

Mathematics in Data Science and Artificial Intelligence

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Abstract: *Mathematics is a discipline that focuses on structure, order, and relation, derived from counting, measuring, and characterizing object shapes. Mathematics is necessary for professions in data science since machine learning algorithms, conducting analyses, and drawing conclusions from data all require it. A key component of data science is math. It can support problem-solving, model performance optimization, and the interpretation of complex data to address business-related queries. The technology known as artificial intelligence (AI) has come to revolutionize many facets of our existence. Mathematics plays a fundamental part in the astounding advances and capabilities of artificial intelligence. Mathematics contains various branches like algebra, geometry, Trigonometry, Calculus, Statistics and Probability. The foundation of mathematics gives artificial intelligence (AI) systems the ability to reason, learn, and make wise judgments. This article examines the relevance and use of mathematics in artificial intelligence. Large-scale data processing, analysis, and interpretation are made possible by machines thanks to mathematics, which forms the foundation of AI models and algorithms. Developing machine learning algorithms requires an understanding of concepts from statistics, probability theory, calculus, and linear algebra. These algorithms recognize patterns, forecast outcomes, and categorize data using mathematical equations and functions.*

Keywords: Mathematics, Data Science, Artificial Intelligence, Algorithms, Technology

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