

# Methodologies and Analysis Approaches Applied In Artificial Intelligence

Mrs D.Ananthi<sup>1</sup>Mrs G.S.Geethamani<sup>2</sup> Mrs Gomathi Annadurai<sup>3</sup>

<sup>1</sup>Assistant Professor, Department of Computer Applications, Hindusthan College of Arts & Science, Coimbatore

<sup>2</sup>Assistant Professor, Department of Computer Science, Hindusthan College of Arts & Science, Coimbatore

<sup>3</sup>Head of the Department, Department of Computer Applications, Ebenezer Group of Institutions, Bangalore

**Abstract:** Artificial intelligence has emerged in various fields, AI has enhanced human capabilities and improved efficiency in sectors such as manufacturing, services, and education. The advancement of AI technology has led to the evolution of expert system, which is widely used to resolve complex issues in education, engineering, business, medicine, and weather forecasting, and more. The document provides a summary of AI technology this document provides a summary of areas, emphasizing its importance in education. It discusses search methods, innovations, and the future implications of AI technology.

**Keywords:** Artificial Intelligence, artificial neural network, framework, problem solving, technique

## I. INTRODUCTION

The use of artificial intelligence is becoming more increasingly significant role in fields like educational technology, oversightscience, additionallypractical investigation area. IQ is frequently perceived as the capacity for gather data to resolve challenging issues. In future, intelligence machines are likely to substitute human abilities in numerous domains. The study of software and devices with artificial intelligence that are capable of reasoning, learning, and gathering information, converse, control, and observe object. John McCarthy first used the phrase in 1956 to refer to the area of computer science that deals with creating computers.mimic human behavior. It involves studying the algorithms that enables machines to perceive, reason, and act. It enhances the intelligence and usefulness of machines. Artificial intelligence operates with the assistance of artificial neural network and logical theories. The advancements in artificial intelligence technology have reached a point where they provide significant benefits in many applications.Key area within artificial intelligence includes expert system,

intelligent computer-aided instruction, Natural speech and language processing recognition, robotics and sensory system, computer vision and scene identification, and natural computing. Different methods employed in artificialIQ include neural network, fuzzy logic, computer aided instruction, as well as hybrid artificial intelligence. To observe how the fields of synthetic intelligence continues to evolve and revolutionize various industries with its innovative applications and technology.

## II.LITRATURE SURVEY

Acikkar, M., & Akay, M. F. et.al. [4] proposed approach about the causes of this evolution and talk about how educational data mining could become accustomed to inform human judgment as a substitute paradigm for online education.

Casamayor, A., Amandi, A., & Campo, M.[6] introduced an intelligent agent strategy to support teachers by keeping an eye on student engagement in a collaborative distance learning environment and identifying conflicting circumstances that can call for a teacher's intervention.

Ahmad,H.,Rashid,T.[3] proposes an intelligent and dynamic system It combines different soft computing classifier techniques, both single and multiple.to analyzethe execution of engineering professors within Salahaddin University in Erbil.

## III.ARTIFICIAL INTELLIGENCE

One definition of artificial intelligence is a subfield of computer science that primarily focuses on creating intelligent machines that operate and respond similar to human beings. A variety of activities that involve designing artificial system in

computers applied for speech recognition, learning, planning, and problem solving.

AI representing human ability

AI can now effectively handle several kinds of assessments such as multiple-choice and fill-in-the-blank questions with a high degree of accuracy. Additionally, automatic student writing grading is also becoming increasingly feasible as algorithms for natural language understanding keep getting advance.

Teachers frequently discover that grading even in lower grades takes up a substantial amount of time. Which could otherwise be spent engaging with students, preparing for classes, or advancing one's career. The application of AI in grading written assignments has the potential to alleviate this burden by automating certain aspects of the grading process, allowing educators to dedicate more time to other essential tasks that positively impact student learning.

As AI technology continues to advance, it is important for educators to consider how they can effectively integrate automated grading tools into their teaching practices to streamline the assessment process while still maintaining the critical aspects of human feedback and interaction that are essential for student growth and development. Adopting a balanced approach that combines the strengths of AI with the expertise of teachers can lead to more efficient grading processes and better learning outcomes for students.

While the potential of current AI tutoring programs are constrained with regard to assisting students with higher-order thinking skills and creativity, they are already proving to be valuable tools in providing support in subjects like basic math and writing.

These AI tutoring programs can effectively teach students foundational concepts and provide immediate feedback, which can be beneficial in the learning process. However, the role of real-life teachers is still crucial in fostering critical reasoning and originality in students, areas where AI falls short.

Nevertheless, it is indeed possible that advancements in AI technology could enable AI tutors to develop the capacity to support students in higher-order thinking and creative tasks later on. Given how quickly technology is developing, innovation that has characterized recent decades; the prospect of

sophisticated tutoring programs that encompass a greater variety of educational needs might not be far-fetched.

It matters for educators and policymakers to continue monitoring the progress artificial intelligence in education and to consider how these technologies can be effectively integrated into teaching practices to enhance learning outcomes for students while recognizing the valuable contributions that human teachers bring to the classroom. Balancing the benefits of AI tutoring with the essential interpersonal skills and insights that human educators provide is a key to shape the future of education in a technology-enhanced world.

Process of trial and error via AI:

The integration of artificial intelligence in the classroom can have a transformative impact by enabling educators and pupils to create customized courses tailored to their specific needs. AI systems can give both educators feedback and students regarding the overall success of a course. Particularly those with Internet platforms are utilizing AI to track the development of students and alert teachers when there may be issues with the academic performance of the students. These AI systems enable students to receive the necessary support and help teachers identify areas where they can enhance lessons for pupils who could be struggling with the material.

The application of AI in education is not only enhancing the learning experience for students but also providing valuable insights to educators to optimize teaching methods and support student achievement. By leveraging AI technology in education, institutions can personalize learning, improve student outcomes, and empower both teachers and learners to reach their full potential. Integrating artificial intelligence in education can provide a less intimidating environment for students to engage in trial and error learning processes. While trial and error are essential components of education, some pupils could discover failure or not knowing the answer to be discouraging, especially in front of their classmates or superiors, such as teachers. A sophisticated computer system intended to assist students in their learning process, can offer a non-judgmental space for experimentation.

#### IV. DATA ANALYSIS AND MODELING

John McCarthy is indeed credited with coining the term "Artificial Intelligence" and being one of the pioneers in the field. His work has laid the foundation for the development of AI technologies that we see today. During the 1940s and 50s, researchers from various disciplines, including mathematics, psychology, engineering, economics, and political science, began working on creating artificial systems that could mimic human intelligence. This led to the emergence of academic discussions and conferences on AI in the late 1950s. Ross Quillian was responsible for developing one of the early AI programs based on the idea that semantic networks. Semantic networks are graphical representations where nodes represent concepts and edges indicate relationships between the nodes. This structure helps in organizing and representing knowledge in a way that is easier for AI systems to process. The Jeopardy! Challenge in February 2011, where IBM's Watson competed against human champions Brad Rutter and Ken Jennings, marked a significant milestone in AI history conceptualization to real-world applications that continue to advance and revolutionize various industries and fields.

#### V. RESULT AND ANALYSIS

Artificial Intelligence progress, machines are becoming more powerful and capable. Along with the students, enhancing their learning experience and helping them overcome challenges during their educational journey.

#### VI. CONCLUSION

The investigation in this article investigates how artificial intelligence enables machines to think logically and apply concepts scientifically. In the past twenty years, artificial intelligence has made significant contributions to various fields and is expected to continue playing an important part in diverse domains. The domain of education. As we all know, artificial intelligence refers to The level of intelligence demonstrated by machines, which is programmed experts. Artificial intelligence has revolutionized various aspects of our lives, including article writing, game playing, and decision-making processes. By combining the minds of multiple experts in a single machine, AI systems become more powerful and versatile. These machines can perform many tasks efficiently without experiencing as it can work continuously without getting tired. It is envisioned that future robots may possess emotions,

human loneliness. questions about liability and accountability in cases where AI systems are involved. Similarly, if an AI program is developed for diagnostic purposes and provides incorrect information, it may be challenging

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