Why

If neural networks are flexible function approximators, and we want flexible parameterizations of conditional distributions, we might use a neural network for the parameterizers.[1]

Definition

A *neural conditional distribution family* (or *deep conditional distribution family*) is a parameterized conditional distribution family whose parameterizer is a neural network (see Parameterized Distributions and Neural Networks). When clear from context, we shorten to *neural conditional family* (or *deep conditional family*).

We similarly define a *neural latent generation family* (or *deep latent generation family*) and more generally for *neural distribution graphs* (or *deep distribution graphs*). Other terminology for deep latent generation family includes *deep latent variable model* (*DLVM*).

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[1]Future editions will expand and modify.