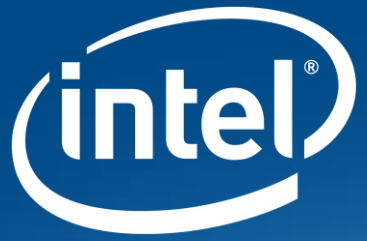

ACCELERATE DEEP LEARNING INFERENCE USING INTEL® TECHNOLOGIES

INTRODUCTION: SMART VIDEO

INTEL® DISTRIBUTION OF OPENVINO™ TOOLKIT 2020.R4 VERSION

July 2020

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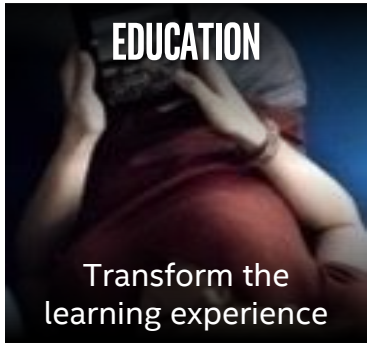
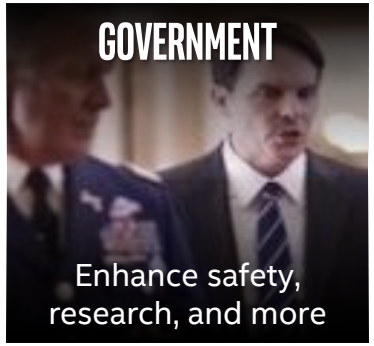
AI CHANGING AND ENABLING EVERY INDUSTRY

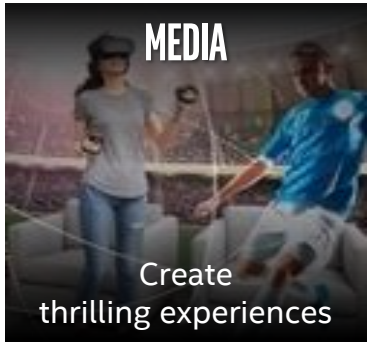
AI software market is projected to reach USD 126.0 billion in annual worldwide revenue by 2025[3]

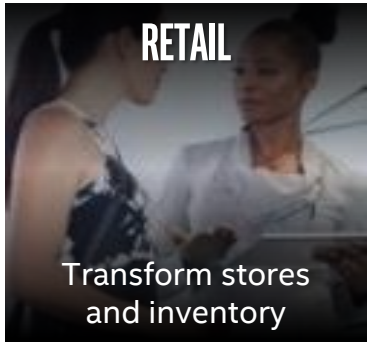
Deep learning software revenue is estimated to grow to USD 67.2 billion by 2025[4]

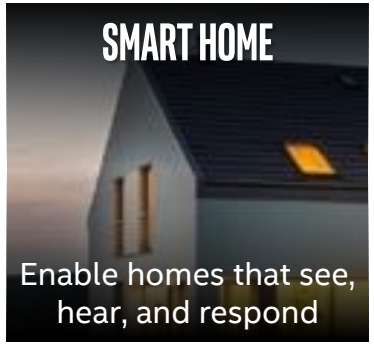
Global deep learning chip market is expected to reach USD 29.4 billion by 2025[5]

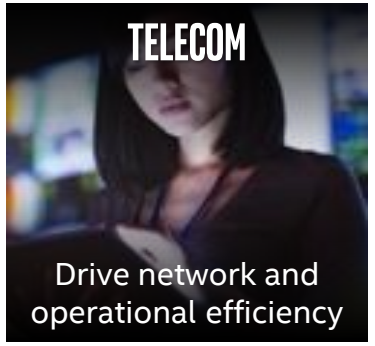


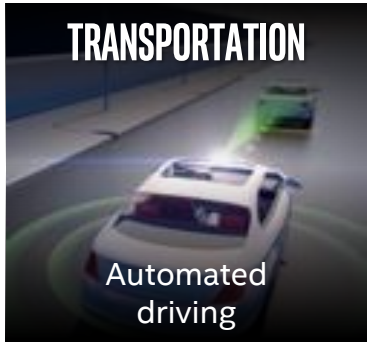












3. Tractica, Artificial Intelligence Software Market, 2020

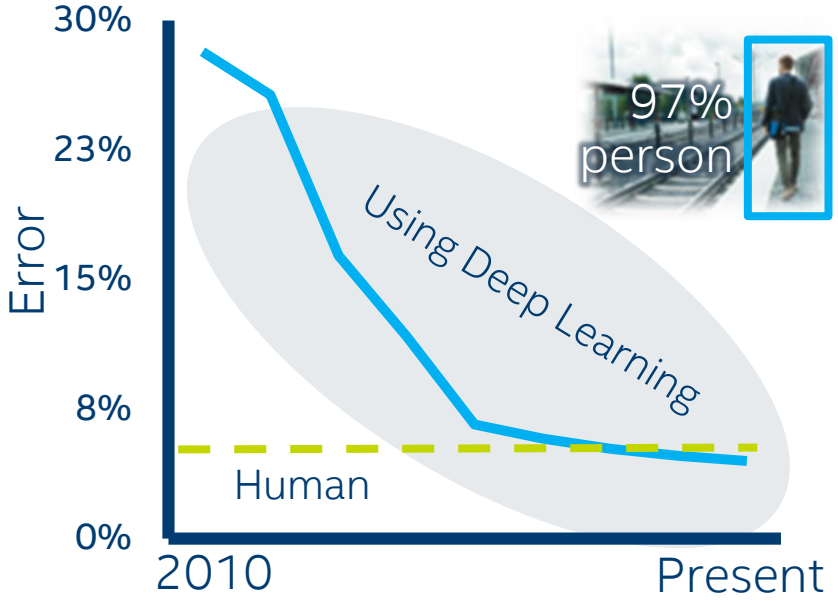
4. Tractica, deep learning research, 2018

5. AlliedMarketResearch, Deep Learning Chip Market, 2018

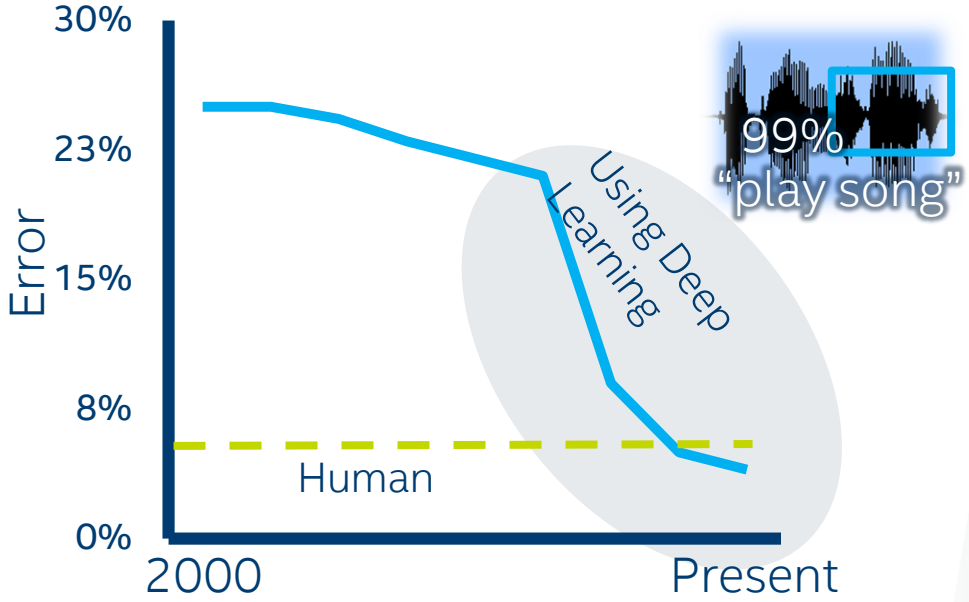
DEEP LEARNING BREAKTHROUGHS AND OPPORTUNITIES

Machines able to meet or exceed human image and speech recognition

Image Recognition



Speech Recognition



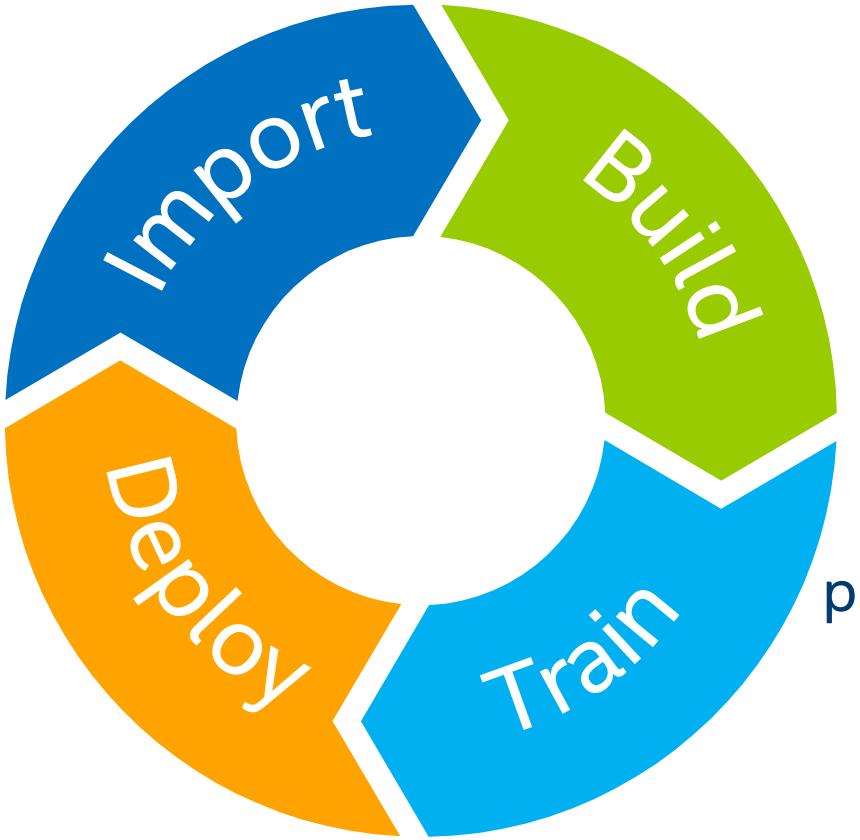
ADDITIONAL ECONOMIC IMPACT DRIVEN BY AI
$13 TRILLION IN 2030

Source: ILSVRC ImageNet winning entry classification error rate each year 2010-2016 (Left), https://www.microsoft.com/en-us/research/blog/microsoft-researchers-achieve-new-conversational-speech-recognition-milestone/ (Right)
Source: https://www.mckinsey.com/featured-insights/artificial-intelligence/notes-from-the-ai-frontier-applications-and-value-of-deep-learning

DEEP LEARNING DEVELOPMENT CYCLE

Data acquisition and organization

Create models



Integrate trained models with application code

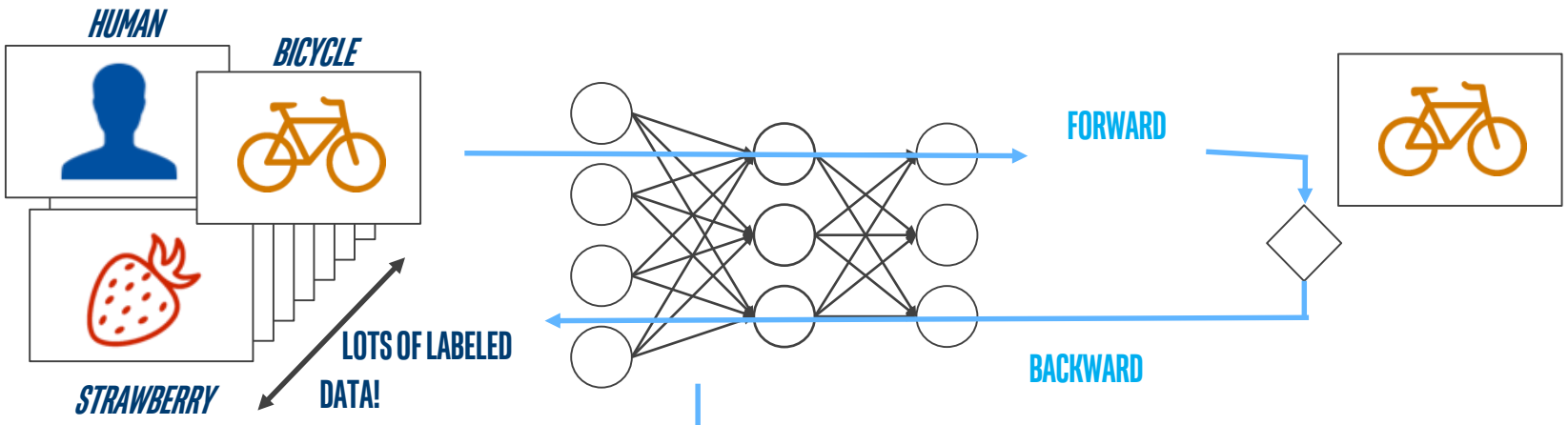
Adjust models to meet performance and accuracy objectives

Intel® Distribution OpenVINO™ Toolkit Provides Deployment from Intel® Edge to Cloud

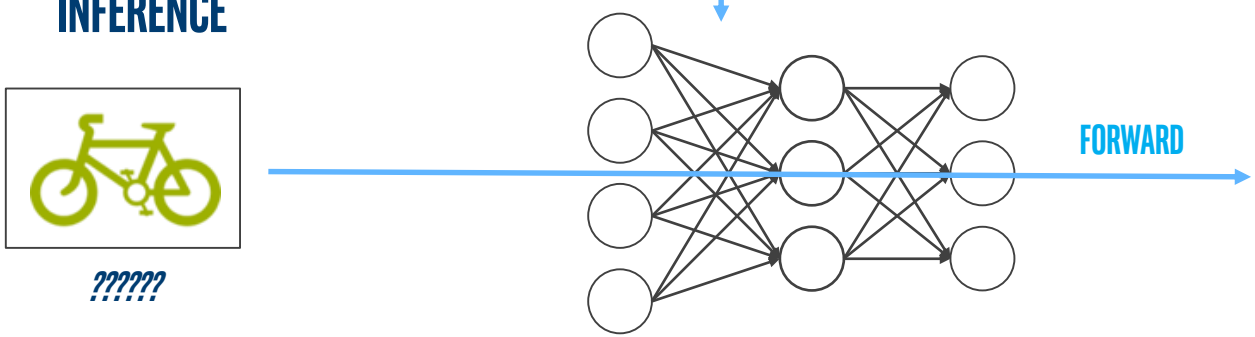
intel

DEEP LEARNING: TRAINING VS. INFERENCE

TRAINING

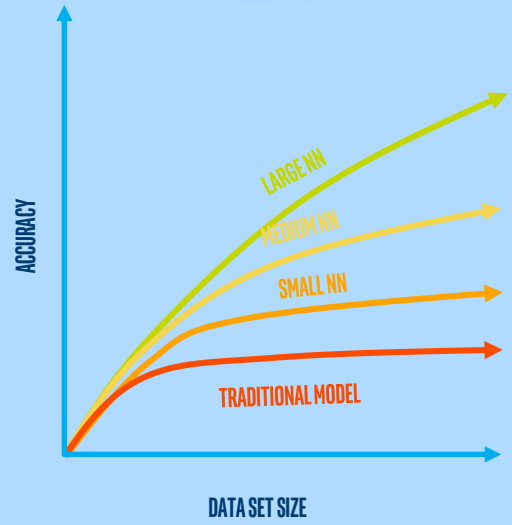


INFERENCE



DID YOU KNOW?

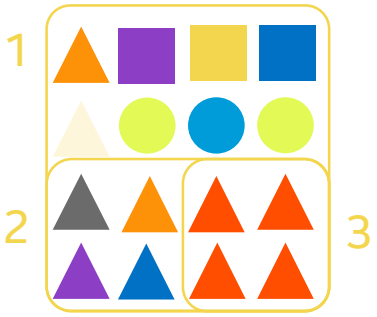
Training requires a very large data set and deep neural network (many layers) to achieve the highest accuracy in most cases



AI COMPUTE CONSIDERATIONS

How do you determine the right computing for your AI needs?

WORKLOADS

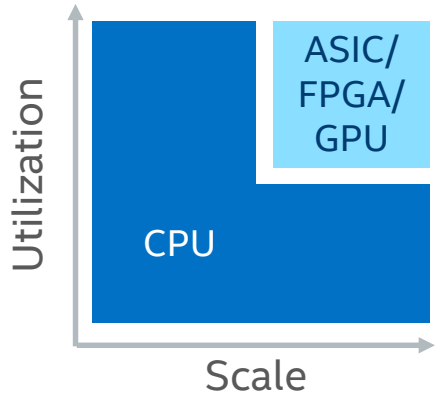


What is my workload profile?

REQUIREMENTS

What are my use case requirements?

DEMAND

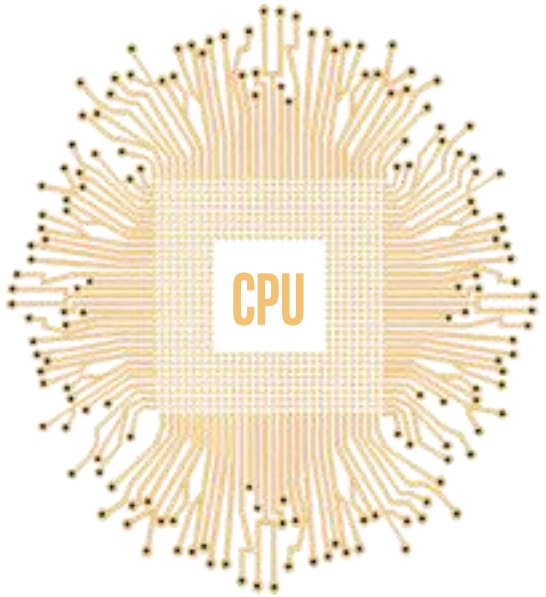


How prevalent is AI in my environment?

OpenVINO

WHY INTEL AI COMPUTE?

MAXIMIZE



Get the most out of the foundation for AI from the CPU leader

OPTIMIZE

Choose the right compute for you from the one with all the options

SIMPLIFY

OPTIMIZED SW
DATA PIPELINE
ANALYTICS & AI
SUPPORT
MOVE/STORE

Reduce “moving parts” by building on an optimized AI platform

LEAD

Lead your industry by aligning with the builder of next-gen AI solutions

INTEL® DISTRIBUTION OF OPENVINO™ TOOLKIT

Tool Suite for High-Performance, Deep Learning Inference

Fast, accurate real-world results using high-performance, AI and computer vision inference deployed into production across Intel® architecture from edge to cloud

High-Performance,
Deep Learning Inference

Streamlined Development,
Ease of Use

Write Once,
Deploy Anywhere

USING THE INTEL® DISTRIBUTION OF OPENVINO™ TOOLKIT

Advanced capabilities to streamline deep learning deployments

1. BUILD

Trained Model

TensorFlow Caffe
KALDI mxnet
ONNX

Open Model Zoo
100+ open sourced and optimized pre-trained models; 80+ supported public models

2. OPTIMIZE

Model Optimizer
Converts and optimizes trained model using a supported framework

Read, Load, Infer

IR Data

Intermediate Representation (.xml, .bin)

Post-Training Optimization Tool

Deep Learning Workbench

Deep Learning Streamer

OpenCV **OpenCL™**

Code Samples & Demos
(e.g. Benchmark app, Accuracy Checker, Model Downloader)

3. DEPLOY

Inference Engine
Common API that abstracts low-level programming for each hardware

Deployment Manager

CPU Plugin
GPU Plugin
GNA Plugin
Myriad Plugin
For Intel® NCS2 & NCS
HDDL Plugin
FGPA Plugin