

M_s

Meeting 30th October

Attendance: everyone

Questions.

Krishoff & Stanley up day

Loss function: folded result

Not great loss function

$$R^2 \rightarrow \text{not good}$$

Loss-O function

as distance between cycles but takes into account 2π

Interpret any of this.

Nothing there

Loss function: $2(1 - \cos(y - y'))$

$$R^2 = -0.991 \rightarrow \text{Randomly distributed.}$$

Large error bars → maybe when we have a better view (too many bins)

$$\text{is } \sqrt{n} \rightarrow$$

Go down to fewer bins

All the same.

$|\cos(y') - \cos(y)| \Rightarrow$ how loss
as naturally small value

$$R = (y' - y + \pi) \% 2\pi - \pi$$

(Mean squares error.)

Flat distribution

Bias by loss function

(Uniform: not bias anymore
is one of them, better to use).

Does it do 0 to 2π happy again?

None are within range?

Read: use these function

+ use term to get rid of the $(0-2\pi)$
(Penalising term)

Want calculate remainder after correctly by

$\frac{2\pi}{10}$

Is penalised in loss function

Be careful: no bias between $(0-2\pi)$

Flat Top chat

Structure of NN? \rightarrow Structure -> LBN layer

12 Dense (300 Nodes) relu ✓

Output node ✓

How many inputs:

Shape of tensor

{
H choose 2
depth boost mode \rightarrow PAPER.
Same nb of root frames as
combined particles.

LBN \rightarrow does it change layer

↳ Not improve performance of neural net.

M³⁰
2

From input 4 layer

Hand coded operations

func - advanced. performed

f. math

What do you input and how do you regress
aco-angle-1
is in one go

Different loss, model, complex : no training
is have you already trained.

Each variable in separate neural net.

Done separately

How. How to combine neural nets in the end

Based on formula in back 1.

We know how to use a vector.
Train NN to boost a vector.

Regress aco-angle 1 from NN.
Calculated back 1.

Do tend to train in 1 go, split the problem
in steps.

Idea: produce 4 vector variable,

last local step

How did they all work.
Some one better than others
Bad performance.

Difficult to ~~use~~ compare HAC between
graphs, set of layouts!

Divided by size.

Divided by std

Is otherwise misleading

This approach is overcomplicated for what
we are trying to do.

Are we trying to make a NN that can go
high level from low level
Then code calculation of phi CP.

LBN: set of p. next frame, give it some features
is give it standard feature
to calculate O^* & phi
Feed into more conventional acc-angle

Told it how to compute.

More problem
size.

- classification problem
- Predict sin or ps

(some that can do acc
cycle 1)

Better than with cycle 1

✓
constant acc

Specific order

& π_0 and π^-

H₃

choose π^0

↳ find specific order, always know
4 vectors, π^0 & charged

↳ want NN to calculate O^θ & phi
↳ known \rightarrow work one are important.
Hyper parameters
↳ How many angle &

Rest frame from particle, then calculate
angle in rest frame.
Need to choose π^0 .

Mixing angle important.

Other stuff: Idea behind NN
utilise low level + then add higher order
(and add new stuff too)

(Split the problem in 4?)

Some tackling it from important features
Hand coding feature

Set up NN to use low level
regress features by training
feature pass to NN

All formula -

Try & calculate these events
EP, missing energy

{ Compute a lot of angles for other rest frames
and then check CP dependent

That makes sense.

Look at low-level & look for high level.

Different angle in NN & EP & all the inputs

Then better CP angle

or overall estimator

Is new that is better cp angle
discriminator.

Define set of features, that we might have lost
some missing energy to 'see' the
variable -

Construct a variable yourself

They show 'passing' a rho rho decay

↳ better roc score than High Level

Normal NN doesn't work at all.

Correct permut of LBN

In consistencies between root & pythronext

Strange. Why discrepancy in boost hadkij

M₄

Which one is right?

Root is good.

Maybe not because right option
root must work.

Maybe py root isn't as good?
Some input & order

py lorenz.
correct answer

Task is was fine \rightarrow wrong options?
py-lorenz is promising?

Architecture,
slow level information

Is differences between the engines -
Is use share to separate better
in phi-CP.

In that next frame
the two polaroids
can you do in
a root frame?
Better maybe -

But NN could approximate \rightarrow slow level help?

Boosted h checkers + target engines from
Memory ET etc ---

Supposed to be really easy, give input and it's
able to do it itself,

Not able to use this.

That paper, explained their architecture
(conventional one, can't save separation
without cycle)

Is we find different things
Real or simulated data.

gen level & smear?
Worth trying to get paper as starry point
produce the data?
↳ why would data be different?

Some degradation but not that bad.

Dif approach.

performed exactly.

True & regressed values.
Lambdas is worst performing
cross product.

Re too many dimensions?

Hard to understand?

LBN : tell it how to compute Lambdas.
Is worth out phy i CP then.

We should modify LBN code.

Add this as

t_{root}

Kingsley:

~~Creates P combined ps~~

- Explain particle LBN

- Acc angle → would it be in
reduce memory complexity
Want the rest frame
as you combine the two p ℓ O

H 5

When the so called particle
changes between some pseudo cycles

Later?

Stagger to get IEN to work
sum of the do, then form.

add - 1, \rightarrow manually fixed the problem
~~is haven't worked out easily~~
~~is could be done w/ py Lorentz so maybe fast.~~

Sign: boost the negative stuff
~~is could be the~~

Both conserve matrix both matrix

is also manually

Code in UN layer
both effectively and
only extra info of an cross
product.

More than 50%.

Tell what particles are (in a clever way)

{ 3 man per hour, say which one comes where
and

is can say these ones come from the sun etc --
the ones we have.

is Would it be better?

looking at the paper reproduce the result, feeling lost Stanley

Redo what they have done in paper but
with rho & add some missing energy
is rho & α_s aren't too bad
is same architecture as paper

Paper & then some slides
is with mixed energy

Pair of particles
is acc-angle &
low level info \rightarrow

Utuple is gen_phi-tau_tan

is if you want to reco something else

gen-phi-tau-haw New UN
is agrees easily with

adding acc angle & can't do
and or by θ and $y \in$

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2pm?

functional Model line 20
calculation

Mixed combined particle-

Does want
both 2
Repro angle -
actually hand code