

# Downstream DAQ software

Philip Rodrigues

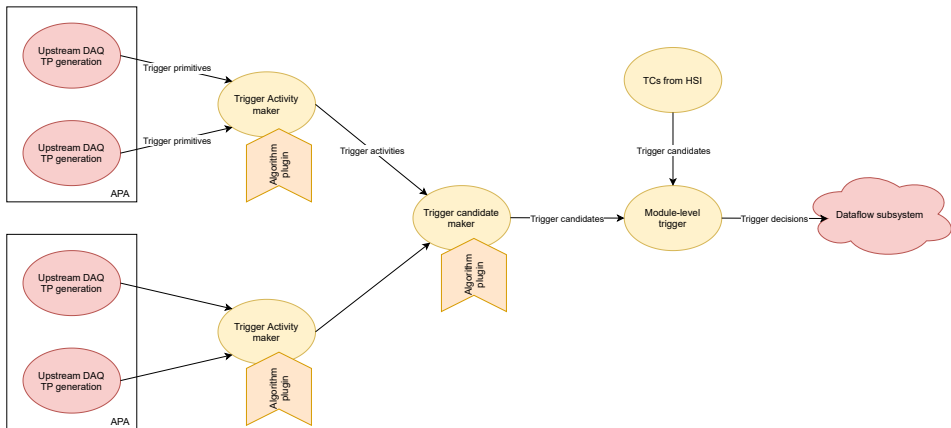
University of Oxford

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## Overview

- ▶ Concentrated on release 2.8 of dunedaq software
- ▶ Added framework infrastructure needed for development of physics algorithms for ProtoDUNE and DUNE

## Data selection system overview

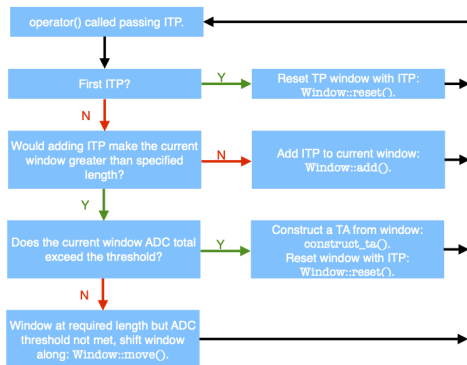


- ▶ Hierarchical system
- ▶ Pluggable algorithms at each stage
- ▶ (Eventually) multiple “paths”

## Current DS functionality

- ▶ "Replay" TPC hits from file
- ▶ Input of sw-generated TPC hits from upstream DAQ
- ▶ Input from Hardware Signals Interface (HSI) system
- ▶ "Zipper" algorithm to combine multiple streams with bounded latency
- ▶ Data structures for transport of DS objects over network

## Sum ADC trigger algorithm



A. Booth

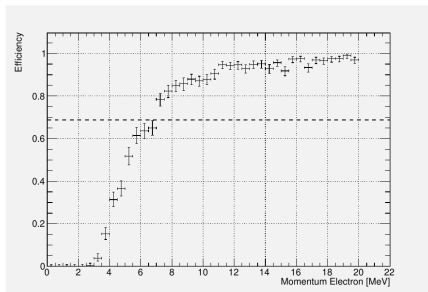
- ▶ Demonstration of an algorithm in framework
- ▶ Look for sliding window with summed ADC of hits  $>$  threshold

## Buffering and readout of DS objects

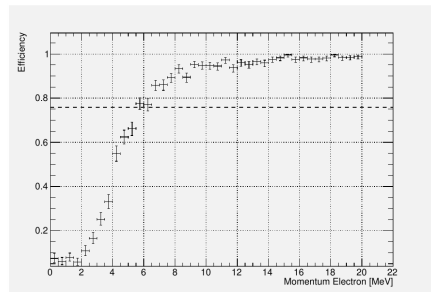
- ▶ Work by T. Bezerra
- ▶ DS objects (trigger primitives, activities, candidates) stream through the system
- ▶ Eventually a trigger decision produces a request to read out data
- ▶ We want to read out the DS objects in the trigger window
- ▶ Available for trigger primitives in dunedaq release 2.8; to be extended to other DS objects

# Physics performance: supernova interactions in VD

VD



HD



T. Bezerra

- ▶ Check that SN interaction efficiency in VD is comparable to HD