

IRGF Final Report

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Project Title: Studying Performance of Split and Federated Distributed Machine Learning Models

1.1 Project Summary

We studied the performance of distributed ML models under various configurations. We did empirical study with various cut layer settings. We developed a code repository as part of this project.

1.2 Student involvement

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1.3 Dissemination and Knowledge Mobilization

We presented the results of this work at: 1) YYC Data Con - during student poster presentation session 2) NOMS Conference - during the 5th IEEE/IFIP International Workshop on Internet of Things Management (manage-IoT 2025). (Presented and published) Both of the above work are co-authored by my student RA. With the additional support through USRA, we were able to expand the study beyond the scope that was originally proposed and also increase the number of presentations/publications beyond the original proposal and are planning to submit an additional manuscript related to this project. My RA is the co-author of this paper.

1.4 Project Outcomes and Impacts

Distributed ML models are needed for brining ML models and intelligence to user devices while maintaining user privacy. This work allowed us to study the performance of ML models under various configurations. Beyond the results we reported in our published work, and results we aim to publish next, this fund allowed me to expand on the work we started in a Mitacs project and be able to extend it to a publishable stage. Furthermore, during this work, we developed a code repository that we made it publicly available. This repository can be used by myself, my students, and also other researchers to continue research in this domain.