

Poster: Asynchronous Federated Learning Library and Benchmark with AFL-Lib

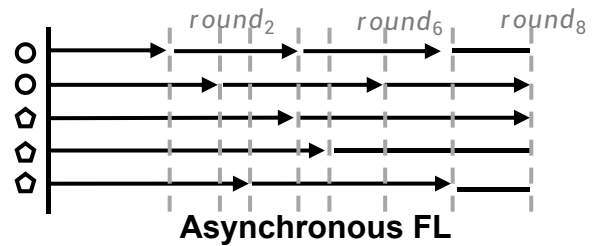
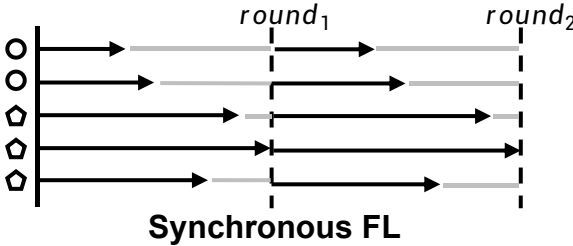
Boyi Liu^{1,2}, Shuyuan Li¹, Zimu Zhou¹, Shuo Kang², Yiming Ma², Yongxin Tong²

¹City University of Hong Kong

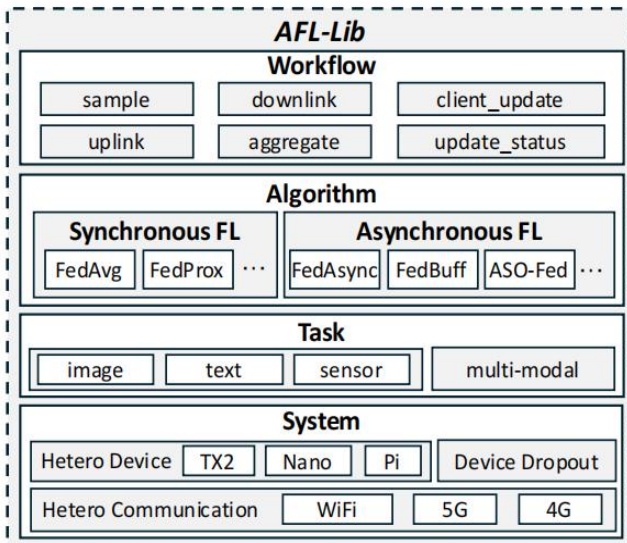
²Beihang University

Introduction

- ✓ **Asynchronous Federated Learning (AFL)** is an emerging paradigm for privacy-preserving and efficient model training across IoT devices.
- ✓ Unlike synchronous FL, AFL allows devices to **send updates independently**, avoiding delays caused by slow or unavailable clients.



System framework



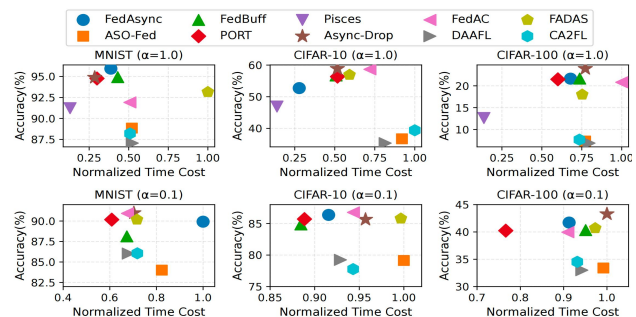
Comprehensive integration of:

- ✓ **14** baselines: FedAsync, FedBuff, ...
- ✓ **12** datasets: CIFAR-10, AGNews, ...

Key Features

- ✓ **System Heterogeneity** Configuration
 - Device type
 - Communication speed
 - Device Availability
- ✓ Interplay with **Data Heterogeneity**
 - Personalization
 - Multi-modality

Experiment



<https://github.com/boyi-liu/AFL-Lib>