

Calomplification: The Power of Generative Calorimeter Models

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Motivated by the high computational costs of classical simulations, machine-learned generative models can be extremely useful in particle physics and elsewhere. They become especially attractive when surrogate models can efficiently learn the underlying distribution, such that a generated sample outperforms a training sample of limited size. This kind of GANplification has been observed for simple Gaussian models and large ranges of training sample sizes. In this talk, we extend this histogram based method to show the same effect for a physics simulation, specifically photon showers in an electromagnetic calorimeter.

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