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AI AND HUMAN INTERACTION

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ABSTRACT

Learning has been a recurrent and inseparable activity of human being since ever. People have been inventing and discovering various methods and techniques to improve its acquisition process and ways. One's progress and development has always been evolutionary as regards to learning versatility. One has come to know various tactics, techniques and technologies according to the developing circumstances. Science and technology changes the whole internal mindset as well as external perspective. Computer changes the whole scenario. Machine learning is one of the most exciting recent technologies in Artificial Intelligence. Learning algorithms in many applications that's we make use of daily. Every time a web search engine like Google or Bing is used to search the internet, one of the reasons that works so well is because a learning algorithm, one implemented by Google or Microsoft, has learned how to rank web pages. Every time Facebook is used and it recognizes friends' photos, that's also machine learning. Spam filters in email saves the user from having to wade through tons of spam email, that's also a learning algorithm. In this paper, a brief review and future prospect of the vast applications of machine learning has been made.

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INTRODUCTION

An Artificial Intelligence (AI) program is called Intelligent Agent. Intelligent agent gets to interact with the environment. The agent can identify the state of an environment through its sensors and then it can affect the state through its actuators. The important aspect of AI is the control policy of the agent which implies how the inputs obtained from the sensors are translated to the actuators, in other words how the sensors are mapped to the actuators, this is made possible by a function within the agent. The ultimate goal of AI is to develop human like intelligence in machines. However such a dream can be accomplished through learning algorithms which try to mimic how the human brain learns. Around 90% of the data in the world was generated in the last two years itself and the inclusion of machine learning library known as Mahout into Hadoop ecosystem has enabled to encounter the challenges of Big Data, especially unstructured data.

How interactive technology affects learning process?: A self-learner tends to be more original than those who rely overly on teacher's ideas. There are plenty of successful examples of self-learners. One of the most famous one is Thomas Edison.

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With the help from his mother, Edison finished his education and later became a miracle in the twentieth century. Leading by his unique foresight and vision, Gates became the chairman of Microsoft. The successes of Edison and Gates adequately prove the advantage of self-learning. All in all, having a good teacher can always be a shortcut to gain knowledge. Teachers give you essentials and more importantly show you a method of learning. In addition, self-learning is also a good way of learning which appears to be higher and more creative. However, no matter what you choose, your own effort and endeavour are indispensable. Online studies provide a number of learning options, in addition to classroom-based instruction. An example is, "Distance Education", when the instructor and student are separated by physical distance and technology. These course delivery formats are designed to offer the working adult the greatest flexibility in planning their academic schedule. Many of these formats use the latest technological advances to bring teachers and students at different locations together, while others enable to complete course requirements without classroom attendance.

Technology implementation in human learning

Process: Supervised learning is the machine learning task of inferring a function from labeled training data. The training data consist of a set of training examples. In supervised learning, each example is a pair consisting of an input object (typically a vector) and a desired output value.

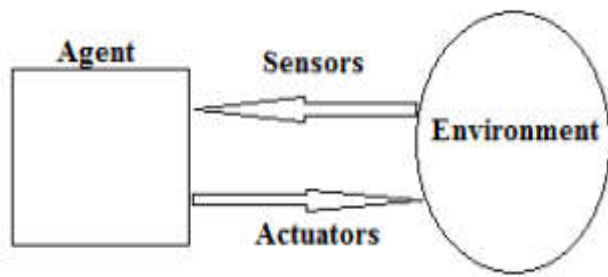


Figure 1. Perception cycle of AI



This AI-powered auto completer tool can speed up your coding

A supervised learning algorithm analyzes the training data and produces an inferred function, which can be used for mapping new examples.

E-mail data

Automatic answering of incoming messages: Instead of typing out the same reply every time someone emails with a common queries and problems, now machine learning algorithms analyses those mails and automatically generates a reply. This proves useful in case of large companies [Tzanis, 2006].

Automatic mail organization into folders: With the bulk amount of messages pouring daily it proves highly inconvenient for users to segregate the messages manually. Therefore machine learning proves to be most beneficial by categorizing the mail automatically into various user-defined inbox tabs such as primary, social, promotions, update, forums etc. If a particular message from a particular sender is moved from update tab to primary tab, then all other future messages from that user will end up in the primary tab [Tzanis, 2006].

Email and thread summarization: The incoming messages are analyzed and the important sentences are extracted from the email thread and are composed into a summary.

This summary is generated based on special characteristics of email [Tzanis, 2006].

Spam filtering: It is mainly used to filter unsolicited bulk Email (UBE), junk mail, or unsolicited commercial email (UCE) from the genuine e-mails. The spam filter saves the user from having to wade through tons of spam email, that's also a learning algorithm. The spam filter can also be learned by watching which emails you do or do not flag as spam. So in an email client if spam button is clicked to report some email as spam, but not other emails and based on which emails are marked as spam, the e-mail program learns better how to filter spam e-mail [Tzanis, 2006; Horvitz, 2006].

Email Batch Detection: The problem of detecting batches of emails that have been created according to the same template needs to be addressed. This problem is motivated by the desire to filter spam more effectively by exploiting collective information about entire batches of jointly generated messages. Senders of spam, phishing, and virus emails avoid mailing multiple identical copies of their messages. Once a message is known to be malicious, all subsequent identical copies of the message could be blocked easily, and without any risk of erroneously blocking regular emails.

Face recognition: Human face is not unique, rigid object and numerous factors cause the appearance of the face to vary. There are numerous application areas where face recognition can be exploited such as security measure at an ATM, areas of surveillance, closed circuit cameras, image database investigation, criminal justice system, and image tagging in social networking sites like Face book etc.

Speech recognition: All speech recognition software utilizes machine learning. Speech recognition systems involve two distinct learning phases: one before the software is shipped (training the general system in a speaker-independent fashion), and a second phase after the user purchases the software (to achieve greater accuracy by training in a speaker -dependent fashion) [Bratko, 2006].

Applications to music: Music is a vast sphere. The amount of data and material available here is huge and almost every individual hosts a different taste from others when it comes to music. Naturally the need for classification arises. One can classify music in a number of ways as there exists an ocean of options to select from when it comes to choosing a feature on whose basis the classification is to be done. Musical data is complex and often highly dimensional (when represented as audio) and this is where machines come to our assistance as machine learning is very well suited for working with such data. With the digitalization of music, a new and rapidly growing research area has emerged, called Music Information Retrieval (MIR) which is a research focused on the extraction of information from music audio and musical scores.

Recommendations

Gmail's auto complete feature is such a boon when you're replying to a ton of emails and want to send quick responses. If you've been dreaming of a similar feature for programming, you'll be glad to know that Tab Nine can now help write your code, thanks to its new AI-powered auto completer that integrates with existing code editors. It works on the simple principle of text prediction, but for programming languages.

The auto completer suggests the next token based on the token you've just typed out. You can install it as an add-on to any editor you're working on. The tool supports 22 languages in total including Python, JavaScript, Java, C++, C, PHP, Go, C#, Ruby, Objective-C, Rust, and Swift. So you're pretty much covered if you're coding in one of the popular languages. You can check out the full list.

Conclusion

Humans have always sought to build a comfortable life, the proof of this lies in the fact that we have always depended on machines to get our work done more easily, in a faster and more efficient manner. In the past machines have been used to reduce the manual labor required get a job done, but at present, with the advent of machine learning humans seek to build machines which are not only strong but also intelligent and hence machine learning has emerged to become an area of study that is ever in the bloom. Computers are indeed a good learning tool.

They are not a definitive answer to creating a perfect classroom; they are merely tools that, if used correctly, can improve the human learning process. Future challenge is to develop emergence automated prescription at critical condition using machine learning concept, which can minimize the error in diagnosis.

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