A person wearing a suit and tie

Description automatically generated

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**Title 2: Balancing Privacy, Fairness, and Accuracy in Machine Learning Models**

**Abstract**:

Machine learning methods have been used in many areas including loan applications, face recognition, recidivism prediction, and medical applications, etc.. As deep learning models mature, one of the most prescient questions we face when applying deep learning in various applications is: what is the ideal tradeoff between accuracy, fairness, and privacy? Unfortunately, both the privacy and the fairness of a model come at the cost of its accuracy. Hence, an efficient and effective means of fine-tuning the balance between this trinity of needs is critical. We first investigated the issue of trade-off between accuracy and fairness, then we designed two different early stopping criteria to help analysts choose the optimal epoch at which to stop training a model so as to achieve their ideal tradeoff. Extensive experiments show that our methods can achieve an ideal balance between Privacy, Fairness, and Accuracy.