Welcome Lesson

To download OpenVINO toolkit on your system, please follow the link https://software.intel.com/en-us/openvino-toolkit/choose-download.

Take the opportunity to sign-up and learn more about Intel developer resources: https://software.seek.intel.com/us-en-go-to-market.

Lesson 1

A Guide to the Internet of Things Infographic
https://www.intel.com/content/www/us/en/internet-of-things/infographics/guide-to-iot.html

Deploy high-performance, deep learning inference
https://software.intel.com/en-us/openvino-toolkit

Computer Vision Hardware
https://software.intel.com/en-us/openvino-toolkit/hardware

Intel® Neural Compute Stick 2 and Open Source OpenVINO™ Toolkit
https://software.intel.com/en-us/articles/intel-neural-compute-stick-2-and-open-source-openvino-toolkit

Edge Inference
https://software.intel.com/en-us/devcloud/edge

Lesson 2

Pretrained Models
https://software.intel.com/en-us/openvino-toolkit/documentation/pretrained-models

Image Classification vs. Object Detection vs. Image Segmentation
https://medium.com/analytics-vidhya/image-classification-vs-object-detection-vs-image-segmentation-f36db85fe81

SSD: Single Shot MultiBox Detector
https://arxiv.org/abs/1512.02325

ResNet
https://arxiv.org/pdf/1512.03385.pdf

SSD
https://arxiv.org/abs/1512.02325

YOLO
https://arxiv.org/abs/1506.02640

Faster RCNN
https://arxiv.org/abs/1506.01497

MobileNet
https://arxiv.org/abs/1704.04861

ResNet
https://arxiv.org/abs/1512.03385

Inception
https://arxiv.org/pdf/1409.4842.pdf

GANGogh: Creating Art with GANs
https://towardsdatascience.com/gangogh-creating-art-with-gans-8d087d8f74a1

Understanding SSD MultiBox — Real-Time Object Detection In Deep Learning
https://towardsdatascience.com/understanding-ssd-multibox-real-time-object-detection-in-deep-learning-495ef744fab

What is semantic segmentation?
https://thegradient.pub/semantic-segmentation/

R-CNN
https://arxiv.org/pdf/1311.2524.pdf

Fast R-CNN

https://arxiv.org/pdf/1504.08083.pdf

What does 1x1 convolution mean in a neural network?
https://stats.stackexchange.com/questions/194142/what-does-1x1-convolution-mean-in-a-neural-network

The Vanishing Gradient Problem
https://towardsdatascience.com/the-vanishing-gradient-problem-69bf08b15484

LeNet
http://yann.lecun.com/exdb/publis/pdf/lecun-01a.pdf

Lesson 3

Model Optimizer Developer Guide
https://docs.openvinotoolkit.org/2019_R3/_docs_MO_DG_Deep_Learning_Model_Optimizer_DevGuide.html

Quantization
https://nervanasystems.github.io/distiller/quantization.html

Model Optimization Techniques
https://docs.openvinotoolkit.org/2019_R3/_docs_MO_DG_prepare_model_Model_Optimization_Techniques.html

Caffe
https://caffe.berkeleyvision.org/

TensorFlow
https://www.tensorflow.org/

MXNet
https://mxnet.apache.org/

ONNX

https://onnx.ai/

Kaldi
https://kaldi-asr.org/doc/dnn.html

Converting a Model to Intermediate Representation (IR)
https://docs.openvinotoolkit.org/2019_R3/_docs_MO_DG_prepare_model_convert_model_Converting_Model.html

Supported Framework Layers
https://docs.openvinotoolkit.org/2019_R3/_docs_MO_DG_prepare_model_Supported_Frameworks_Layers.html

Intermediate Representation Notation Reference Catalog
https://docs.openvinotoolkit.org/2019_R3/_docs_MO_DG_prepare_model_convert_model_IRLayersCatalogSpec.html

Converting a TensorFlow* Model
https://docs.openvinotoolkit.org/2019_R3/_docs_MO_DG_prepare_model_convert_model_Convert_Model_From_TensorFlow.html

Tensorflow detection model zoo
https://github.com/tensorflow/models/blob/master/research/object_detection/g3doc/detection_model_zoo.md

EnvironmentVariables
https://help.ubuntu.com/community/EnvironmentVariables

Converting a Caffe* Model
https://docs.openvinotoolkit.org/2019_R3/_docs_MO_DG_prepare_model_convert_model_Convert_Model_From_Caffe.html

Converting a ONNX* Model
https://docs.openvinotoolkit.org/2019_R3/_docs_MO_DG_prepare_model_convert_model_Convert_Model_From_ONNX.html

ONNX Model Zoo
https://github.com/onnx/models

How to Convert a PyTorch Model to ONNX Format — A blog on data science in the world of software development
https://michhar.github.io/convert-pytorch-onnx/

Cutting Off Parts of a Model
https://docs.openvinotoolkit.org/2019_R3/_docs_MO_DG_prepare_model_convert_model_Cutting_Model.html

Custom Layers in the Model Optimizer
https://docs.openvinotoolkit.org/2019_R3/_docs_MO_DG_prepare_model_customize_model_optimizer_Customize_Model_Optimizer.html

Offloading Sub-Graph Inference to TensorFlow*
https://docs.openvinotoolkit.org/2019_R3/_docs_MO_DG_prepare_model_customize_model_optimizer_Offloading_Sub_Graph_Inference.html

Lesson 4

Inference Engine Developer Guide
https://docs.openvinotoolkit.org/2019_R3/_docs_IE_DG_Deep_Learning_Inference_Engine_DevGuide.html

Use the Model Downloader and Model Optimizer for the Intel® Distribution of OpenVINO™ Toolkit on Raspberry Pi*
https://software.intel.com/en-us/articles/model-downloader-optimizer-for-openvino-on-raspberry-pi

Supported Devices
https://docs.openvinotoolkit.org/2019_R3/_docs_IE_DG_supported_plugins_Supported_Devices.html

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https://docs.openvinotoolkit.org/2019_R3/classie__api_1_1IECore.html

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IE Python API
https://docs.openvinotoolkit.org/2019_R3/ie_python_api.html

IE Network
https://docs.openvinotoolkit.org/2019_R3/classie__api_1_1IENetwork.html

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Executable Network documentation
https://docs.openvinotoolkit.org/2019_R3/classie__api_1_1ExecutableNetwork.html

Infer Request documentation
https://docs.openvinotoolkit.org/2019_R3/classie__api_1_1InferRequest.html

synchronous/asynchronous API
https://whatis.techtarget.com/definition/synchronous-asynchronous-API

Integrate the Inference Engine with Your Application
https://docs.openvinotoolkit.org/2019_R3/_docs_IE_DG_Integrate_with_customer_application_new_API.html

Object Detection SSD C++ Demo, Async API Performance Showcase
https://github.com/opencv/open_model_zoo/blob/master/demos/object_detection_demo_ssd_async/README.md

InferenceEngine::Blob Class Reference
https://docs.openvinotoolkit.org/2019_R3/classInferenceEngine_1_1Blob.html

Intel®'s IoT Apps Across Industries
https://www.intel.com/content/www/us/en/internet-of-things/industry-solutions.html

Starting Your First IoT Project
https://hackernoon.com/the-ultimate-guide-to-starting-your-first-iot-project-8b0644fbbe6d

OpenVINO™ on a Raspberry Pi and Intel® Neural Compute Stick
https://www.pyimagesearch.com/2019/04/08/openvino-opencv-and-movidius-ncs-on-the-raspberry-pi/

What is the best programming language for Machine Learning?
https://towardsdatascience.com/what-is-the-best-programming-language-for-machine-learning-a745c156d6b7

Optimization Guide
https://docs.openvinotoolkit.org/2019_R3/_docs_optimization_guide_dldt_optimization_guide.html

Lesson 5

OpenCV Tutorials
https://docs.opencv.org/master/d9/df8/tutorial_root.html

MQTT
http://mqtt.org/

MQTT (MQ Telemetry Transport)
https://internetofthingsagenda.techtarget.com/definition/MQTT-MQ-Telemetry-Transport

paho-mqtt 1.5.0
https://pypi.org/project/paho-mqtt/

Developer-Ready Hardware
https://software.intel.com/en-us/iot/hardware/all

FFmpeg
https://www.ffmpeg.org/

Set up Your Own Server on Linux
https://opensource.com/article/19/1/basic-live-video-streaming-server

Use Flask and Python

https://www.pyimagesearch.com/2019/09/02/opencv-stream-video-to-web-browser-html-page/

About Node.js®
https://nodejs.org/en/about/

Introduction to the Performance Topics
https://docs.openvinotoolkit.org/2019_R3/_docs_IE_DG_Intro_to_Performance.html

Netflix uses 15% of worldwide bandwidth
https://www.sandvine.com/hubfs/downloads/phenomena/phenomena-presentation-final.pdf

Deep Learning for Distracted Driving Detection
https://www.nauto.com/blog/nauto-engineering-deep-learning-for-distracted-driver-monitoring

Full Stack Python
https://www.fullstackpython.com/flask.html

Intel DevMesh
https://devmesh.intel.com/