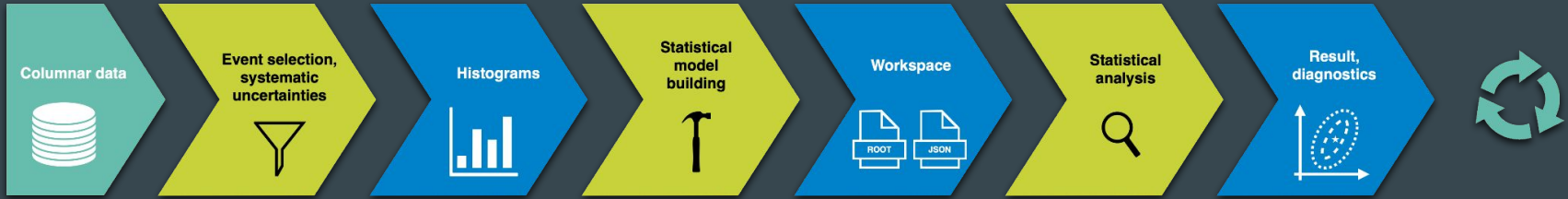# AGC Demonstration 2023
AI/ML Inference Overview
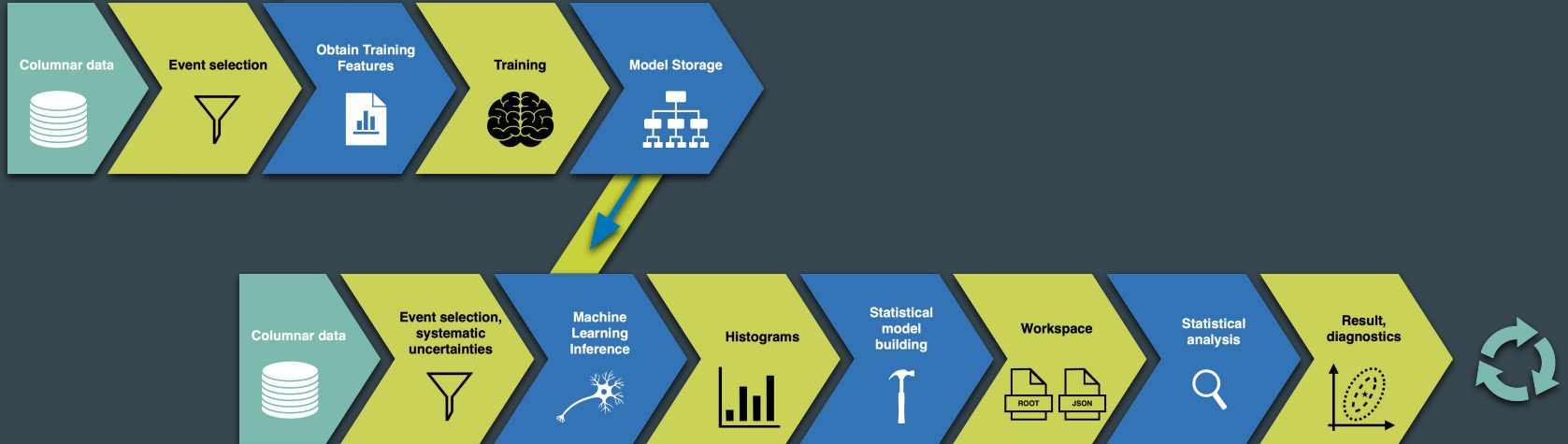
14 September 2023
Elliott Kauffman - Princeton University
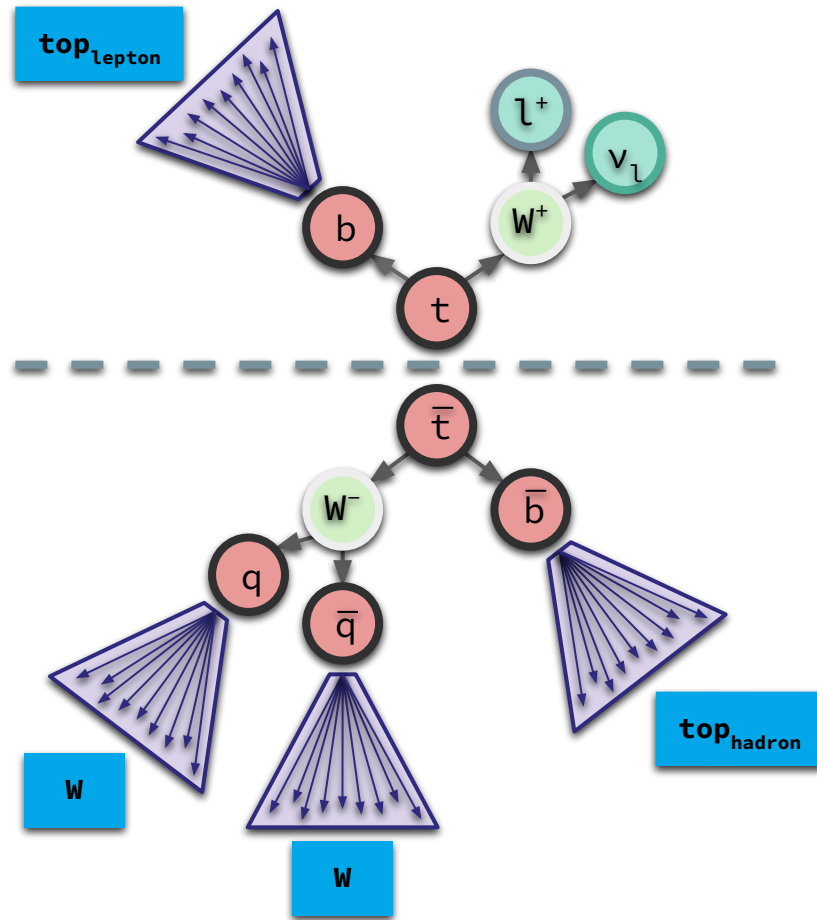
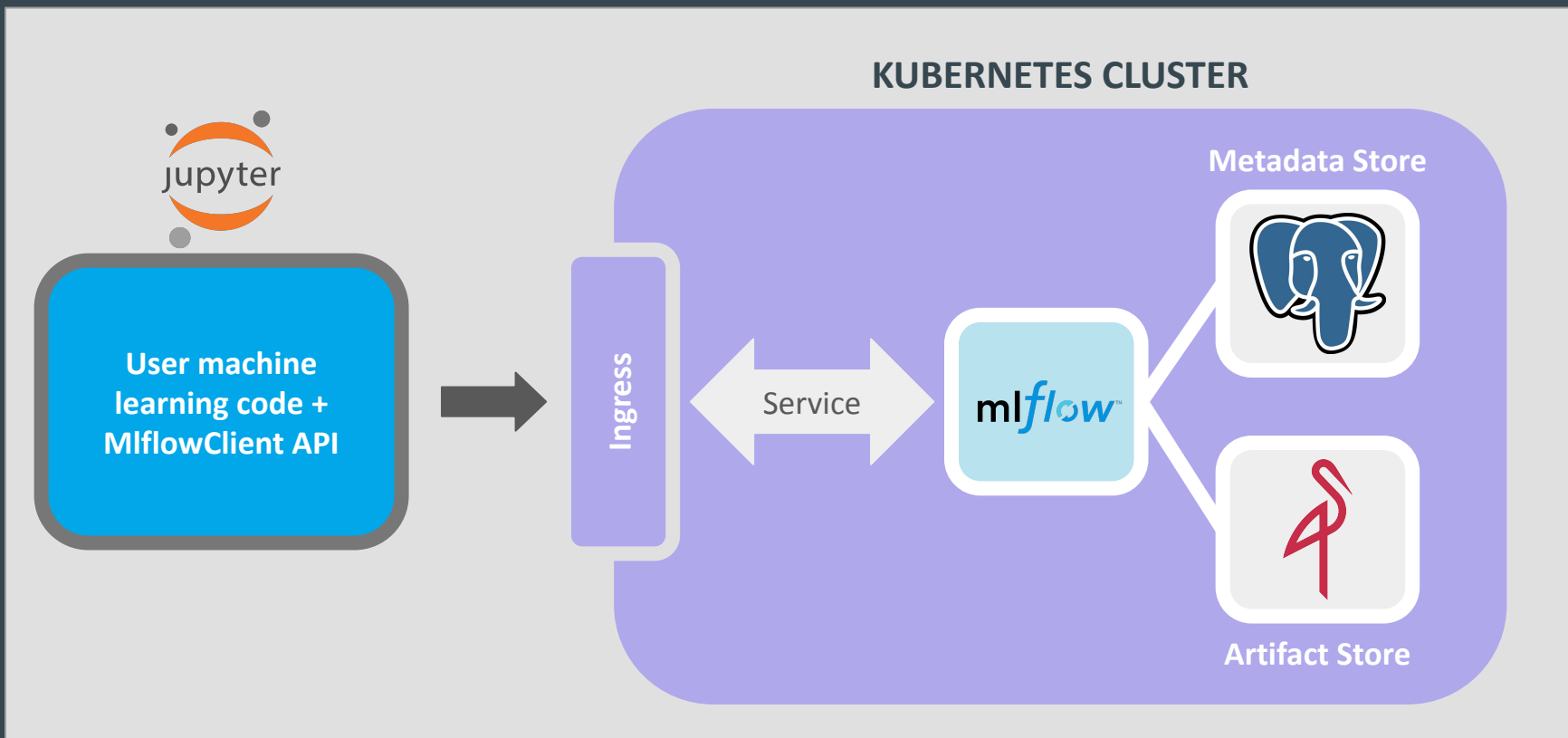# Previous Analysis Pipeline

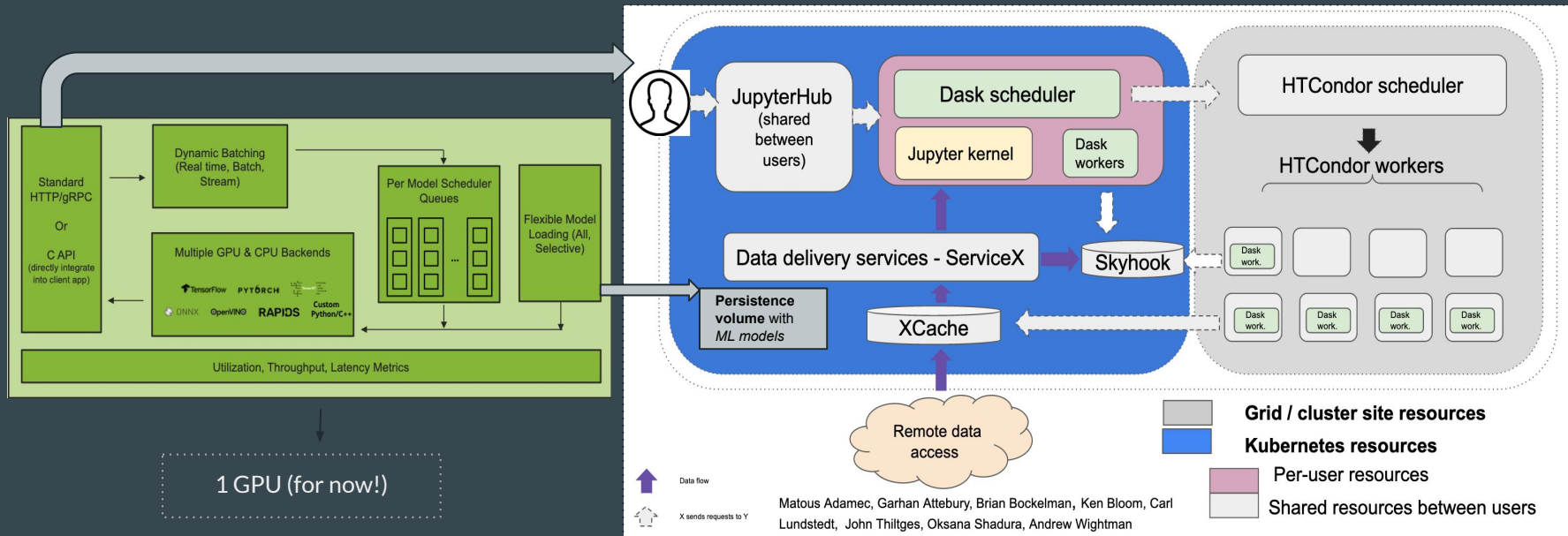

Analysis Pipeline with ML

ML Task Description

- **Goal:** assign jets to parent partons
- **Approach:**
  - BDT which considers each permutation of jet-label assignments within each events
  - Keep permutation with highest BDT score

Training Architecture with mlflow

Inference Architecture

DEMO

GitHub

Backup

Approach to ML Task

1. Consider **leading N jets** in each event
2. Find **all possible permutations** of parton assignments of these N jets (two W, one top_{hadron}, one top_{lepton})
3. **Calculate features** for each set of permutations and **feed into BDT**
4. Select permutation with **highest BDT score**
5. Use selection to **label jets**
6. Calculate **ML observables**