Generative Surrogates for Fast Simulation: TPC Case

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MPD TPC

Central HV electrode

Support tubes for

field cage

- Our GAN-based TPC simulation model provides
 x12 acceleration with good quality of samples
- The model is being integrated into a continuous pipeline with automated training data generation, model training, evaluation and selection
- We also study a simpler (wrt our model above) low-dimensional detector response representation
 - Aiming for a simpler model
 - In practice, requires a lot of hyper-parameter tuning
 - Do GANs "prefer" higher-dimensional representations?..









