Software

НЕЙРОСЕТИ – КТО КОГО УЧИТ?

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Intel

Accelerate Computer Vision with Intel® Distribution of OpenVINO™ toolkit

OpenVINO™

What it is

A toolkit to accelerate development of **high performance computer vision** and **deep learning into vision applications** from device to cloud. It enables deep learning on hardware accelerators and easy **heterogeneous** execution across multiple types of Intel® platforms. The toolkit includes:

- Intel® Deep Learning Deployment Toolkit
- Optimized functions for OpenCV*, media encode/decode, and more
- 20+ pre-trained models, code samples, supports 100+ public and custom models

Why important

Demand is growing for intelligent vision solutions.

- **Deep learning revenue** is estimated to grow from $655M in 2016 to **$35B by 2025**[1].

This requires **developer tools** to integrate computer vision, deep learning, and analytics processing capabilities into applications, so they can help **turn data into insights that fuel artificial intelligence**.

Users & Usages: Software developers, **data scientists** working on vision solutions for surveillance, robotics, healthcare, AI, office automation, transportation, & more. Some non-vision use cases such as speech also apply.

Free Download ▸
software.intel.com/openvino-toolkit

Open source version ▸
01.org/openvinotoolkit

Latest version is 2018 R4
[1]Tractica 2Q 2017

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Benefits of Intel® Distribution of OpenVINO™ toolkit

Maximize the Power of Intel® Processors
CPU, GPU/Intel® Processor Graphics, FPGA,VPU

ACCELERATE PERFORMANCE

Access Intel computer vision accelerators.
Speed code performance.
Supports heterogeneous execution.

INTEGRATE DEEP LEARNING

Unleash CNN-based deep learning inference using a common API, 20+ pre-trained models, & computer vision algorithms. Validated on more than 100 public/custom models.

SPEED DEVELOPMENT

Reduce time using a library of optimized OpenCV* & OpenVX* functions, & 15+ samples.

Develop once, deploy for current & future Intel-based devices.

INNOVATE & CUSTOMIZE

Use OpenCL™ kernels/tools to add your own unique code. Customize layers without the overhead of frameworks.

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What's Inside Intel® Distribution of OpenVINO™ toolkit

Intel® Deep Learning Deployment Toolkit

Model Optimizer
Convert & Optimize

IR

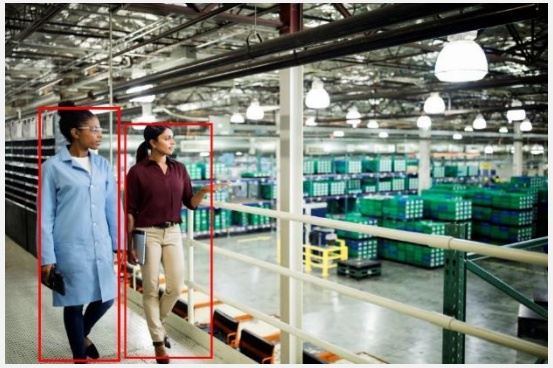
Inference Engine
Optimized Inference

20+ Pre-trained Models

Computer Vision Algorithms

Samples

IR = Intermediate Representation file



Traditional Computer Vision

Optimized Libraries & Code Samples

OpenCV*

OpenVX*

Code Samples

For Intel® CPU & GPU/Intel® Processor Graphics

Tools & Libraries

Increase Media/Video/Graphics Performance

Intel® Media SDK
Open Source version

OpenCL™ Drivers & Runtimes

For GPU/Intel® Processor Graphics

Optimize Intel® FPGA (Linux* only)

FPGA RunTime Environment
(from Intel® FPGA SDK for OpenCL™)

Bitstreams

OS Support CentOS* 7.4 (64 bit) Ubuntu* 16.04.3 LTS (64 bit) Microsoft Windows* 10 (64 bit) Yocto Project* version Poky Jethro v2.0.3 (64 bit)

Intel® Architecture-Based Platforms Support

Intel® Vision Accelerator Design Products & Intel/Partner Developer Kits

An open source version is available at 01.org/openvinotoolkit (some deep learning functions support Intel CPU/GPU only).

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Intel® Deep Learning Deployment Toolkit

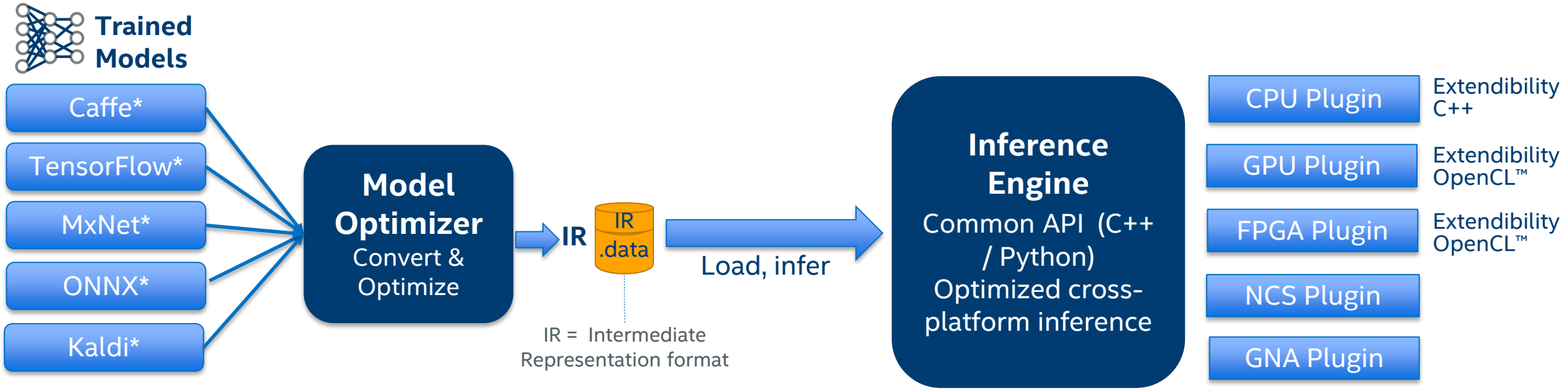
For Deep Learning Inference

Model Optimizer

- **What it is**: A python based tool to import trained models and convert them to Intermediate representation.
- **Why important**: Optimizes for performance/space with conservative topology transformations; biggest boost is from conversion to data types matching hardware.

Inference Engine

- **What it is**: High-level inference API
- **Why important**: Interface is implemented as dynamically loaded plugins for each hardware type. Delivers best performance for each type without requiring users to implement and maintain multiple code pathways.



GPU = Intel CPU with integrated graphics processing unit/Intel® Processor Graphics

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OpenVINO™ Toolkit

Open source version

OpenVINO™

- Provides flexibility and availability to the developer community to extend OpenVINO™ toolkit for custom needs
- Components that are open sourced
  - Deep Learning Deployment Toolkit with CPU, GPU & Heterogeneous plugins github.com/opencv/dldt
  - Open Model Zoo - includes pre-trained models, model downloader, demos and samples - github.com/opencv/open_model_zoo
- See FAQ for key differences between OpenVINO™ Toolkit (open source) and Intel® Distribution of OpenVINO™ Toolkit (Intel version)

More details ▸ 01.org/openvinotoolkit

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Q&A

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Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more complete information visit www.intel.com/benchmarks.

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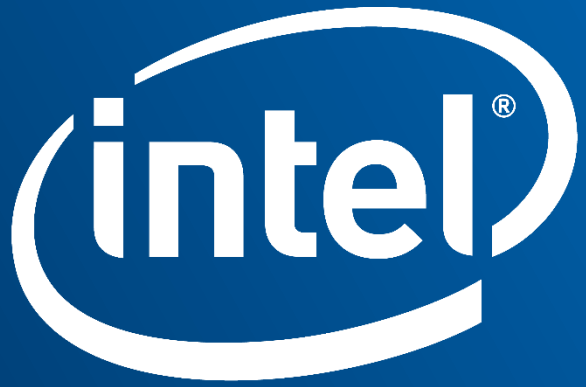

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