ETUA40182A: DEEP LEARNING

Unit.No	Unit Name	Resource	Topics	
1	CNN and its applications		1	CNN visualization
			2	Object classification using CNN
			3	Object localization, Sliding window approach, Intersection of Unions , Anchor boxes
			4	YOLO algorithm, non -maxima suppression
			5	Face recognition
			6	Fun with Neural style transfer
2	Recurrent Neural Networks		1	One hot word representation
			2	Word embedding
			3	Word to Vec
			4	Bidirectional RNN
			5	Vanishing Gradient Problem
			6	LSTM and applications
			7	Time series forecasting with RNNs.
			8	Gated Recurrent Units
3	Autoencoders		1	Principle of Autoencoders
			2	Auto encoder Vs PCA
			3	Training Autoencoders
			4	Sparse Autoencoder
			5	Denoising Autoencoder

Unit.No	Unit Name	Resource		Topics
			6	Contractive Autoencoder
			7	Convolution Autoencoder
4	Variational Autoencoders (VAE)		1	Principles of VAEs,
			2	Variational inference,
			3	Core equation,
			4	Optimization,
			5	Conditional VAE (CVAE),Stacked VAE,MNIST variational Autoencoder,
			6	Using CNNs for VAEs ,
			7	Applications of VAE's
5	Generative Adversarial Networks (GAN)		1	Generative and discriminative models
			2	Principles of GANs
			3	Architecture structure basics
			4	Deep Convolution Generative Adversarial Network (DCGAN)
			5	Conditional GAN (CGAN)
			6	Types of GAN such as cycle GAN ,sim GAN and their applications
6	Reinforcement Learning		1	Principles of reinforcement learning (RL)
			2	The Q value,Q-Learning example
			3	Nondeterministic environment
			4	Temporal-difference learning
			5	Deep Q-Network (DQN)

Unit.No	Unit Name	Resource	Topics
			6 Double Q-Learning (DDQN)
			7 Applications of RL