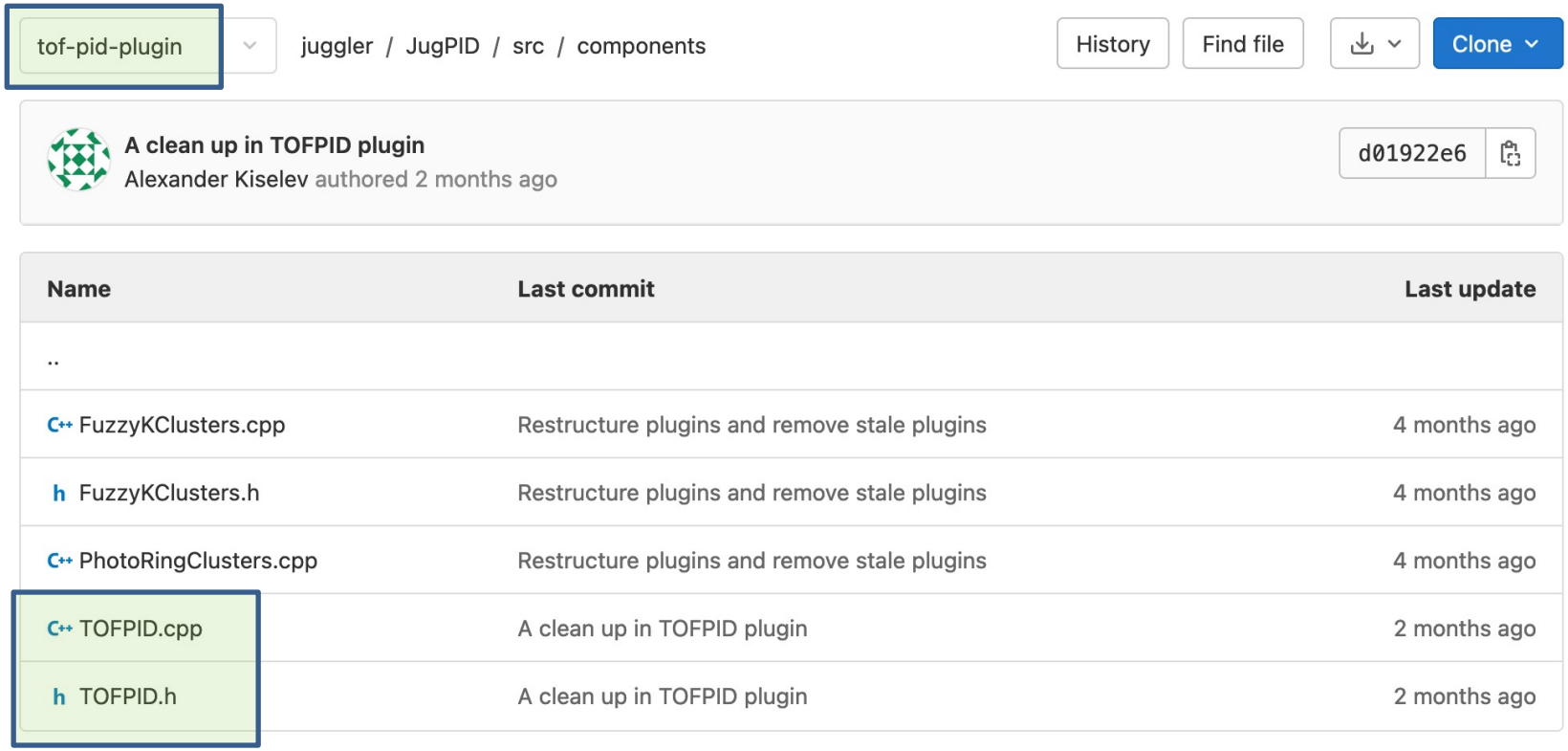
Juggler plugin skeleton



- .py options file interface (threshold, resolution, etc.)
- initialize() / execute() / finalize() methods in a ready-for-debugging state
- ACTS trajectory interface *prototype* as provided by Wenqing
- population of podio output tables [next slide]

eicd podio tables

A matching eicd branch: https://eicweb.phy.anl.gov/EIC/eicd/-/blob/tof-pid-plugin/eic_data.yaml

- Inversed link to a ReconstructedParticle entry

```
eic::TofParticleID:
  Description: "TOF detector PID"
  Author: "Z. Ye"
  Members:
    - eic::Index        ID                  // Unique entry ID
    - eic::Index        recID               // Index of the associated ReconstructedParticle particle, if any
    - float             reserved            // Reserved field
  VectorMembers:
    - eic::TofPdgHypothesis options         // Evaluated PDG hypotheses, typically (e/pi/K/p)


## PID hypothesis from TOF detector(s)
eic::TofPdgHypothesis:
  Members:
    - char              detector            // Let's say 0[e-endcap] / 1[barrel] / 2[h-endcap]
    - int32_t           pdg                 // PDG code
    - float             chi2cdf             // Like chi^2 cumulative distribution function for [tof_meas-tof_hyp]^2/sigma^2
    - float             reserved            // Reserved field
```

Delphes config file interface

Repository link: https://eicweb.phy.anl.gov/EIC/irt/-/blob/irt-init-v01/delphes/scripts/delphes-btof.C

```
4  //
5  // root -l delphes_btof.C
6  //
7
8  #define _E_PI_SEPARATION_MODE_
9
10 void delphes_btof( void )
11 {
12   //printf("%f\n", (1.0 - erf(1.5/(sqrt(2.)*1.0)))/2);
13
14   auto btof = new DelphesConfigTOF("BTOF");
15   btof->UsePtMode();
16
17   // Define particle mass hypotheses in ascending mass order; yes, there is no
18   // reason to overcomplicate things;
19 #ifdef _E_PI_SEPARATION_MODE_
20   btof->AddMassHypothesis(-11);
21 #endif
22   btof->AddMassHypothesis("pi+");
23 #ifndef _E_PI_SEPARATION_MODE_
24   btof->AddMassHypothesis("K+");
25   btof->AddMassHypothesis("proton");
26 #endif
27
28   // Define t0 and detector time resolution is [ps];
29   btof->SetT0Resolution        (20.00);
30   btof->SetDetectorResolution  (30.00);
31   // dp/p ~ 0.02% * p + 0.5%; take the proposal draft TEMPLATE data; assume holds for Pt;
32   btof->SetMomentumResolution  (0.020, 0.500);
33   // Units are [mm] throughout the code;
34   btof->SetPathLengthResolution(1.000);
```

- Just a tool to create Delphes configuration files