

國立中央大學

統計研究所

學術演講

主 講 人：陳素雲 研究員（中央研究院統計科學研究所）

講 題：**Robust Aggregation for Federated Learning by Minimum gamma-Divergence Estimation**

時 間：111年02月22日（星期二）上午11：00 ~ 12：00

地 點：中央大學鴻經館M429室

茶 會：上午 10：30 ~ 11：00 地 點：鴻經館 510 室

ABSTRACT

Federated learning is a framework for multiple devices or institutions, called local clients, to collaboratively train a global model without sharing their data. For federated learning with a central server, an aggregation algorithm integrates model information sent from local clients to update the parameters for a global model. Sample mean is the simplest and most commonly used aggregation method. However, it is not robust under the Byzantine problem, where Byzantine clients send malicious messages to interfere with the learning process. Some robust aggregation methods were introduced in literature including marginal median, geometric median and trimmed-mean. In this article, we propose an alternative robust aggregation method, named gamma-mean, which is the minimum divergence estimation based on a robust density power divergence. This gamma-mean aggregation mitigates the influence of Byzantine clients by assigning less weights. This weighting scheme is data-driven. Theoretical properties and numerical results are presented.

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