ANY BOSTON AT HOME?

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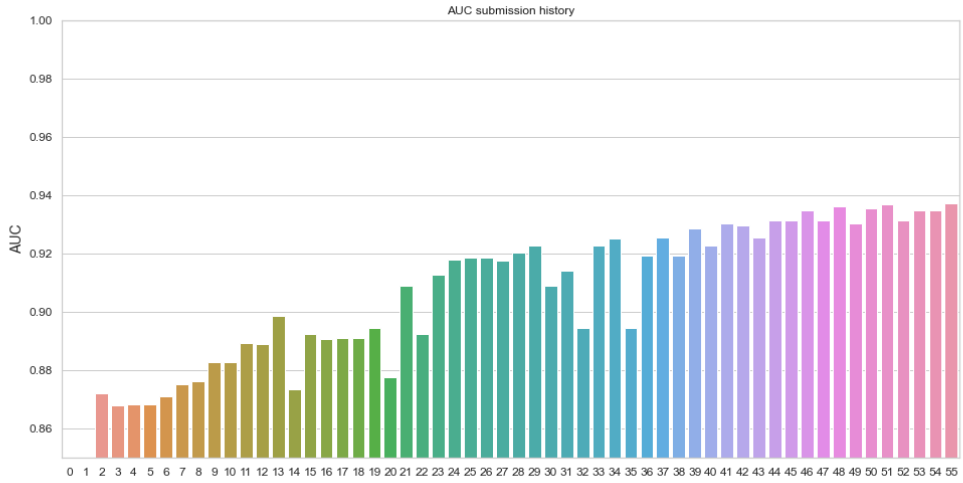

AUC submission history
AUC
1.00
0.98
0.96
0.94
0.92
0.90
0.88
0.86
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55

WHAT ITS INTERESTING

- Feature Engineering
- Mathematical modeling
- Some Tips & Tricks

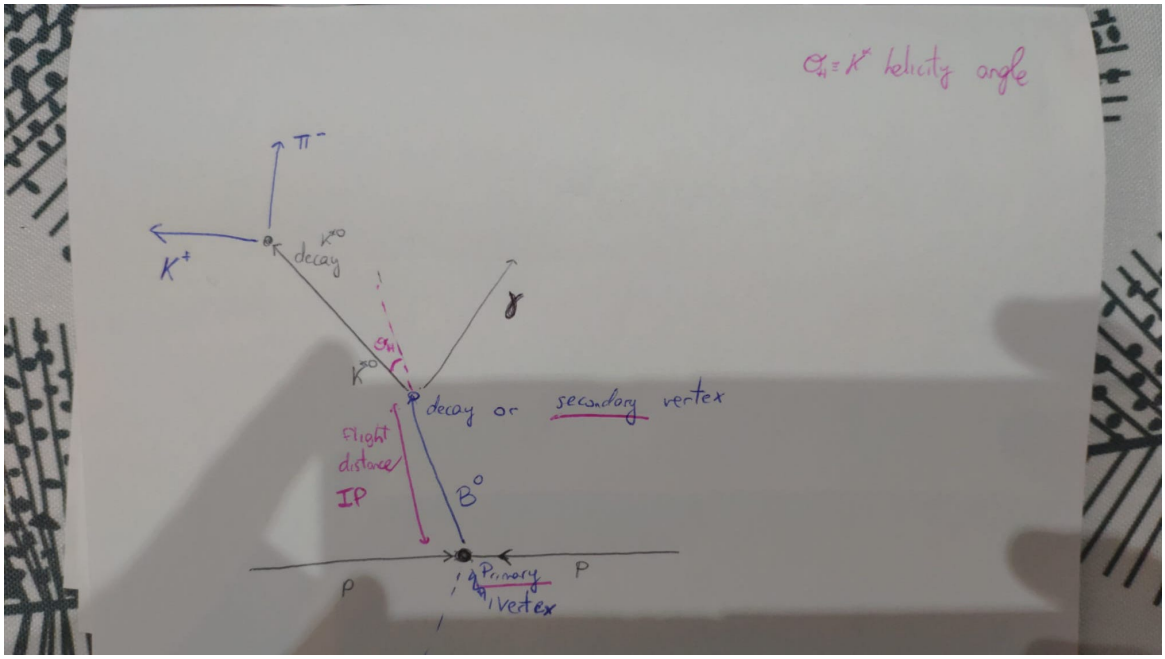
FEATURE ENGINEERING

Looked at a couple of papers about the collision

- **Measurement of CP observables in B 0 → DK ∗0 with D →K + K- [1]**
- **Helicity Angles [2]**
- **Angular analysis of B^0 \to \phi K^{*}B 0→ϕK ∗ decays and search for CPCP violation at Belle [3]**

FEATURE ENGINEERING

Particle schema with the features of the problem



RESULTS

- 181 Features
- Baseline: 0.90AUC (default lightgbm)

MATHEMATICAL MODELING

- FastAI Default NN - 0.929
- Selfmade Resnet, Pytorch - 0.934
- Ensemble: 0.937 - (0.86*resnet + 0.14*fastai)

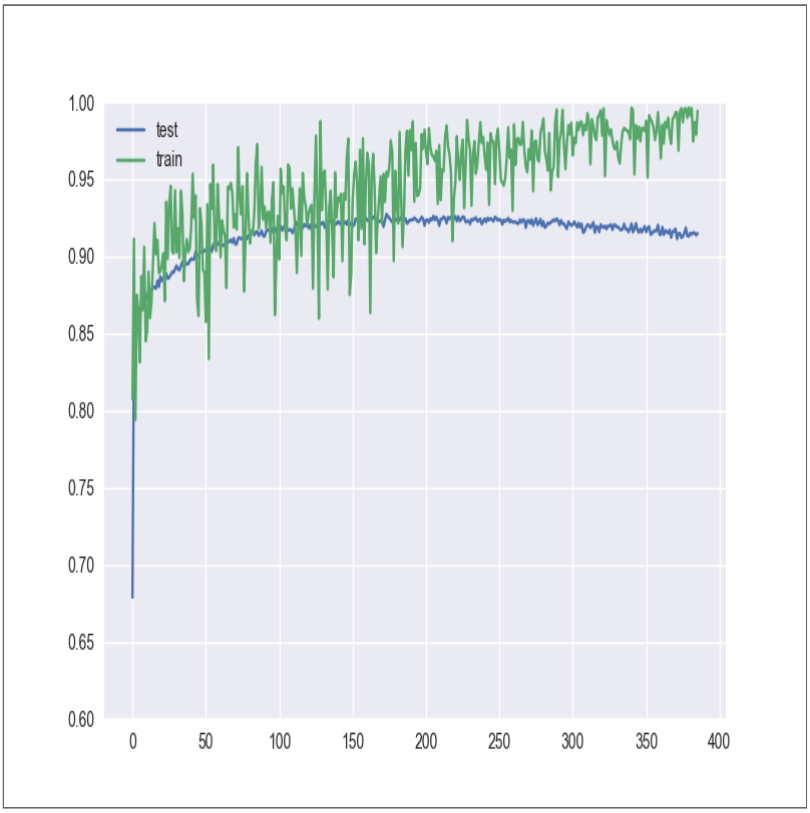
SOME TIPS & TRICKS

Scaling: Gauss Rank Transformation

- 0.01 Improvement on AUC
- 2x Faster tranning - 1h30

AVERAGING PREDICTIONS THROUGH EPOCHS

mean(pred_100 + pred_200 + pred_300)



METHODOLOGY [4]

- Understanding the problem
- Understanding the metric
- Feature Engineering
- Mathematical Modeling
- Hyperparameter Optimization
- Ensembling

END