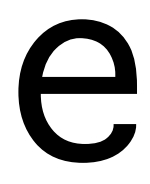






only in machine learning



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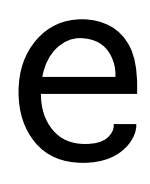

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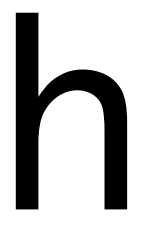

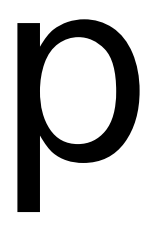

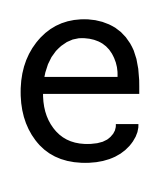

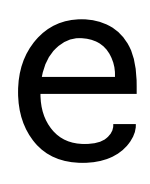

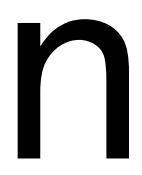

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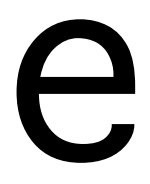

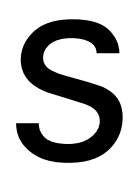

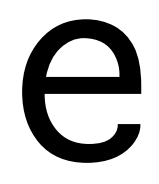

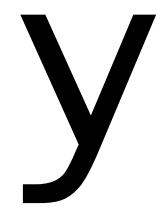

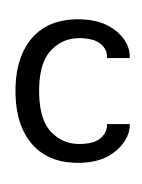
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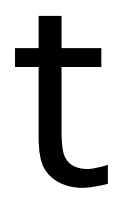

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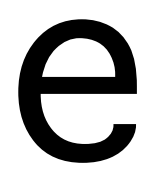

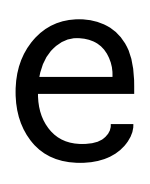

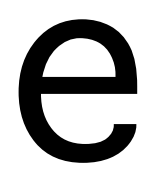

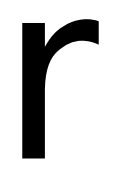

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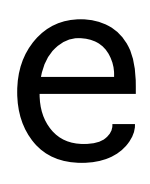

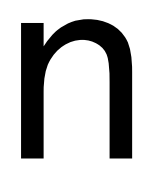

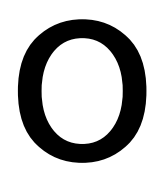

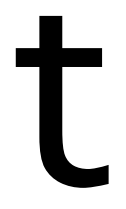


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