Chapter 6
Role of Machine Learning in Modern Education and Teaching

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ABSTRACT

Computers are being utilized in field in education for many years. In last few decades, research within the field of artificial intelligence (AI) is positively affecting educational application. Advanced machine learning and deep learning techniques could be used for extracting knowledgeable information from crude information. In this chapter, the authors have analysed the impact of artificial intelligence in the education domain. The authors will discuss how with the development of machine learning techniques in last few decades, machine learning models can anticipate student performance. By learning about every student, models can identify the shortcomings. Then the authors will propose different approaches to improve student performance. Teachers can also use this model to understand student perception levels in a better way so that they can modulate their lectures according to student perception levels.

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INTRODUCTION

Computers are being utilized in field in Education for many years. In the last few years research within the domain of Artificial Intelligence (AI) is positively affecting educational application. Artificial Intelligence is a mixture of Big data, Machine Learning, Combinatorial Optimization, and Natural Language Processing. It is the new generation of technology which will help out modern society and education in many ways. Different technologies are already using these techniques to provide more functionality in their applications. Advanced machine learning and deep learning techniques could be used for extracting knowledgeable information from crude information. By learning about every student, models can identify the shortcomings and then authors will propose different approaches to improve student performance. Teachers can also use this model to understand students' perception level in a better way so that they can modulate their lectures according to the student's perception level.

Artificial Intelligence is progressing at an accelerated pace, it already fabricates the intelligent nature of services in the education domain. Some AI solutions are dependent on programming, whereas some have capability to find patterns and make predictions regarding the given problem. Example: Recently French song writer Benoît Carré has worked together with an AI music program called Flow Machines to create an EuroPop Album. Authors describe Machine Learning as a subfield of AI that joins programming prepared to perceive designs, make predictions, and apply recently discovered examples to conditions that were rejected or secured by their underlying plan. To Understand Artificial Intelligence better let us know about the basics of Artificial Intelligence:

- Big Data:- Large data sets that are analyzed by using patter revelation, trends, associations which will help in relating to human behaviour and interactions. It deals with very large data sets that are too complex to be solved with traditional data processing software.
- Machine Learning: - It's an application of artificial intelligence that deliversintelligence to computers so that they learn repeatedly from training sets and test the predictions on test data to check accuracy and along with other statistical parameters. It mainly focuses on applications that grant rights to use data and use it for machine learning tasks.
- Combinatorial Optimization:- it is an emerging field of theoretical computer science that uses combinatorial techniques that aims to solve discrete optimization problems. It finds the best possible solution from a finite set of problems.