

# Improving ParticleNet to better detect W boson decays into 3 charged pions.

Logan Switzer





# Experiment Goals

- ❖ Compact Muon Solenoid (CMS)
  - Helping reconstruct  $W$  bosons from 3 charged pions to get a more precise measurement of the  $W$  boson mass.



# Mentors

- ❖ Riccardo Salvatico
- ❖ Debabrata Bhomik
  
- ❖ Photon/Electron Reconstruction Group



## Specific Project

- ❖ Trigger Systems!!
- ❖ CMS uses DeepTau for  $W \rightarrow 3$  Charged Pions.
- ❖ I will be improving ParticleNet.



# Roadblocks

- ❖ Helpful and Supportive Mentors
- ❖ First Internship



# Exploration!!

❖ Geneva

❖ CERN

❖ Saint-Genis

❖ Bern

