DEEP LEARNING FOR COMPUTER VISION

Week9

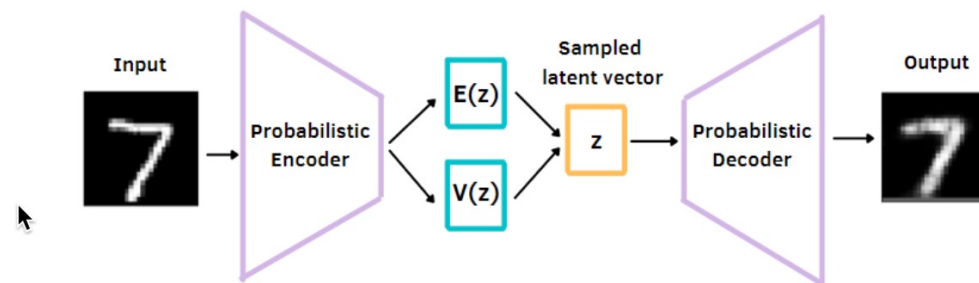Dr. Tuchsanai. PloySuwan

Variational Autoencoder with Pytorch

Illustration by Author

https://medium.com/dataseries/variational-autoencoder-with-pytorch-2d359cbf027b

Variational Autoencoder - dogs generation

https://www.kaggle.com/code/speedwagon/variational-autoencoder-dogs-generation

Waveplot for audio with fear emotion

Spectrogram for audio with fear emotion
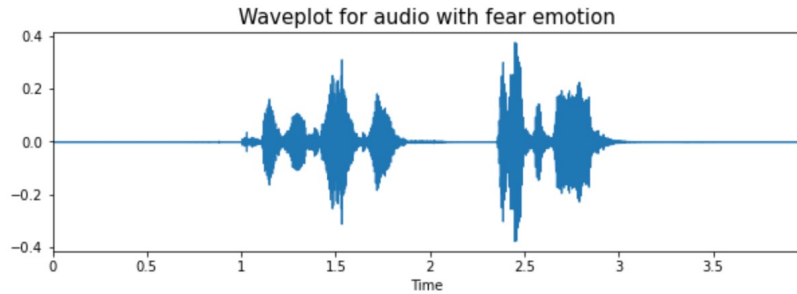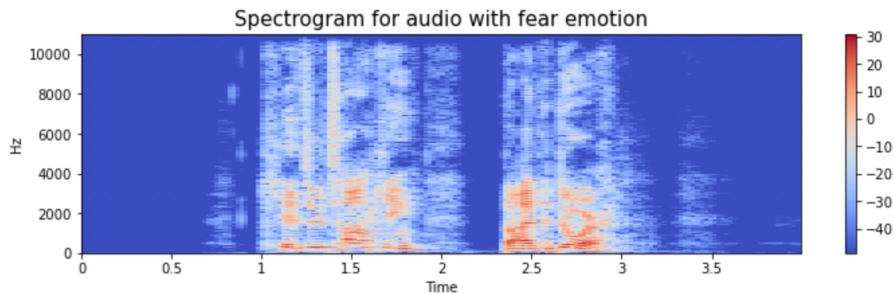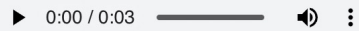
```
data, sampling_rate = librosa.load(path)
create_waveplot(data, sampling_rate, emotion)
create_spectrogram(data, sampling_rate, emotion)
```

```python
def create_waveplot(data, sr, e):
    plt.figure(figsize=(10, 3))
    plt.title('Waveplot for audio with {} emotion'.format(e), size=15)
    librosa.display.waveplot(data, sr=sr)
    plt.show()

def create_spectrogram(data, sr, e):
    # stft function converts the data into short term fourier transform
    X = librosa.stft(data)
    Xdb = librosa.amplitude_to_db(abs(X))
    plt.figure(figsize=(12, 3))
    plt.title('Spectrogram for audio with {} emotion'.format(e), size=15)
    librosa.display.specshow(Xdb, sr=sr, x_axis='time', y_axis='hz')
    #librosa.display.specshow(Xdb, sr=sr, x_axis='time', y_axis='log')
    plt.colorbar()
```

https://www.kaggle.com/code/shivamburnwal/speech-emotion-recognition

Mid term ?

Generate music with Variational AutoEncoder

https://www.kaggle.com/code/basu369victor/generate-music-with-variational-autoencoder

https://www.kaggle.com/datasets/imsparsh/musicnet-dataset