

Hierarchical Probabilistic U-Net (HPU-Net) for generating high-dimensional posterior samples

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Deep generative models have proved to be powerful tools for likelihood-free inference, providing a promising avenue to address the problem of doing inference in very high-dimensional parameter space, particularly in the context of the upcoming generation of sky surveys. In this talk, I will present our ongoing exploration of the Hierarchical Probabilistic U-Net (HPU-Net) for generating high-dimensional posterior samples. I will summarize the experiments we conducted with HPU-Net and the methods we employ to assess the quality of its generated samples. We will also present the results of training this model in an adversarial setup and how it affects the quality of samples. We hope to apply this tool to the problem of reconstructing the initial conditions of the Universe, among others.

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