Disentanglement of Latent Space and Improved Domain Transformation

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With the development of deep learning, more diverse models and applications have been proposed in recent years than ever before. Among them, most models for data generation control the generation result based on the data distribution for each type in the latent space. VAE and Diffusion Model are typical examples. However, in a model that uses a variety of data, the axes of the latent space become entangled, making it difficult to control the generated data with sufficiently high precision. To solve this problem, this research introduces a latent space disentanglement method for models that implement various applications. The disentanglement method makes it possible to intuitively control the generated data and obtain features close to those of real data. In this research, we introduce the disentanglement method to the image generation model and the time-series information generation model, which are typical data generation models, and try to control the generated data by domain transformation.