Federated Learning Paper Sharing

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November 20, 2020

FedOpt: Towards Communication Efficiency and Privacy Preservation in Federated Learning

Sparse Compression Algorithm

Goal: reduce the number of communication bits during the models training.

$$\Delta\theta = \mathcal{SGD}_n(\theta, D_{mini-batches}) - \theta$$

θ: Deep Neural Network parameters.
$\mathcal{SGD}_n$: refers to the set of gradient updates after n epochs of SGD on DNN (deep neural network) parameters θ during the sampling of mini-batches from local data
Once we have the updates δv...

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Input: temporal vector $\Delta\theta$, Sparsity Fraction q

Output: sparse temporal $\Delta\theta^*$

Initialization;

$num^+ \leftarrow top_q(\Delta\theta); num^- \leftarrow top_q(-\Delta\theta);$

$\Psi^+ \leftarrow$

Algorithm 1: SCA: Communication Efficiency in FedOpt

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