Project at campus south:

Neural network combination solver

Particle identification components simulation, substituting geant 4 with neural networks, already works on pixel detector and calorimeter, fast simulation of time of propagation detectors (cherenkov detectors with quartz) – simulating propagation of photon through quartz bar (super slow at the moment)

Problem: photon transport in the top is probabilistic, very non-trivial

Do I want to try out a certain network?

How much time for different network types?

Automated hyperparameter choices, main time for setting up validation for the training, constructing framework for training, last step testing different models

Using pytorch (pretty easy transition), existing notebooks to run and understand,

<https://arxiv.org/abs/1811.04532>

<https://arxiv.org/abs/1905.11825>

ultimate goal: on the fly simulation for future analyses, needed: full network solution, absolutely necessary for future simulations