What's New in MATLAB R2022a for Deep Learning?

Apps and Visualization

Experiment Manager

Offload experiments as batch jobs to cluster
You can send your experiment as a batch job to a remote cluster

Deep Network Designer

Generate Experiment Using Deep Network Designer
You can use Deep Network Designer to create deep learning experiments suitable for hyperparameter sweeping

Access pretrained audio networks
You can use Deep Network Designer to visualize, edit, and train pretrained audio networks

Interoperability

TensorFlow

TensorFlow Lite
Load TensorFlow Lite model

TensorFlow Operator Support
You can now import a TensorFlow network that includes ExpandDims operators

ONNX

ONNX Import Layer Support
You can now import an ONNX network that includes 1-D convolution and pooling layers

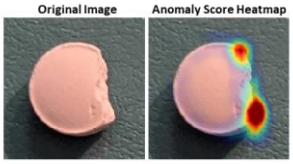
ONNX Export Support
You can now specify a dynamic or fixed batch size for a network

ONNX Version Support
Updated support for ONNX intermediate representation version 7 and operator sets 6 to 14

Applications

Anomaly Detection

Detect Image Anomalies Using Explainable One-Class
Train an anomaly detector for visual inspection of pill images



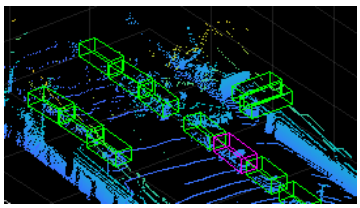
Classify Defects on Wafer Maps Using Deep Learning
Classify eight types of manufacturing defects on wafer maps using a simple CNN

Object Detection

Object Detection Using YOLO v4 Deep Learning
Detect objects in images using YOLO v4

LIDAR Processing

Lidar Object Detection Using Complex-YOLO v4 Network
Train a Complex-YOLO v4 network to perform object detection on point clouds



Audio Processing

Train 3-D Sound Event Localization and Detection (SELD) Using Deep Learning
Train a model to perform sound localization and event detection from ambisonic data

Investigate Audio Classifications Using Deep Learning Interpretability Techniques
Use interpretability techniques to investigate the predictions of a deep neural network trained to classify audio data

Algorithms

Modelling

Multi-Input Networks
Train networks with mixtures of image, sequence, or feature inputs

1-D Convolutional Networks
Create and train networks with 1-D transposed convolution for sequence and time series data

Deep Learning Model Hub
You can find models suitable for a range of deep learning applications

Network Training

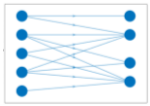
Specify checkpoint frequency
You can now specify how often the software saves checkpoint networks

Train networks with sequence input in parallel
The trainNetwork function now supports training networks with sequence input in parallel

Deployment

Code Generation

Pruning
Network that can be pruned by using first-order Taylor approximation



TensorFlow
Generate C++ code for pretrained models and deploy on Linux platforms

Acceleration Modes

Acceleration for Simulink Deep Learning Models
Use accelerator and rapid accelerator modes to speedup Simulink simulations