R6 Federated ML application at edge Release Notes

Release Notes for the <Federated ML Blue Print>l

- Summary

  This document provides the release note for federated ml applicatons at edge.

  what is released

  components of the release

  - Hetero SecureBoost: more efficient computation with GOSS, histogram subtraction, cipher compression, 2-4x faster
  - Hetero GLM: improved communication efficiency, adjustable floating point precision, 2x faster
  - Hetero NN: adjustable floating point precision, support SelectiveBackPropagation and dropOut on interaction layer, 2x faster
  - Hetero Feature Binning: improved algorithm with cipher compression, 2x faster
  - Intersect: add split calculation option and adjustable random base fraction, 30% faster
  - Homo NN: restructure torch backend and enhanced grammar; train and predict with raw image data
  - Intersect supports SM3 hashing method
  - Hetero SecureBoost: L1 penalty & adjustable min_child_weight to prevent overfitting
  - NEW SecureBoost Transformer: feature engineering module that encodes instances with leaf nodes from SecureBoost model
  - Hetero Pearson: support local VIF computation
  - Hetero Feature Selection: support selection based on VIF and Pearson
  - NEW Homo Feature Binning: support virtual/recursive binning strategy
  - NEW Sample Weight: set sample weights based on label or from feature column, Hetero GLM & Hetero SecureBoost support weighted training
  - NEW Data Transformer: case-insensitive on data schema
  - Local Baseline supports prediction task
  - Cross Validation: output fold split history
  - Evaluation: add multi-result-unfold option which unfolds multi-classification evaluation result to several binary evaluation results in a one-vs-rest manner

- Upgrade Procedures
  - N/A
- Release Data

  - Module version changes

    - 1.6.0
  - Document Version Changes

    - N/A
  - Software Deliverable

    - Software is available in the ai edge repo: https://gerrit.akraino.org/r/admin/repos/aiedge
  - Documentation Deliverable

    - R6 Federated ML application at edge API Document
    - R6 Federated ML application at edge Installation Document
    - R6 Federated ML application at edge Test Document
    - R6 Federated ML application at edge Architecture Document
  - Fixed Issues and Bugs

    - N/A
  - Enhancements
    - N/A
  - Version change
  - Deliverable
- Known Limitations, Issues and Workarounds
  - System Limitations
  - Known Issues

    - N/A
  - Workarounds

    - N/A
- References

  - FATE release logs