BNN

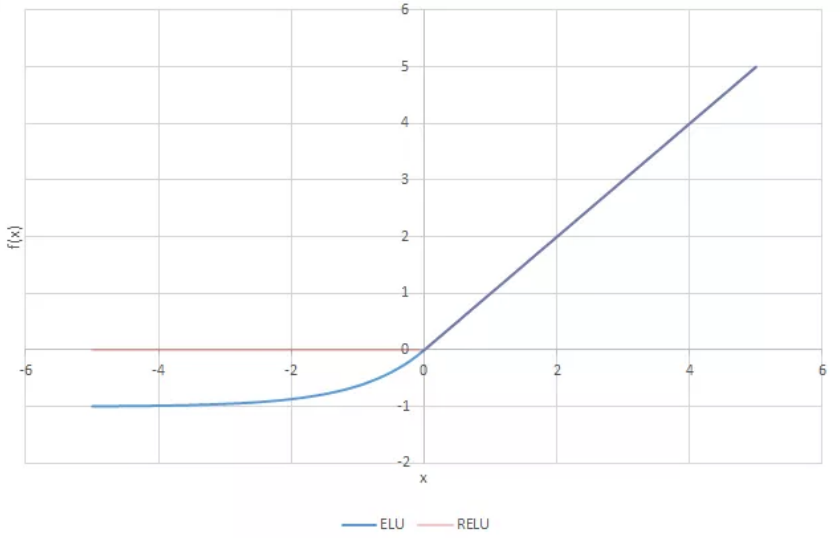
JB

Data Set

- 1.7 M events
- 35 tracks on average in ALICE acceptance
- 26% prompt events generate by HIJING
- B decays by EvtGen
- Only e^+ e^- final state
- Dst produced by Himanshu (see slides for cut descriptions)

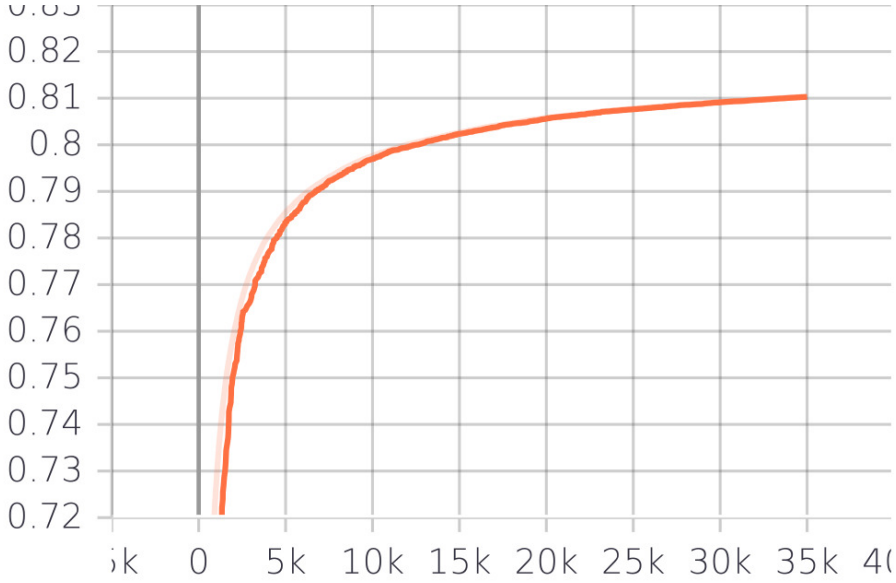
The Network

- TensorFlow 1.15
- NumPy for data storage
- 50/50 Signal background mixing
- Ram consumption + 28 Gb + 8Gb on RTX 2070
- 35 element input vector
- 2 hidden layers
- 45 neurons
- 55 neurons
- Activation function “Elu[**Exponential Linear Unit**]”

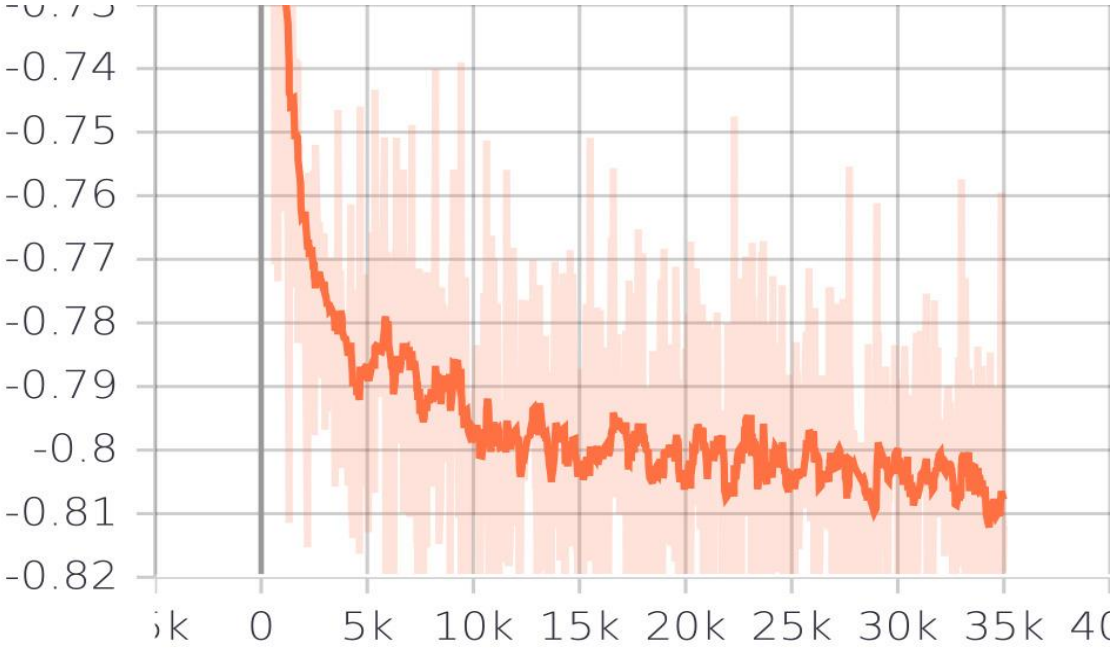


Training on GPU

- 35 000 training iterations



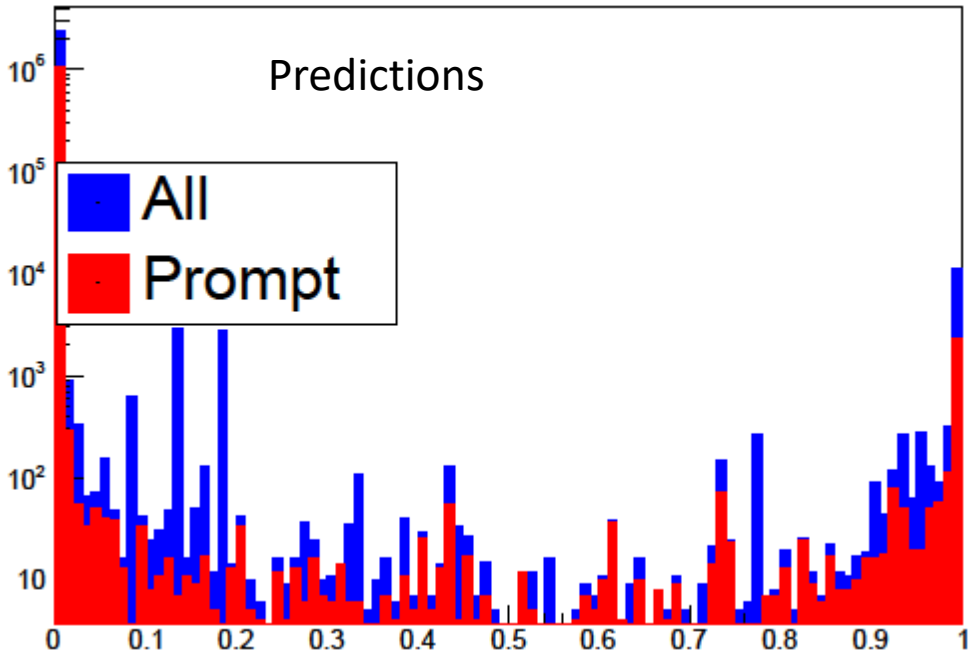
Los function

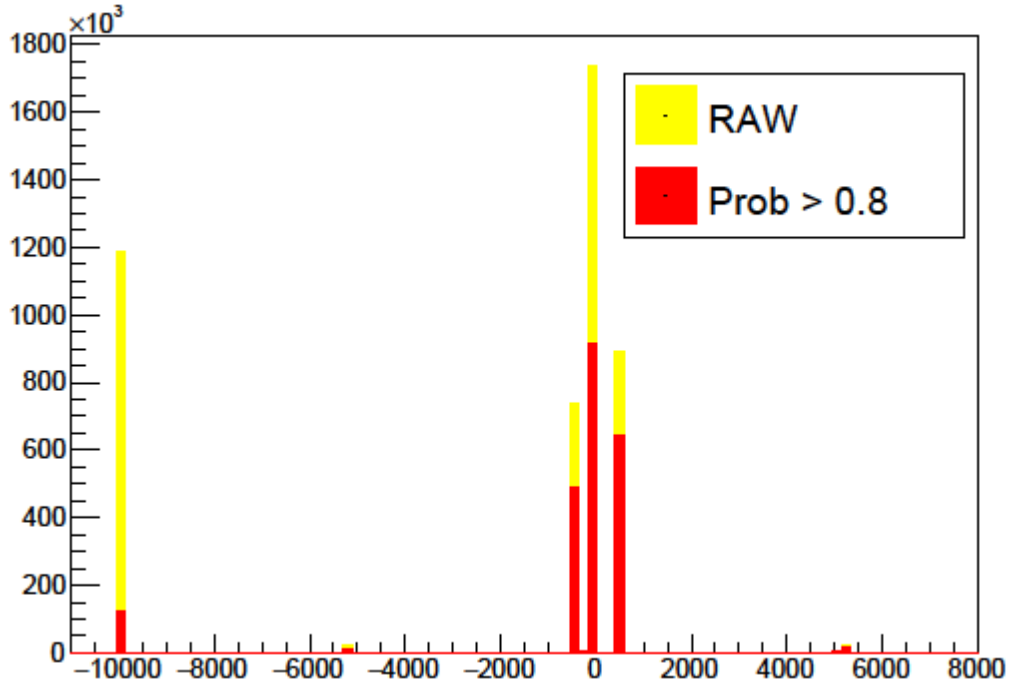


- More training iterations
- Unstable system (look loss function)

Results

- 80 % probability cut (Arb.)
- Contamination ≈ 5%
- Prompt reduction = 90% (only prompt/only prompt after cut)
- Non Prompt reduction = 40% (only non prompt/ only non prompt after cut)





Backup

fTrack_fP0',
'fTrack_fP1',
'fTrack_fP2',
'fTrack_fTrackParam0',
'fTrack_fTrackParam1',
'fTrack_fTrackParam2',
'fTrack_fTrackParam3',
'fTrack_fTrackParam4',
'fTrack_fTrackParam5',
'fTrack_fDCA0',
'fTrack_fDCA1',
'fTrack_fTPCDCA0',
'fTrack_fTPCDCA1',
'fTrack_fTPCCrossedRows',
'fTrack_fTOFbeta',
'fTrack_fCovMatrix0',
'fTrack_fCovMatrix1',
'fTrack_fCovMatrix2',
'fTrack_fCovMatrix3',
'fTrack_fCovMatrix4',
'fTrack_fCovMatrix5',
'fTrack_fCovMatrix6',
'fTrack_fCovMatrix7',
'fTrack_fCovMatrix8',
'fTrack_fCovMatrix9',
'fTrack_fCovMatrix10',
'fTrack_fCovMatrix11',
'fTrack_fCovMatrix12',
'fTrack_fCovMatrix13',
'fTrack_fCovMatrix14',
'fTrack_fCovMatrix15',
'fTrack_fCovMatrix16',
'fTrack_fCovMatrix17',
'fTrack_fCovMatrix18',
'fTrack_fCovMatrix19',
'fTrack_fCovMatrix20',
'fTrack_fTrackLength',
'fTrack_fTOFnSig0',
'fTrack_fTOFnSig1',
'fTrack_fTOFnSig2',
'fTrack_fTOFnSig3',
'fTrack_fCharge'

35 elements counting form the top