# Core Fundamentals of Federated Learning and Machine Unlearning - Week 3

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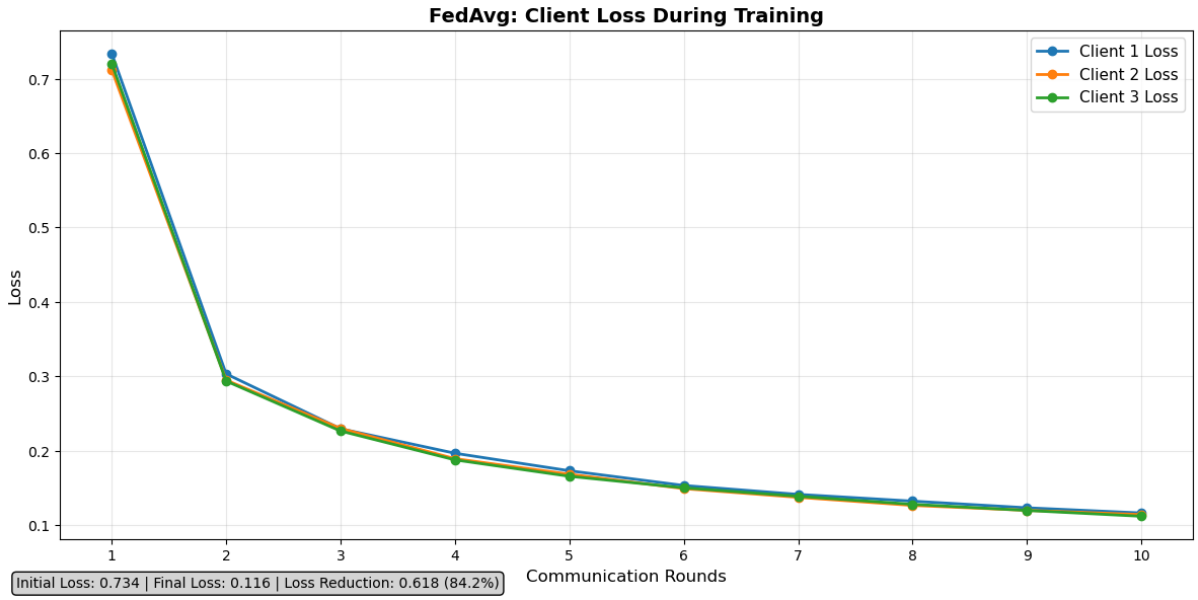
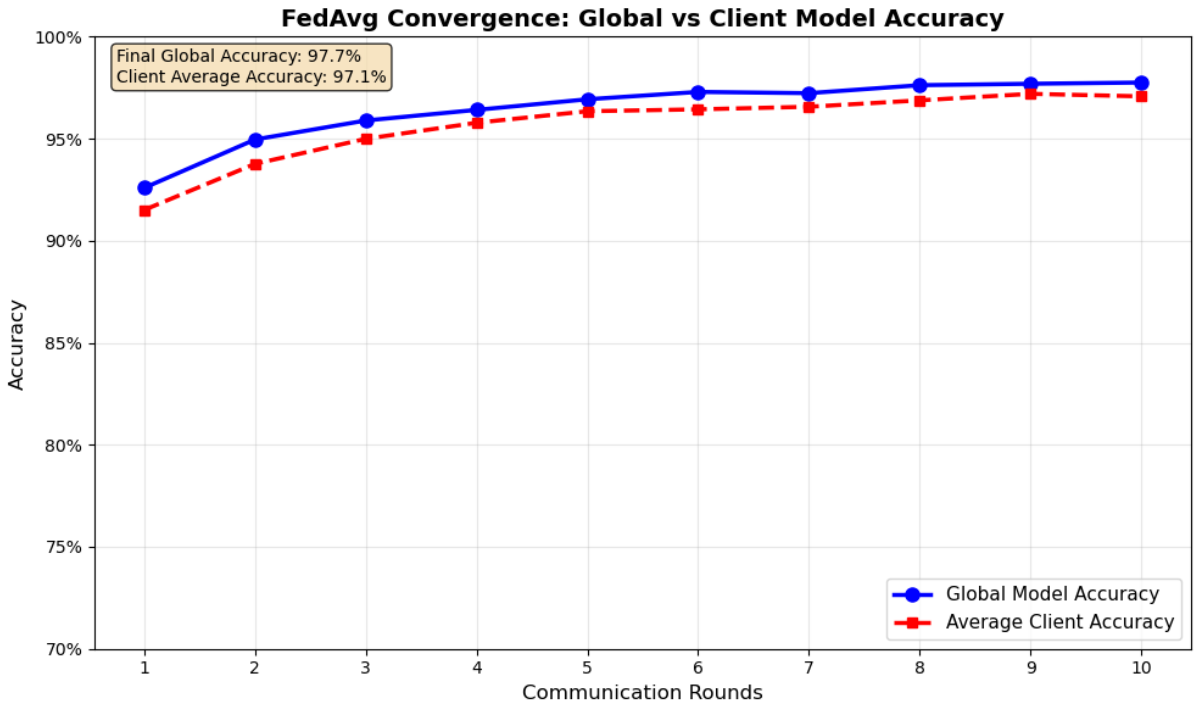
## FedAvg Loss Analysis




Loss of the model using a FedAvg algorithm on MNIST with three clients, two local epochs and ten communication rounds.

The graph displays the success of the FedAvg implementation, showing a final model loss of 0.116, which represents a substantial 84.2% reduction from the initial loss. This demonstrates that the FedAvg algorithm efficiently aggregates learning from all clients to build a robust global model. However, it may be possible to lower the loss further by increasing the number of communication rounds.

# FedAvg Convergence Analysis




Accuracy of the global model after convergence compared to the average accuracy of three clients before convergence.

This graph visualises the global model accuracy being consistently higher than the average client accuracy. This displays that the global model consistently outperforms the local models, as it aggregates the learning of the separate models that have different arrays of private data. It effectively synthesizes the learned patterns from all clients into a more robust and generalizable model.