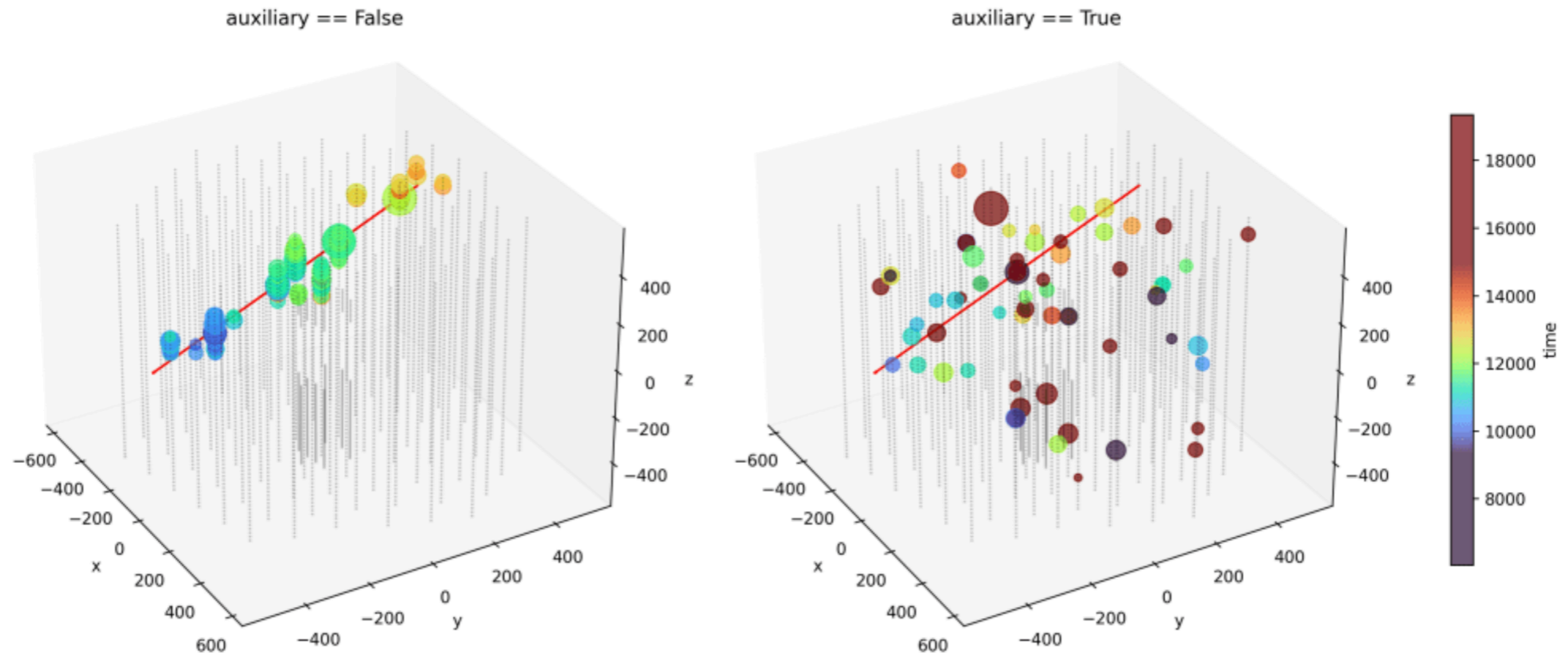Example event from the dataset:
(azimuth = 4.86 rad, zenith = 1.96 rad)

ML Challenges

P. Harris (MIT,A3D3)

What is the goal?

IceCube launches machine learning competition for event reconstruction
Posted on January 19, 2023 by Alisa King-Klemperer

IceCube
Neutrino Observatory

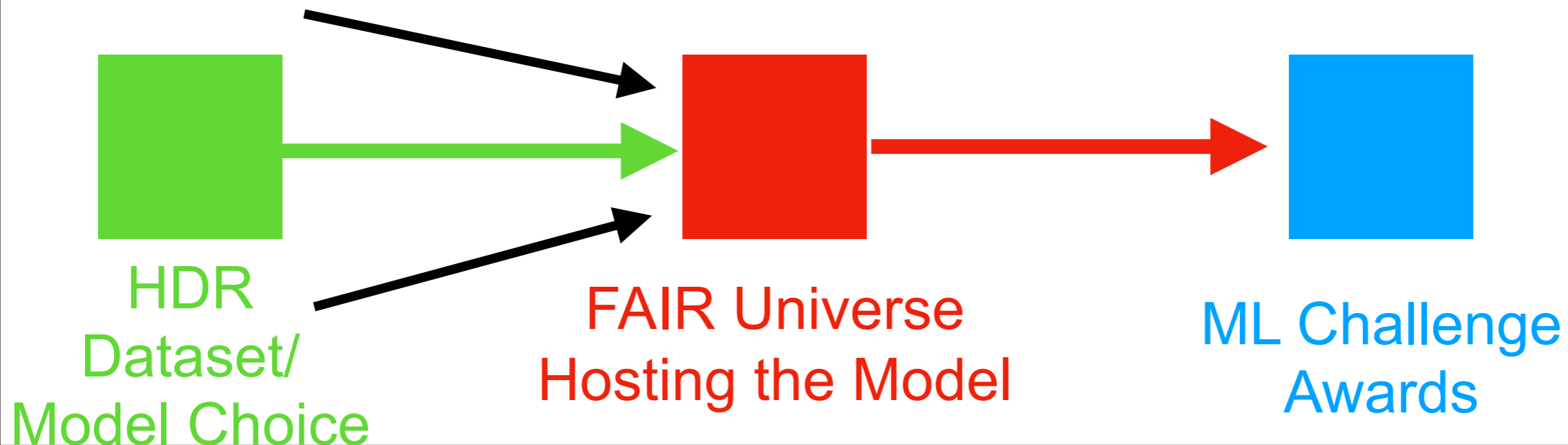About Us   Science   Collaboration   Outreach   Life @ Pole   Galleries   News

RECENT NEWS

Winners of IceCube machine learning

<u>Link</u>

- There have been a history of interesting ML Challenges

- This work aims to combine some efforts

Proposed
Cycle of Challenge

HDR
Dataset/
Model Choice

FAIR Universe
Hosting the Model

ML Challenge
Awards

FAIR Universe

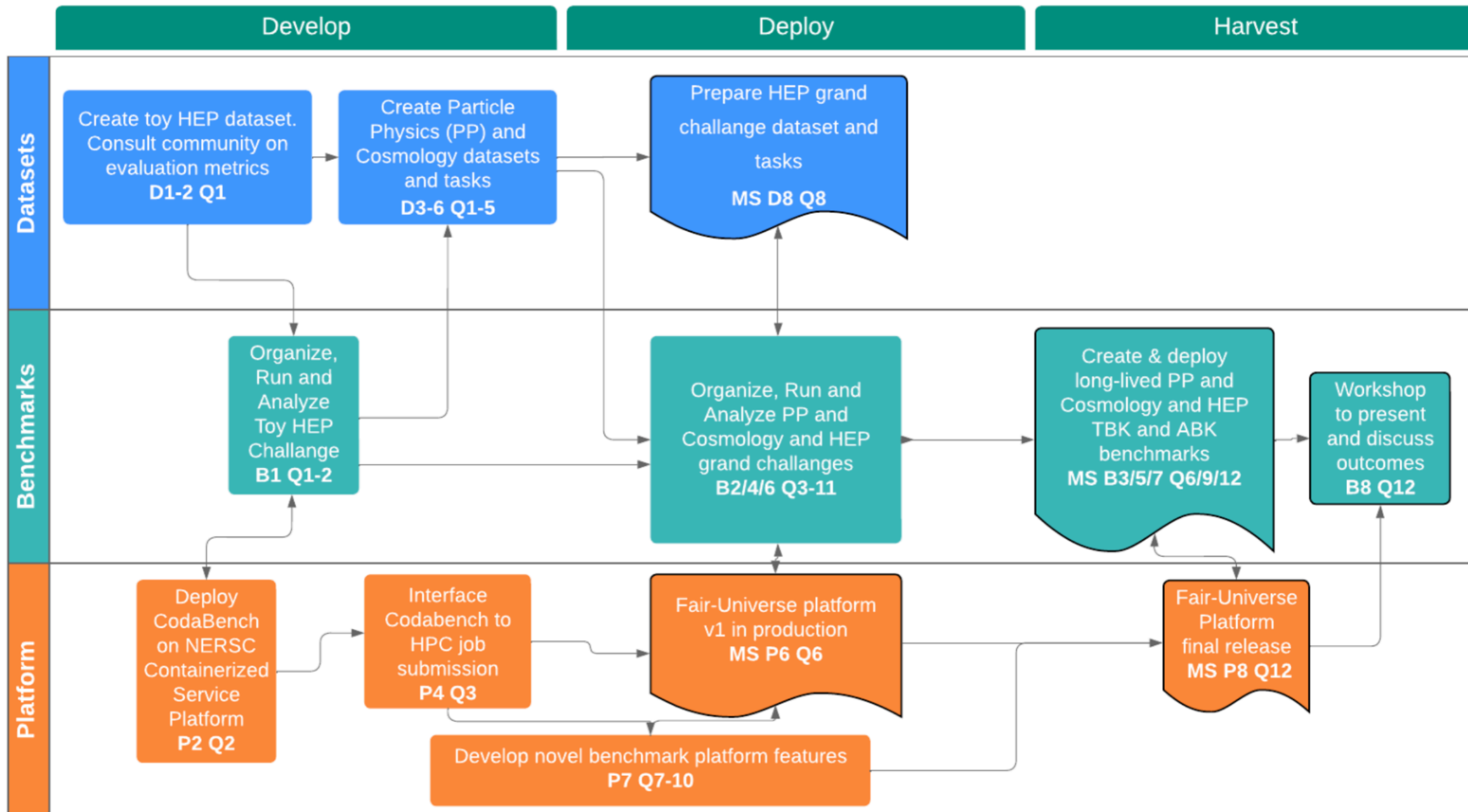## Background on FAIR Universe Project

- 3 year project [funded](#) by AI for HEP call (DE-FOA-0002705)

Abstract:

> "We [will] provide an open, **large-compute-scale AI ecosystem** for sharing datasets, training large models, fine-tuning those models, and hosting challenges and benchmarks. We will **organize a challenge series**, progressively rolling in tasks of increasing difficulty, based on novel datasets. Specifically, the tasks will focus on **discovering and minimizing the effects of systematic uncertainties** in HEP."

- Broad team in HEP, ML and computing involved in several previous challenges and benchmarks for HEP (e.g. [HiggsML](#) and [TrackML](#)) and wider (e.g [NeurIPS competition track](#), [MLPerf HPC](#)); as well as [Uncertainty aware learning in HEP](#)

[Wahid's slides](#)

FAR Universe Worflow

Timeline

Timeline for Challenge

HDR Internal Launch

Awards Ceremony/ BootCamp

Here in Zoom

Planning Meetings

Public Launch

June, 2023   Summer 2023   Sept/Oct   End of Year

- Aiming to broadcast challenges publicly by the end of year

- Plan on having an awards/ceremony bootCamp following results

  - We will host this at UW

  - We can imagine tying this to other iniaitives

- Goal here is to highlight the critical scientific problems