# Alaa Weekly Update, August 24th

Last week's minutes

- Keep testing and troubleshooting your efficiency application to leptons
- Check whether there are uncertainties on the acceptance histogram from the paper
- Look into what kind of uncertainties on the efficiency TH2F you get out -- can you preserve these?

This week:

- "Fixed" the code that samples and applies efficiencies BUT...
- The code was not matching each muon to its reconstruction efficiency ($P_t$,$d_0$) correctly
- Using the paper original code to create the efficiency histogram with the correct binning and uncertainty
- Modifying my code to be more efficient
- After acceptance and efficiency selection cuts, we get the number of surviving events $N_{survive}$
  To go from $N_{survive}$ to the expected number of observed events in the actual experiment $N_{obs}$:

$$N_{\text{expected}} = \frac{N_{survive} \cdot \sigma \cdot L}{N_{total}}$$

Where $N_{total}$ is the total number of the generated events we started with in our MC simulation (i.e. MadGraph)