Big-O Algorithmic Analysis and its Application to Machine Learning and Artificial Intelligence

Big-O algorithmic analysis and how it is applied and used in Machine Learning and Artificial intelligence are very important to understand since it deals with algorithms which are the building blocks of AI and ML. Big-O is a way to determine the size and time complexity of algorithms.  Here we will discuss how Big-O can help and guide AI and ML model design and applications.

Big-O is a way to analyze and compare the efficiency of algorithms based on their time and space complexity. Big-O helps with scalability helping to determine how an algorithm performs as the data grows. Big-O helps developers focus on optimization and ways to improve performance.

Machine learning relies on very large amounts of data being processed. This is done through algorithms from data processing to training to optimize these processes. Big-O is needed to make this possible. There are different algorithms used in Machine learning. Understanding the difference in Big-O helps developers and data engineers find the most efficient algorithms.

Another area in which Big-O is helpful is real world applications from cars to cranes to anything that is autonomous and must process sensor data, making quick decisions. Algorithms that go too slow could cause havoc. Also, natural language processing (NLP) must move quickly to use models based on Big-O analysis if needed.

In conclusion, Big-O is extremely important in the building of ML and AI.  Without it there would be no control over what processes first and would not understand what scalability it would have. The process of learning or in data retrieval would be bogged down and the instruction would take too long.

Presentation: The presentation was very well done and was a nice introduction to the usages of AI and machine learning. It was interesting that it positively affects so many fields such as Large-scale data analysis, Cybersecurity and Intelligent Networking. It’s also prevalent in everyday life such as in the explore page of Instagram and in YouTube. Overall, the presentation was very confusing at times since I’m not very acquainted with the intricacies of ML or AI, a lot of the information went over my head. While this is true, I still was very intrigued by the complexity of it and the possibilities for it in our futures.