Deep Learning with MATLAB

Prerequisites

MATLAB Fundamentals
Deep Learning Onramp

Day 1 of 2	
Transfer Learning for Image Classification	**Objective:** Perform image classification using pretrained networks. Use transfer learning to train customized classification networks. Pretrained networks Image datastores Transfer learning Network evaluation
Interpreting Network Behavior	**Objective:** Gain insight into how a network is operating by visualizing image data as it passes through the network. Apply this technique to different kinds of images. Activations Feature extraction for machine learning
Creating Networks	**Objective:** Build convolutional networks from scratch. Understand how information is passed between network layers and how different types of layers work. Training from scratch Neural networks Convolution layers and filters
Training a Network	**Objective:** Understand how training algorithms work. Set training options to monitor and control training. Network training Training progress plots Validation

Day 2 of 2	
Improving Network Performance	**Objective:** Choose and implement modifications to training algorithm options, network architecture, or training data to improve network performance. Training options Directed acyclic graphs Augmented datastores

Day 2 of 2	
Performing Image Regression	**Objective:** Create convolutional networks that can predict continuous numeric responses. Transfer learning for regression Evaluation metrics for regression networks
Using Deep Learning for Computer Vision	**Objective:** Train networks to locate and label specific objects within images. Image application workflow Object detection
Classifying Sequence Data	**Objective:** Build and train networks to perform classification on ordered sequences of data, such as time series or sensor data. Long short-term memory networks Sequence classification Sequence preprocessing Categorical sequences
Generating Sequences of Output	**Objective:** Use recurrent networks to create sequences of predictions. Sequence to sequence classification Sequence forecasting