

Abstraction:

Title:

Fashion Image Generation with Convolutional Variational Autoencoder (CVAE)

Description:

Our project focuses on leveraging Convolutional Variational Autoencoder (CVAE) for fashion image generation tasks. The primary objective is to develop a model capable of learning a latent representation of fashion images and generating new, realistic designs.

Key Components:

1. CVAE Architecture:

- Utilizes a neural network architecture comprising an encoder and a decoder.
- Encoder reduces input fashion images into a latent space representation.
- Decoder reconstructs compressed representations back to the original image space.

2. Data Preprocessing:

- Preprocesses fashion images to enhance data quality and model robustness.
- Techniques such as normalization ensure uniformity across features.
- Training dataset is partitioned into training and testing sets.

3. Training Process:

- Involves iterative optimization of model parameters using backpropagation and gradient descent.
- Optimizes training iterations and batch sizes for efficient convergence.

4. Evaluation:

- Assesses model performance using evaluation metrics such as reconstruction loss and image quality measures.
- Visualizes reconstructed and generated fashion images to validate model effectiveness.

Conclusion:

Summarizes key findings and takeaways from the project, highlighting the potential of CVAE in fashion image generation. Discusses future research directions in utilizing deep learning techniques for fashion design and creativity.