# AI 101:
A QUICK GUIDE TO CHOOSING THE RIGHT AI APPROACH FOR YOUR BUSINESS NEEDS

As **artificial intelligence (AI)** techniques have rapidly developed, many enterprises look to apply it to a diversity of problems. However, the term "artificial intelligence" can be interpreted in different ways across a wide range of approaches. **This quick guide is intended to help you determine where and how you can incorporate AI to address your business needs.**

WHAT IS AI?

- Regression
- Classification
- Clustering

AI
Machine Learning
Deep Learning
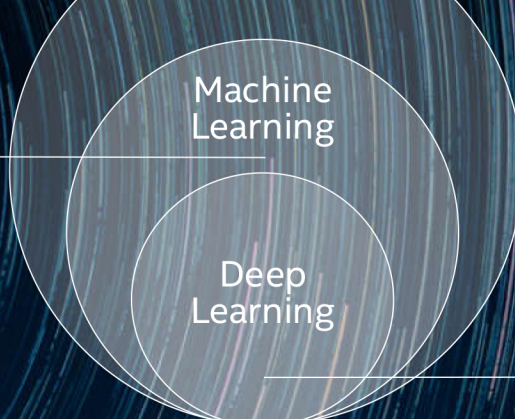
- Image processing
- Speech processing
- Natural language processing
- Recommender systems
- Adversarial networks

AI refers to a broad class of systems that enable machines to mimic human cognitive abilities. Machine learning (ML) is the most common way to achieve artificial intelligence today, and deep learning (DL) is a subset of machine learning.

ASSESS YOUR BUSINESS REQUIREMENTS

Begin by defining your business use case – what workflow, prediction, or process do you need to automate or gain insights from? What are the characteristics of the data you'll be using in terms of format, volume, when and how often it needs to be analyzed? This will help determine the most appropriate type of AI algorithm for your business.

Business Use Case	Data Characteristics	Type of AI	Class of AI Algorithm
Discover the relationship between variables	Structured, batch analysis	Machine learning	Regression
Predict categorical class labels or classify data	Structured, batch analysis	Machine learning	Classification
Uncover meaningful relationships between variables	Structured, batch analysis	Machine learning	Clustering
Classify images, locate and classify object(s) in an image	Unstructured visual data (video, MRI scans etc.), batch or real-time analysis, small datasets	Deep learning: Image recognition, object detection	Convolutional neural network (CNNs)
Extract content and meaning from text	Unstructured text (email, Office documents, social media posts etc.), unstructured audio/video content, batch or real-time analysis	Deep learning: Natural language processing (NLP), language translation, speech recognition	Long short-term memory (LSTM), recursive neural network (RNN)
Convert text to speech	Unstructured text, real-time analysis	Deep learning: Text-to-speech	Generative adversarial network (GAN)
Recommend ads, search, apps etc.	Structured customer data, unstructured text, real-time analysis	Deep learning: Recommendation engine	Multilayer perception (MLP)
Create images like training data	Unstructured image and video, real-time analysis	Deep learning: Data generation	GAN with CNN
Learning from feedback on action	Structured and unstructured, batch or real-time analysis	Deep learning: Reinforcement learning	CNN or CNN+RNN

GET STARTED USING FAMILIAR TECHNOLOGY

Once you've identified your first project, it's usually possible to start on your AI journey right away, using your existing IT infrastructure in many cases. Any AI solution needs to take into account three key areas:

Hardware   Software   Ecosystem

Intel® technology is designed to help you make the most of your entire AI solution stack:

Hardware
Compute: 2nd generation Intel® Xeon® Scalable servers with Intel® Deep Learning Boost (Intel® DL Boost) is the foundation for AI and offers **up to 30x performance improvement**[1] for AI workloads. Intel also has a flexible edge-to-cloud portfolio to meet your growing AI needs

Software
Optimized AI Software Tools: Common ML and DL frameworks, toolkits and libraries are optimized to accelerate AI on Intel® architecture. For example Intel and Google's TensorFlow optimization delivers **up to 3.75x inferencing speed up** when using Intel DL Boost[2]

Ecosystem
Simplified AI deployment: Implement and scale AI solutions in a way that works for your organization, with ready-made solutions from Intel AI Builders members; or build your own with ecosystem support and pre-verified Intel Select Solutions for common AI workloads

LEARN MORE

Still unsure where to start? Explore some real-world examples of AI in action to see what's possible:

- Learn how to **accelerate your AI adoption** with minimal cost and complexity
- See how JLK Inspection is helping medical professionals **accelerate screening** and enhance patient care with the Intel® Distribution of OpenVINO™ toolkit
- Follow the journey of Kongsberg Maritime as it **shifted its AI solutions from GPU- to CPU-based infrastructure**, and increased its performance
- Discover how Intel-optimized AI frameworks are helping **convert raw data into market insights** to guide decision making and inform investors in speciality industries
- Explore how conversational AI using Intel® technologies are helping contact center agents **enhance the customer experience**

For more information on Intel Enterprise Solutions for AI, please contact us today.

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