

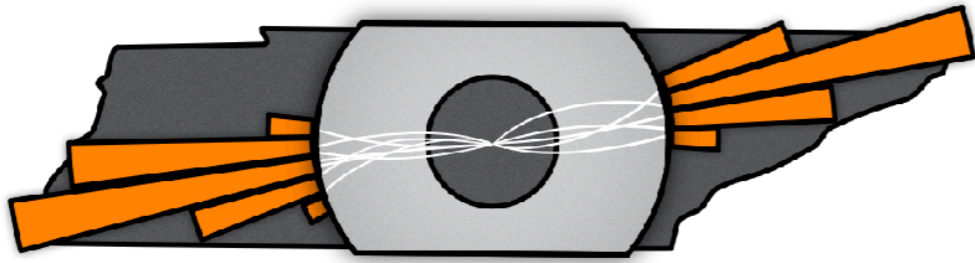


POSTDOC POSITION WITH THE
**UNIVERSITY OF
TENNESSEE**

DR LAWRENCE LEE



UTK
CMS



- UTK has been on CMS since **2006** (same year as TDR!)
- But group has grown by **+200%** since 2020
- **3 PIs, 2 PDs, 1 visiting PD, 7 grad students, +ugrads**
- Wide ranging activities
 - TH: L1 tracking, LLPs, SUEPs, ...
 - SS: BRIL, Pixel R&D, Rare Higgs Decays, ...
 - **LL: SUSY, AI/ML, LLPs, Phase-2 Outer Tracker, ...**
- **Open PD Position to work with LL on...**

FACULTY



Tova Holmes



Stefan Spanier



Larry Lee

CURRENT (ROCKSTAR) POSTDOCS



Andrés Delannoy



Sara Fiorendi

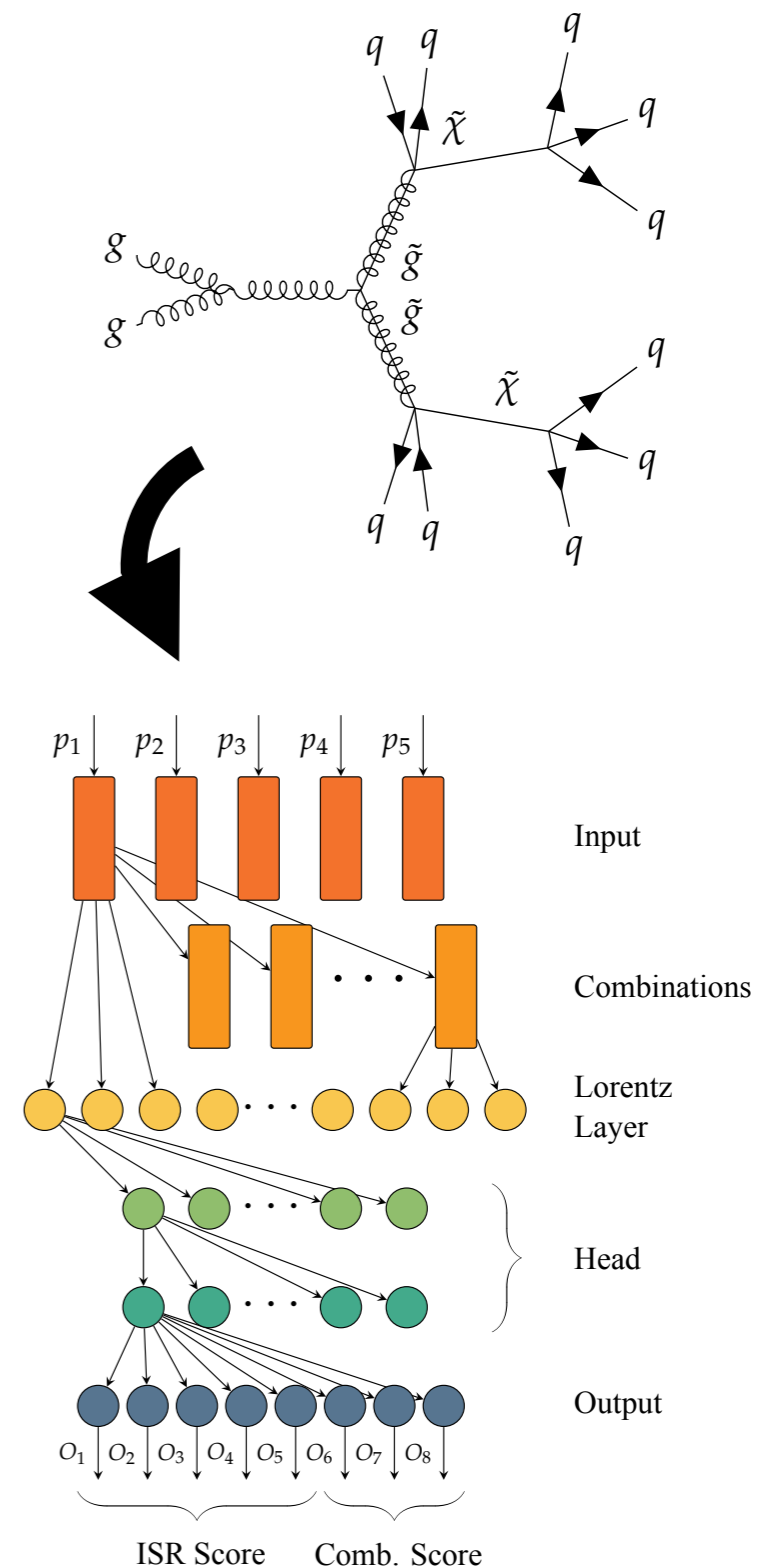
BIG HAPPY GROUP!



•
• **AND STILL GROWING!**
•

MACHINE LEARNING

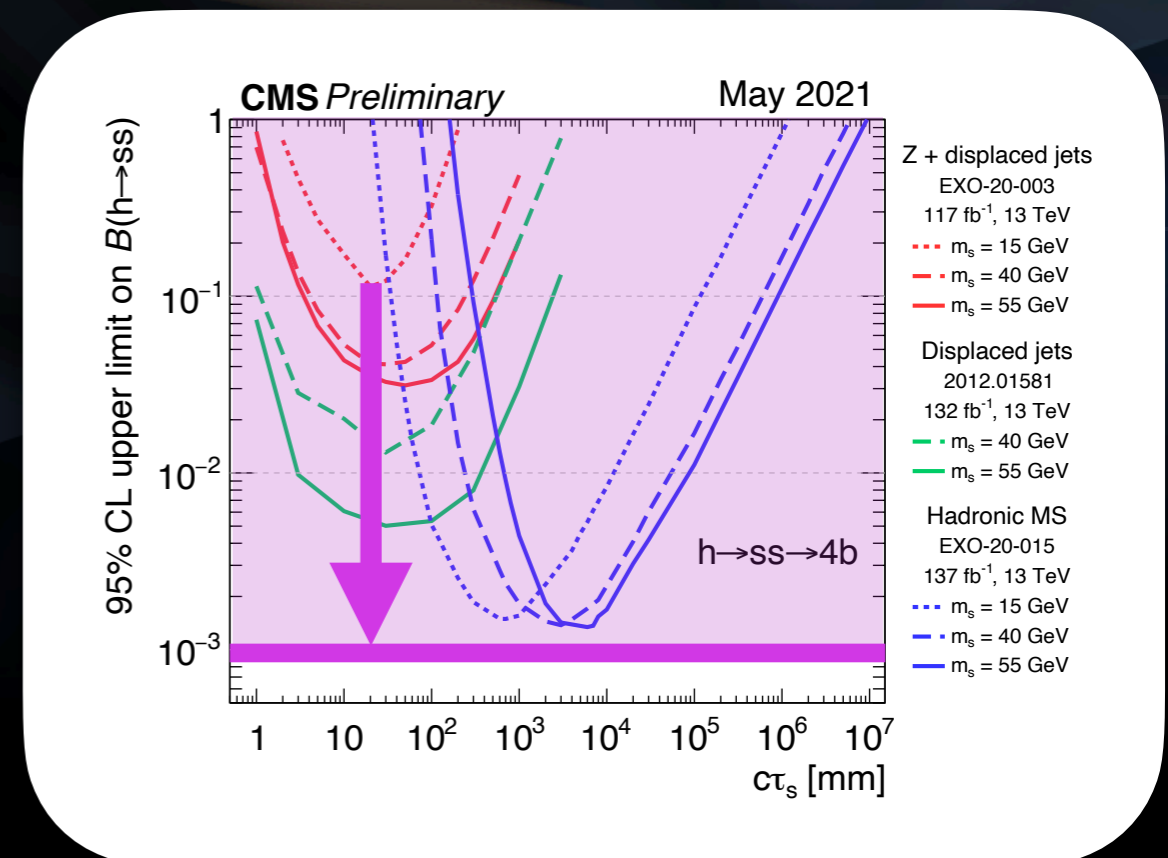
- ML is not magic. It can't solve all your problems.
- ... but it's perfect for problems of **high dimensional** feature spaces
- High multiplicity **multijet signatures** (from e.g. RPV SUSY) are **hard** to find!
- **Lots of discovery potential even at 13 TeV!**
- **Perfect, underutilized** use of ML!
- Opportunities to help **carry out this mission on CMS**
- (And publish dedicated **phenomenological** studies!)



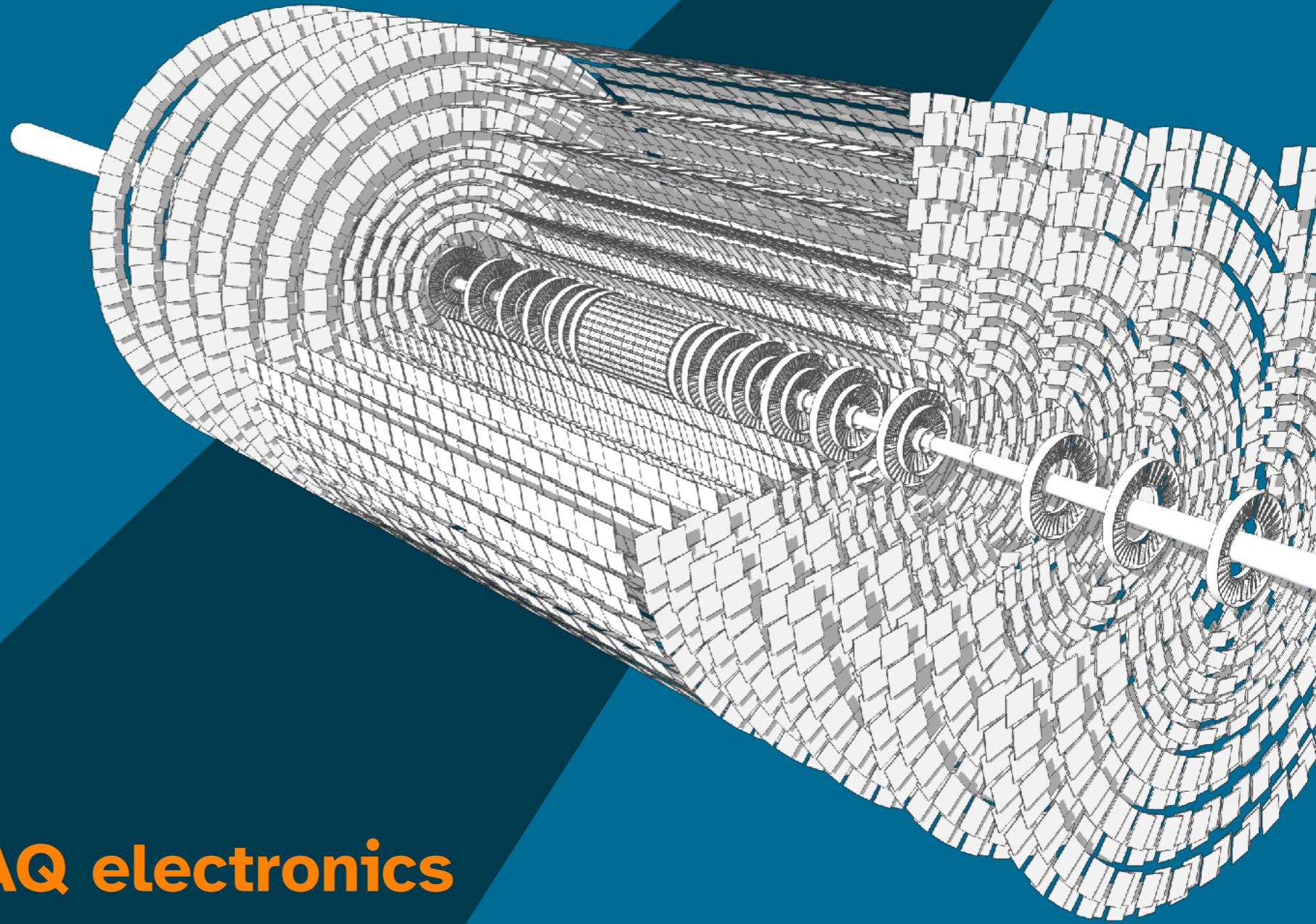
LONG-LIVED PARTICLES

DISPLACED DECAYS

- Also looking for particles that have **large lifetimes** and **travel macroscopic distances** into detector
- UTK has a **huge amount of LLP experience** (partially from prev. ATLAS exp)
- Current focus: **H**→LLPs
 - **Highly motivated. Still discovery potential!**
 - What's needed to reach **robust 10^{-3} BR sensitivity?**



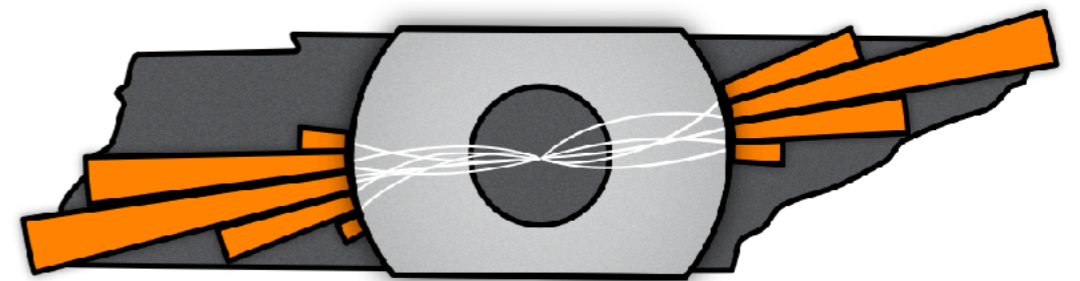
HARDWARE ACTIVITIES



- Looking to contribute to **Phase-II Outer Tracker**
- Particularly in **DAQ electronics integration, calibration software, etc.**
- Looking for **significant effort at CERN and/or Fermilab** to help this project succeed

POSITION DETAILS

UTK
CMS



- Job ad expected **soon**
 - **Must apply via link in ad to be considered**
 - Review of applications starts **Nov 15** (tentatively)
- To be based at **CERN or Fermilab**
- **Nominally 3 year** position with likely support beyond
- **Flexible start date.** Feb 2022 ideal.
- PhD required, but no postdoc experience necessary
- Several possible research paths available within these (and other) **exciting** research areas!
- **Looking for enthusiastic, motivated PD** to help build program further

GET IN TOUCH!

LAWRENCE.LEE.JR@CERN.CH

JOIN OUR ENERGETIC TEAM!

[UTK CMS WEBSITE](#)

BACKUP

Particles can gain a large lifetime (small Γ) a number of ways

Small couplings
(e.g. RPV decays)

$$\Gamma \sim \varepsilon^2 \left(\frac{m}{\Lambda} \right)^{2n}$$

Φ

Small phase space

Effective Coupling
(+Loop Suppression)

