

A Unified Approach to Data Synthesis: Leveraging Paired and Unpaired Datasets

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The data bottleneck has emerged as a fundamental challenge in learning based image restoration methods. Researchers have attempted to generate synthesized training data using paired or unpaired samples to address this challenge. This talk introduces SeNM-VAE, a semi-supervised noise modeling method that leverages both paired and unpaired datasets to generate realistic degraded data. Our approach is based on modeling the conditional distribution of degraded and clean images with a specially designed graphical model. Under the variational inference framework, we develop an objective function for handling both paired and unpaired data. We validate the approach in various datasets.

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