Keystages

Time estimate from 1 to 5

(1) Determine roadmap (workflow) $\sim$ 2 (?)

(2) Establish evaluation metrics

(2a) Decide which features of the neural network output to use/combine 1 - 2

(2b) Find appropriate metrics for different features First metrics eval $\sim$ 2, after that maybe 3 (actually testing on real data, convergence tests, both uncertainties ...)

* 1D metrics - 2D metrics
* Stopping point/Convergence
* Calculation time

(3) Find GEANT4 uncertainty 2 (this should maybe be before establishing the evaluation metrics)

(3*) Bayesian Variational Autoencoder 5 (including learning process and all, hopefully easier with Lars' knowledge)

(3*a) Construct network

(3*b) Combine network uncertainty with GEANT4 uncertainty

* Need metric that can compare two distributions with uncertainty

(4) Build evaluation framework 4, including the testing and everything, without the BNN-VAE

(4a) Testing workflow on dummy network

(4b) Integrate Bayesian VAE with evaluation framework maybe 2

(5) Integration into basf2

$\Rightarrow$ in total 22 units
About 42 weeks (1.5 months for writing were cut), so 1 unit $\approxeq$ 1.9 weeks

Very rough timeline:

(1) Mid/End July (End July is probably more realistic)

(2a) Beginning/Mid August (obv. will be revisited later on)

(3) End August (this can be exchanged with points (2a) and (2b))

(2b) Mid October

(3*) Beginning of January

(4a) Beginning/Mid of February

(4b) March (?)

(5) Whatever time is left