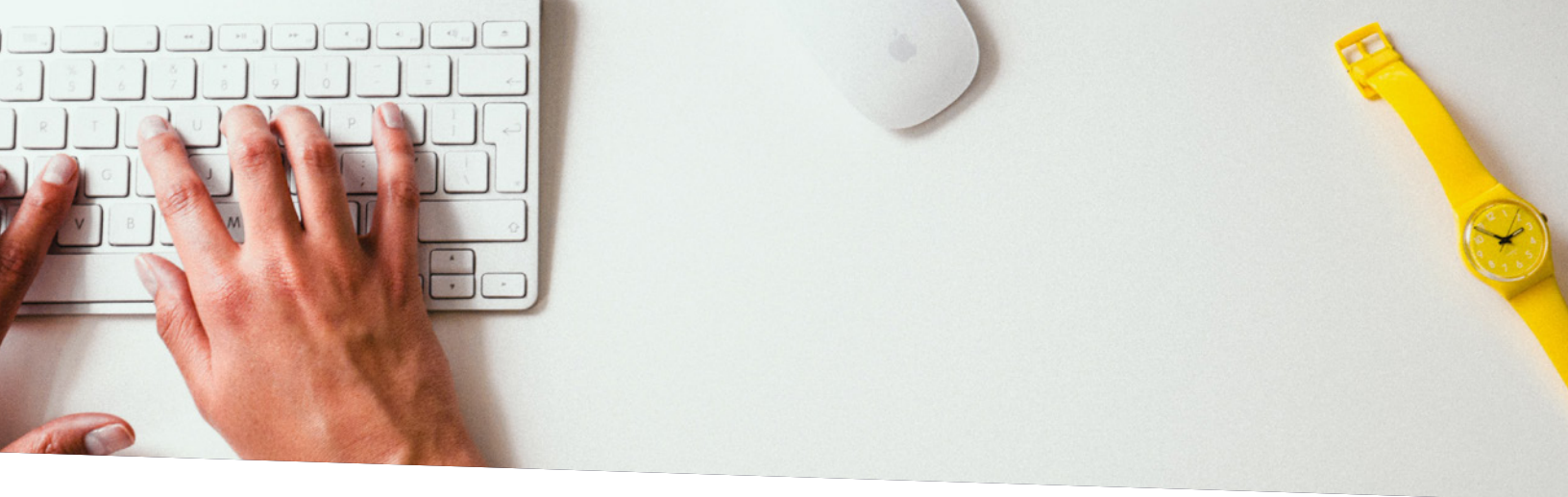


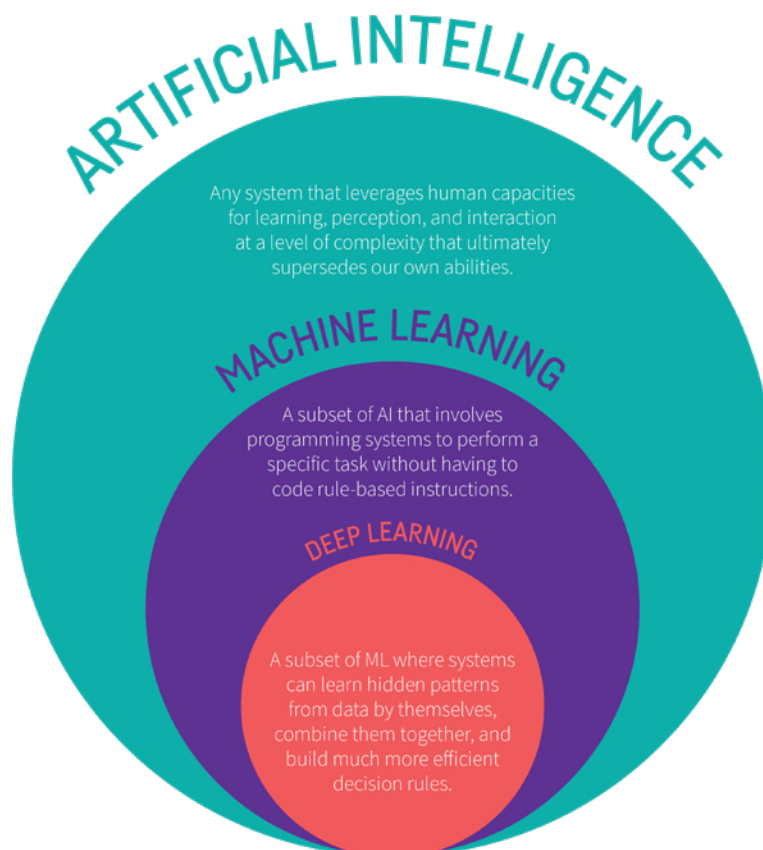


AI & Machine Learning Techniques for Marketing (In Plain English)

AI vs Machine Learning vs Deep Learning for Marketing

Talking about marketing artificial intelligence or marketing AI is increasingly complex because AI is often used alongside (or even interchangeably with) the terms machine learning (ML) and deep learning (DL). Why do people use these terms relatively interchangeably, and what are the distinctions?

In a nutshell: DL is a subset of ML, which is itself a subset of AI. This graph helps explain the nuance:



AI & Machine Learning Techniques for Marketing (In Plain English)

AI for Marketing

Marketing AI is any system that leverages human capacities for learning, perception, and interaction to solve marketing problems at a level of complexity that supersedes human abilities. For instance, an AI-enabled recommender system can analyze vast amounts of data regarding the properties of different products and the user behavior for an online store and match users to products that they're likely to be interested in buying. An AI model can do that at a level of speed and accuracy that would be simply impossible to handle manually by even the most product- and user behavior-savvy marketers (not to mention, a great waste of their time, effort, and expertise).

Machine Learning for Marketing

As seen in the graph above, machine learning is a subset of AI which involves AI systems performing a specific task without being explicitly programmed to do so with rule-based instructions. Instead, those rules are inferred or “learned” from the previously collected data, thus the term machine learning.

To illustrate the difference between standard AI and machine learning in marketing, let's take the example of churn prediction — trying to anticipate when a customer is going to churn in order to try to retain them. While a standard AI algorithm can still analyze vast amounts of customer behavior data and generate a churning profile, the marketers and/or data experts using it would need to rely on their own knowledge of the business and essentially hand-code rules that determine how exactly the different factors in the data impact whether a customer is likely to churn or not.

With machine learning, the marketing expert still needs to determine which factors, or “features” may impact the likelihood of a customer to churn, but the algorithm automatically selects the optimal way to combine these factors. In other words, you “train” a model. The key question is: based on my data, what is the best rule I can create to solve my business problem?

While standard AI algorithms can be well suited to and deliver great results for a number of tasks, they cannot adapt to new problems or changing factors (for example, a new pricing or subscription plan that affects churning behavior in a new way) unless a developer rewrites them. In contrast, ML algorithms can adapt to a series of different problems because they use data to determine how to tune themselves to the task, without all the human intervention that standard algorithms require.



Deep Learning for Marketing

So where does deep learning, or DL, fit into all of this? A DL algorithm is able to learn hidden patterns from the data by itself, combine them together, and build much more efficient decision rules. That's why it can deal with problems that a human brain could not understand - all the value of deep learning is this automatic pattern identification capability. This means handling more complex problems, such as understanding concepts in images, videos, texts, sounds, time series, and all other unstructured data you can think of.

All sorts of marketing activities — including distinguishing an image (for instance, for visual trend forecasting or sentiment analysis based on user-generated image content), understanding a textual or voice comment from a customer, translating or automatically generating custom content, or providing fine-tuned personalization on websites — are now possible because of deep learning.

However, despite DL algorithms' sophistication and outstanding performance with highly complex tasks, deep learning is not always the best solution to any marketing AI problem. If we compare different AI techniques to, say, means of transportation, deep learning would be the airplane -- undeniably one of the fastest and most advanced technologies available, and highly efficient for overseas travel, but for simpler tasks such as commuting to work, it would be much more efficient (not to mention less expensive) to drive, bike, or walk. Similarly, deep learning is great for highly complex marketing tasks which involve complex relationships and abstract meanings in the data (i.e. a consumer's habits or preferred product categories) and large data volume (i.e. a database of 100,000 customers as opposed to just 100). For simpler and more straightforward data problems, however, traditional machine learning would do just fine.

Natural Language Processing (NLP)

Natural language processing, or NLP, consists of a series of processes and techniques that bridges the gap between human language and computer understanding, making it easier to process words and phrases to use for statistical analysis, machine learning algorithms, and deep learning. Deep learning especially makes it possible to create conversational AI agents that effectively interact with your customer base or create context for communicating with them.

Automated Machine Learning (AutoML)

At a very high level, AutoML is about using machine learning techniques to automatically do machine learning. Or in other words, it means automating the process of applying machine learning. Early on, AutoML was almost exclusively used for the automatic selection of the best-performing algorithms for a given task and for tuning said algorithms to optimize their performance. More recently, its development has expanded to the whole data-to-insights pipeline, from cleaning the data to tuning algorithms through feature selection and feature creation, even operationalization.

At this larger scale, it's no longer AutoML, but augmented analytics, which has the potential to impact the entire process and empower marketing teams to scale data efforts and implement AI solutions at a larger scale.

