THE UNIVERSITY OF CHICAGO | DEPARTMENT OF STATISTICS

Master's Thesis Presentation

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"Modeling the Prior with Normalizing Flows for Autoencoder-based Vision Models"

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Abstract

In this work, we aim to build a generative autoencoder-based model for images that attempts to model the prior distribution of a latent space with normalizing flows while learning the latent space through reconstructing images with a variational autoencoder. Through using normalizing flows to directly create a bijection between a standard normal distribution and the prior, we can model the prior much more accurately, which could improve the quality of generated images, a common issue with autoencoder-based models. Modeling the prior through normalizing flows allows us to model the prior more directly than through other methods such as regularization. When we compare our model both quantitatively and qualitatively to other autoencoder-based models, we achieve similar results on commonly used datasets.
