

Machine Learning Applications

Machine Learning

Machine learning is a subset of artificial intelligence. Its main objective is to construct efficient computer algorithms. These algorithms allow computers to analyze user behavior and provide material that is tailored to the user's experience and needs. For this reason alone, it is essential to comprehend the role that machine learning plays in modern business.

It has increased dramatically over the last several years in several areas, including education, healthcare, logistics, etc.

Currently, automated machine learning (AutoML) tool adoption is a top priority for 61% of decision-makers in their companies. They undoubtedly anticipate using ML to improve decision-making across a range of use cases and expedite corporate processes.

Real-time translation (Education)

Breaking down language barriers to broaden the reach of an educational program and promote inclusivity has never been easier, thanks to the availability of real-time NLP-based translation and transcription solutions. For example, tools like Microsoft Azure Cognitive Services Translator and Presentation Translator can translate video lessons, papers, and other types of eLearning content in real-time to make your educational services available to a global audience. Amazon Translate neural machine translation service delivers affordable, high-quality real-time translation and localization services, making the translation more accurate and natural sounding.

Type of Machine Learning Used:

Supervised Learning: Real-time translation systems are trained using large amounts of bilingual or multilingual text data. This training involves learning from labeled pairs of text in different languages, enabling the model to map words and sentences from one language to another.

Order management (Manufacturing)

In essence, manufacturers rely on other manufacturers to put together their end-products. Given that every factory wants to maintain its bottom line, order managers need to determine which suppliers can provide raw materials of the best quality for the best price. With hundreds of suppliers and thousands of raw materials, this task becomes increasingly complicated, with compromises inevitably being made along the way. Machine learning models can process supplier data in real time and help manufacturers determine the most adequate price for a given material while considering the type of material, as well as quality, finishing, size, etc.

Type of Machine Learning Used:

Reinforcement learning can optimize supply chain decisions by continuously learning the best strategies to manage inventory levels, delivery times, and resource allocation. It helps adapt to changes in demand or supply chain disruptions.

Irrigation (Agriculture)

Machine learning in agriculture can streamline irrigation by optimizing water usage. By analyzing factors such as weather, soil type, and plant type, machine learning algorithms can predict how much water a crop needs and when it needs it. This information can help to automatically adjust irrigation schedules, accordingly, resulting in more efficient use of water resources.

Type of Machine Learning Used:

Supervised learning models are often used for predictive analysis, such as forecasting water requirements based on historical data, weather patterns, soil moisture levels, and crop type. Farmers can use these predictions to make informed decisions about when and how much to irrigate.

Conclusion

The versatility and impact of machine learning (ML) are evident across various fields through its ability to automate processes, enhance decision-making, and drive efficiency. In real-time translation (education), supervised learning models enable tools like Microsoft Azure and Amazon Translate to break language barriers, promoting inclusivity by translating educational content in real-time. In order management (manufacturing), reinforcement learning optimizes supply chains by continuously adapting to changes in demand, pricing, and inventory levels, helping manufacturers make better decisions. In irrigation (agriculture), supervised learning helps predict water needs by analyzing environmental factors, enabling precise irrigation schedules that conserve water and improve crop yields. These applications highlight ML's ability to transform industries through automation, accuracy, and resource optimization.

References:

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