Artificial Intelligence and the Uncertainty challenge in Fundamental Physics



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Generative modeling in genomics and a perspective on uncertainty quantification

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In recent years, generative modeling has gained substantial momentum in genomics research thanks to increased availability of computational resources and development of deep generative models (DGMs) over the past decade. DGMs can learn the complex structure of genomic data and can be utilized for a variety of tasks such as generation of realistic artificial genomes, dimensionality reduction and prediction, with unsupervised, semi-supervised or supervised learning schemes. In this talk, I will present a background on generative models in genomics, discuss our recent work on the generation of artificial genomic data, and provide my perspective on approaches for uncertainty quantification.

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