

Denoise AutoEncoders

- **Dataset:**

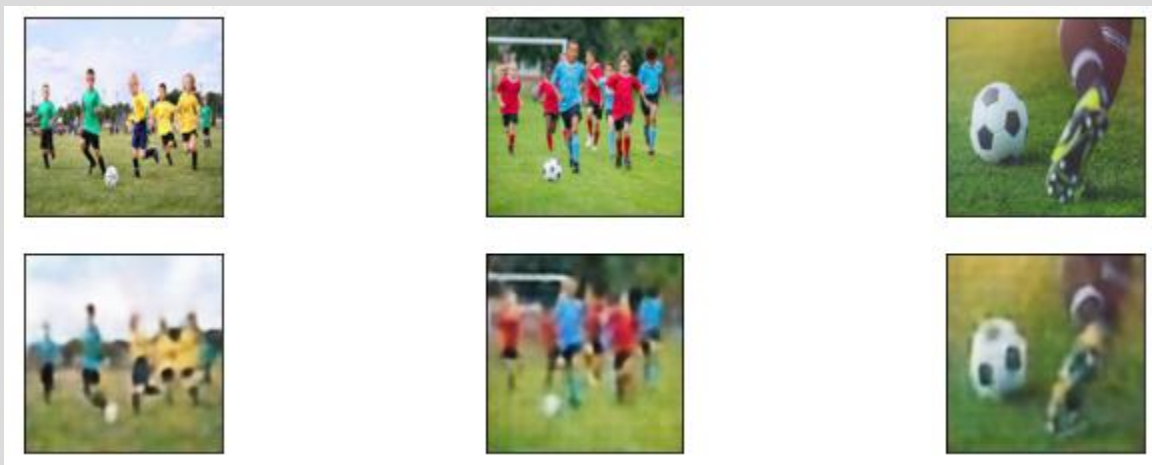
The consist of 391 cat images and 5 custom images for testing.
Images shape is (128, 128, 3)

- **Models:**

Autoencoders is training on returning (image + noise) to (image), Trained on 150 epochs

1. Autoencoder (16*16*128)

- Results of adding noise to the image, and pass it through the autoencoder. **Better**

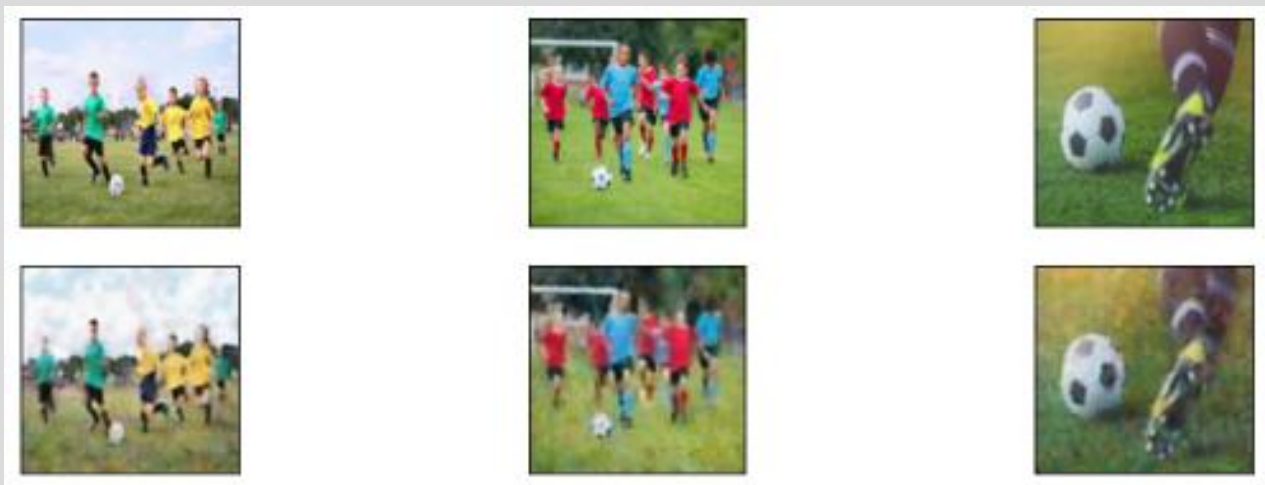


- **Results of passing the image as it is without noise through the encoder part, then add noise to the encoded vector, then decode it.**



2. Autoencoder ($32*32*128$)

- **Results of adding noise to the image, and pass it through the autoencoder.**



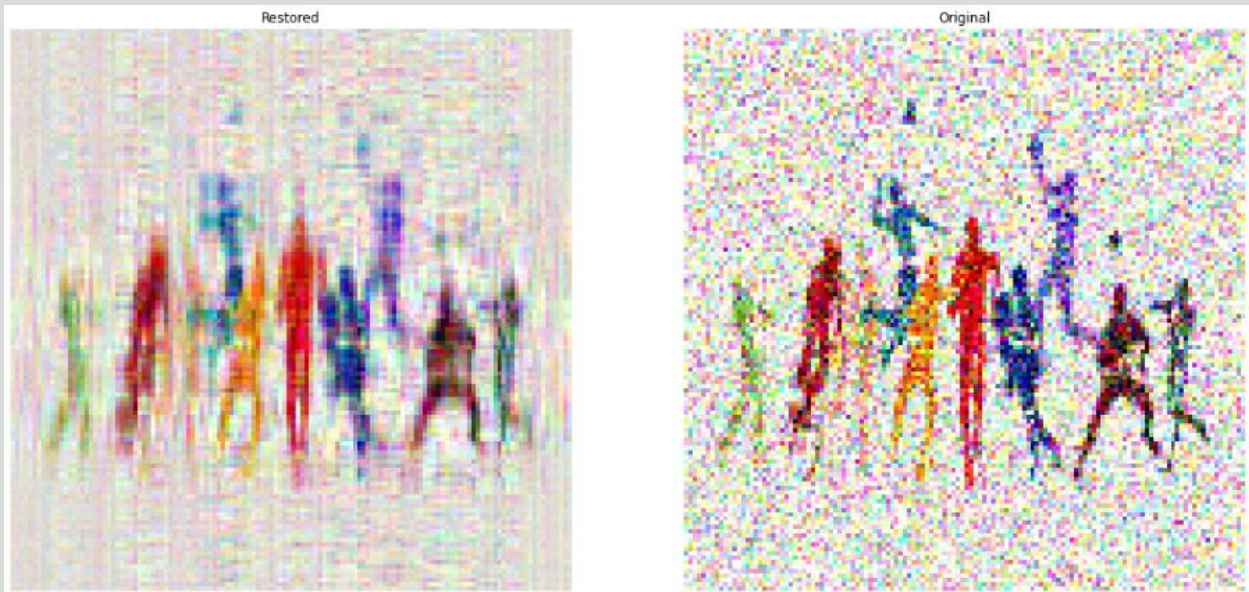
- **Results of passing the image as it is without noise through the encoder part, then add noise to the encoded vector, then decode it.**



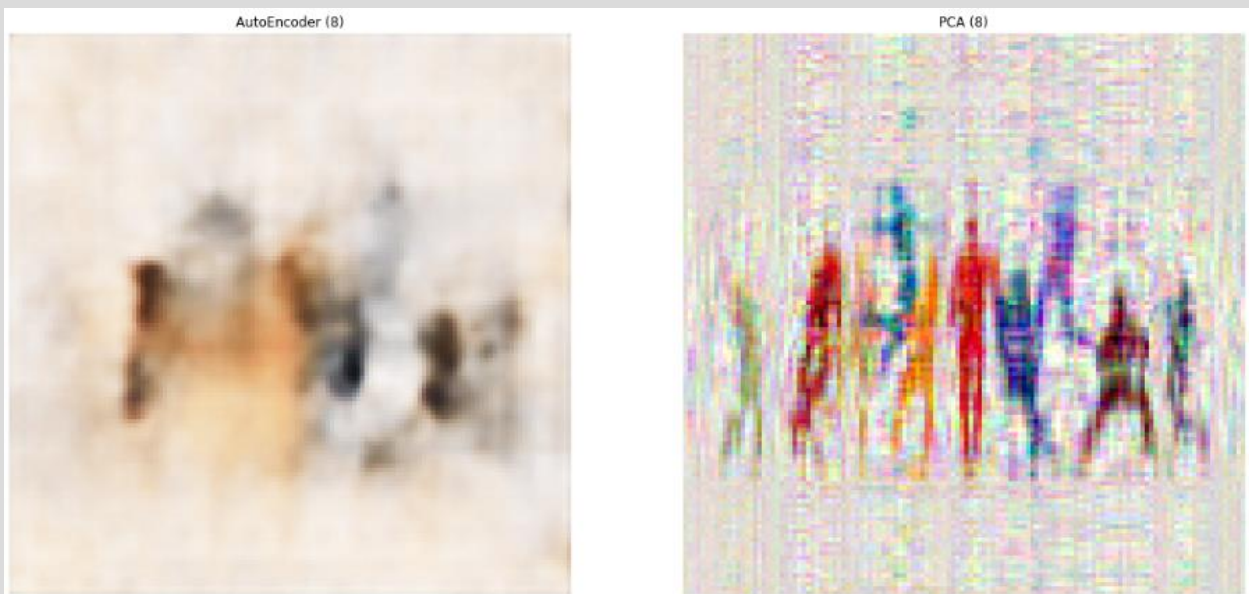
PCA Vs Autoencoder (noisy image)

- **Encoding (8):**

1. **PCA results:**



2. **Autoencoder results:**



Here PCA is Better

- **Encoding (16):**

1. **PCA results:**



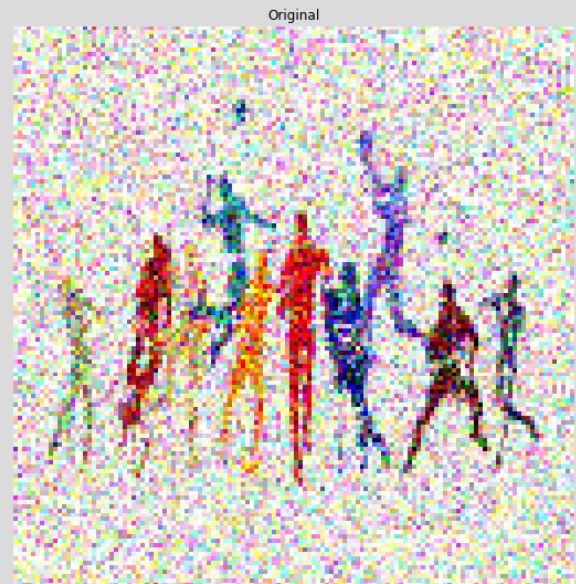
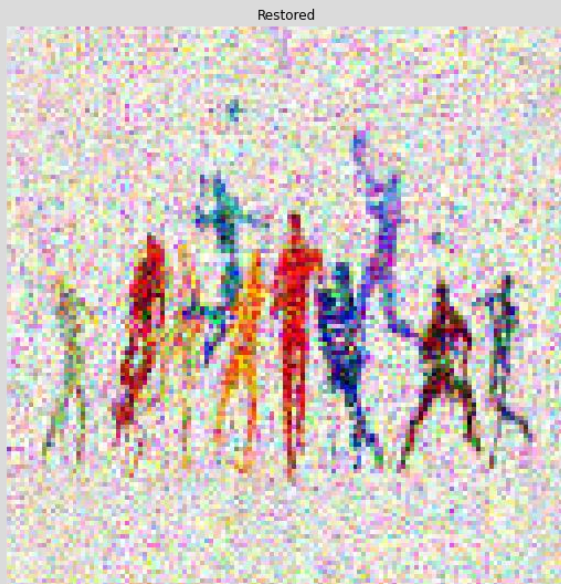
2. **Autoencoder results:**



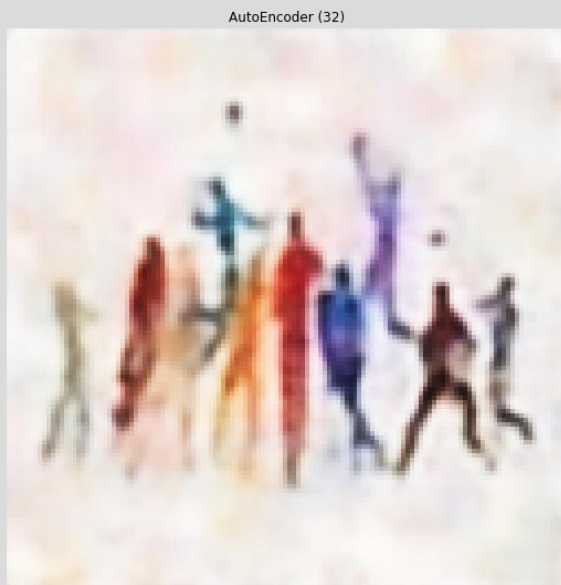
Here PCA is Better

- **Encoding (32):**

1. **PCA results:**



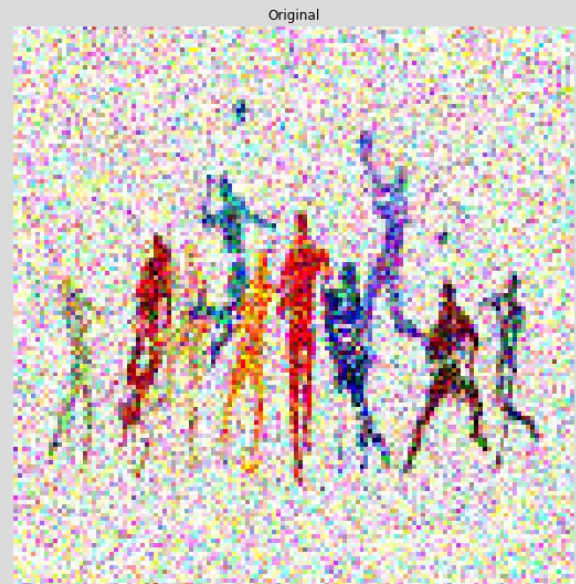
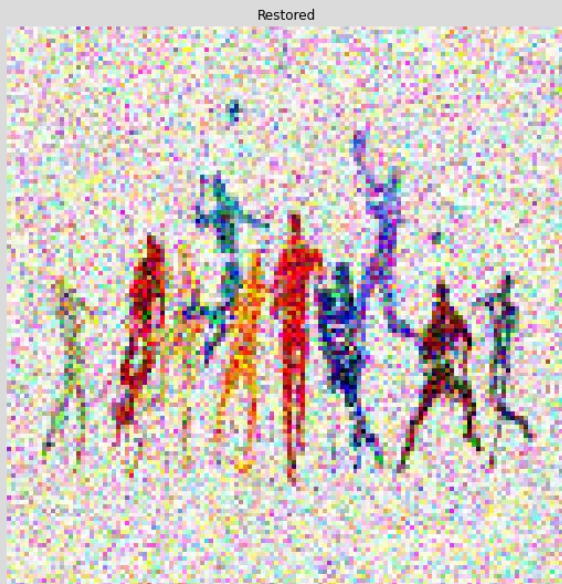
2. **Autoencoder results:**



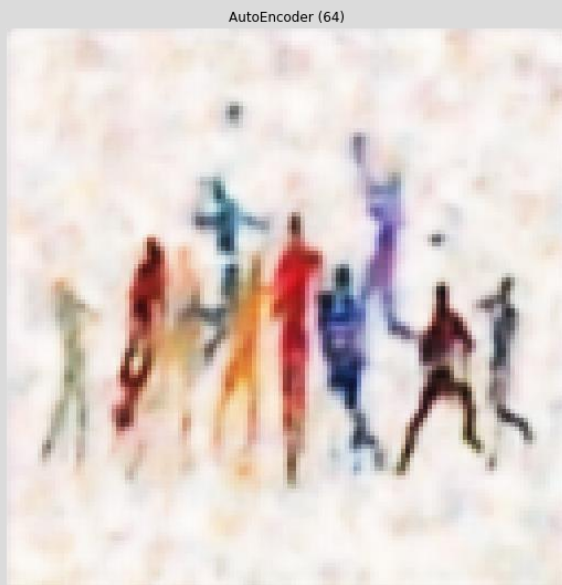
Here Autoencoder is Better

- **Encoding (64):**

1. **PCA results:**



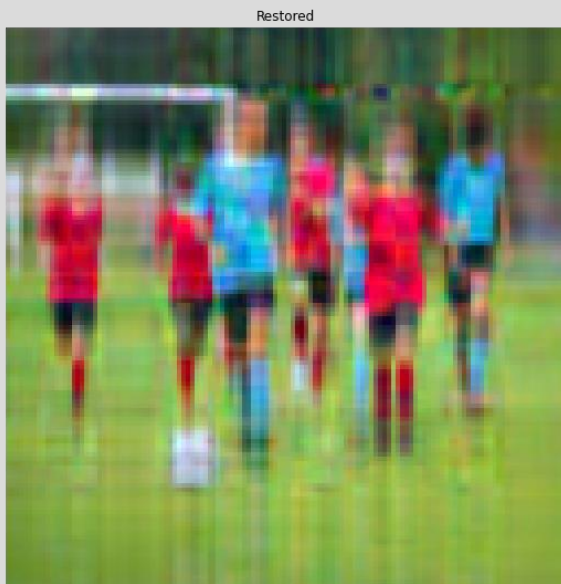
2. **Autoencoder results:**



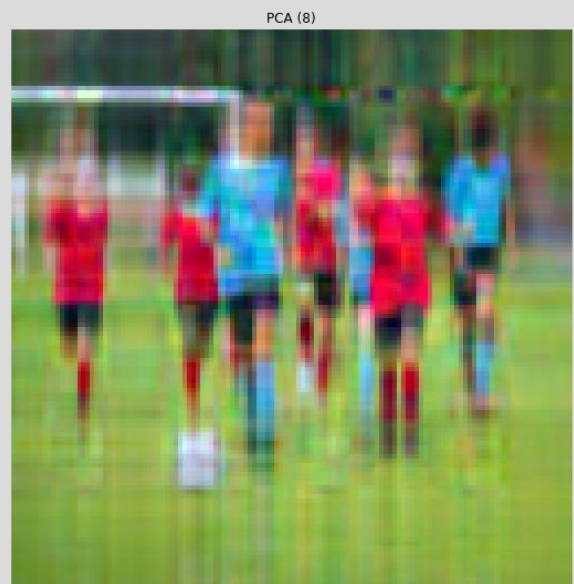
Here Autoencoder is Better

PCA Vs Autoencoder (without noise)

- **Encoding (8):**
3. PCA results:



4. Autoencoder results:

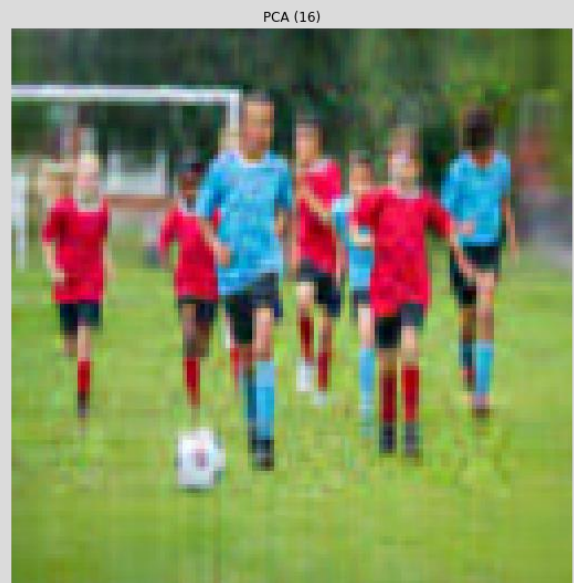
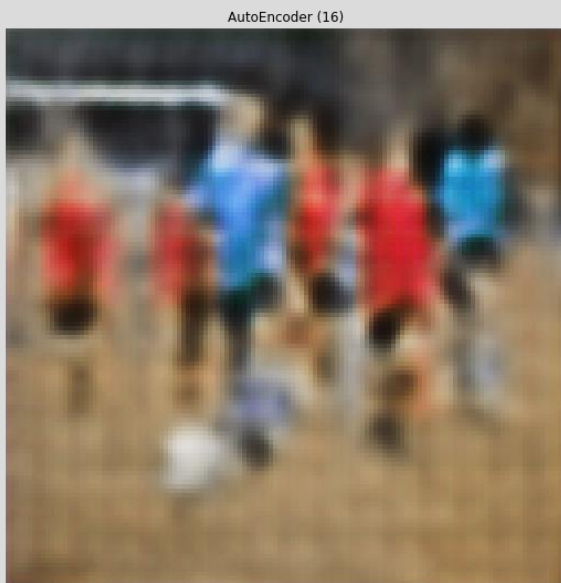


Here PCA is Better

- **Encoding (16):**
3. PCA results:



4. Autoencoder results:



Here PCA is Better

- **Encoding (32):**
3. PCA results:

Restored



Original



4. Autoencoder results:

AutoEncoder (32)



PCA (32)



Here PCA is Better

- **Encoding (64):**
- 3. PCA results:**

Restored



Original



4. Autoencoder results:

AutoEncoder (64)



PCA (64)



Here PCA is Better

