so as to obtain optimal labeling conditions and produce optimally radioidinated ligand peptides.

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THE HISTORY OF ARTIFICIAL INTELLIGENCE AS A SUBJECT OF TECHNICAL SCIENCE

Introduction

Artificial intelligence (AI) has become one of the most exciting and rapidly evolving areas of technical science today. With the potential to revolutionize many aspects of society, from healthcare to transportation, AI has captured the imagination of researchers, policymakers, and the general public alike. The concept of AI has been around since the mid-20th century, and it has been the subject of numerous studies and research projects ever since.

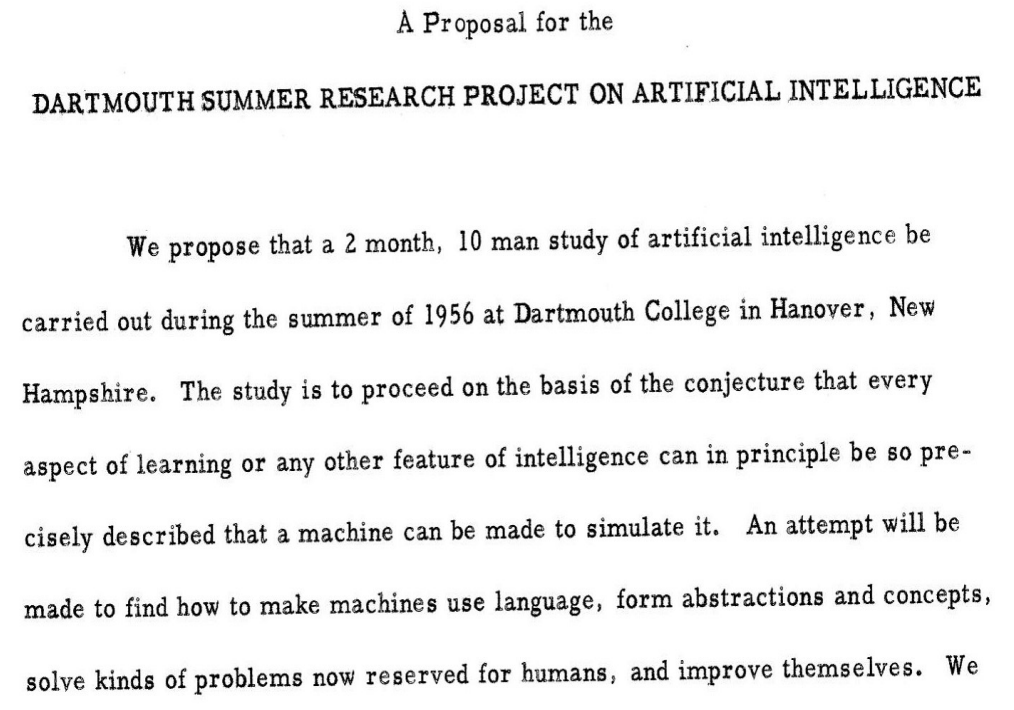
Keywords

Artificial intelligence, technical science, machine learning, deep learning.

The Birth of AI

The term "Artificial Intelligence" was first coined by John McCarthy, Marvin Minsky, Nathaniel Rochester, and Claude Shannon in 1956 during the Dartmouth Conference, which is widely regarded as the birthplace of AI as a

field of study [1]. At the conference, the researchers proposed that a "two-month, ten-man study of artificial intelligence" be conducted, with the goal of developing machines that could "use language, form abstractions and concepts, solve kinds of problems now reserved for humans, and improve themselves". This proposal marked the beginning of AI as a subject of technical science.



A Proposal for the

DARTMOUTH SUMMER RESEARCH PROJECT ON ARTIFICIAL INTELLIGENCE

We propose that a 2 month, 10 man study of artificial intelligence be carried out during the summer of 1956 at Dartmouth College in Hanover, New Hampshire. The study is to proceed on the basis of the conjecture that every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it. An attempt will be made to find how to make machines use language, form abstractions and concepts, solve kinds of problems now reserved for humans, and improve themselves. We

Fig. 1. The proposal for research project

Fig. 2. Founding Fathers of AI

Since then, AI has made significant progress, from early rule-based and expert systems to modern-day deep learning algorithms. Today, AI is being used in many different applications, including speech recognition, natural language processing, image and facial recognition, autonomous vehicles, and robotics, among others. The history of AI as a subject of technical science is complex, rich, and multifaceted. In this report, we will examine the history of AI, from its early origins to the current state of the field, as well as its ethical and social implications, future directions, and the significance of AI.

Early Development of AI

Overview of early AI research

AI research can be traced back to the 1950s, when researchers first began to investigate the idea of machines that could "think" like humans. This period is sometimes referred to as the "first wave" of AI research. A. Overview of early AI research.[2] Early AI research focused on creating machines that could replicate human thinking and decision-making processes. The early AI researchers believed that if machines could reason like humans, they could perform tasks that were previously thought to be the exclusive domain of humans, such as playing chess, solving mathematical problems, and even translating languages. Early AI research was heavily influenced by the work of logicians such as Kurt Gödel and Bertrand Russell.

Turing Test and the rise of AI as a field of study

In 1950, Alan Turing proposed the Turing Test as a way to measure a machine's ability to exhibit intelligent behavior equivalent to, or indistinguishable from, that of a human [3]. This idea was revolutionary and helped establish AI as a field of study. In 1956, the Dartmouth Conference was held, where the term "artificial intelligence" was coined, and AI was established as a distinct field of study.

Early rule-based systems and expert systems

In the 1960s and 1970s, early AI research focused on developing rule-based systems and expert systems. Rule-based systems used a set of logical rules to make decisions, while expert systems used a knowledge base of expert advice to solve problems. These systems showed promise in solving specific problems but were limited in their ability to handle complex and uncertain situations. One of the most famous early examples of an expert system was MYCIN [4], which was developed in the early 1970s. MYCIN was designed to diagnose bacterial infections and recommend treatments, and it was considered a breakthrough in AI research at the time.

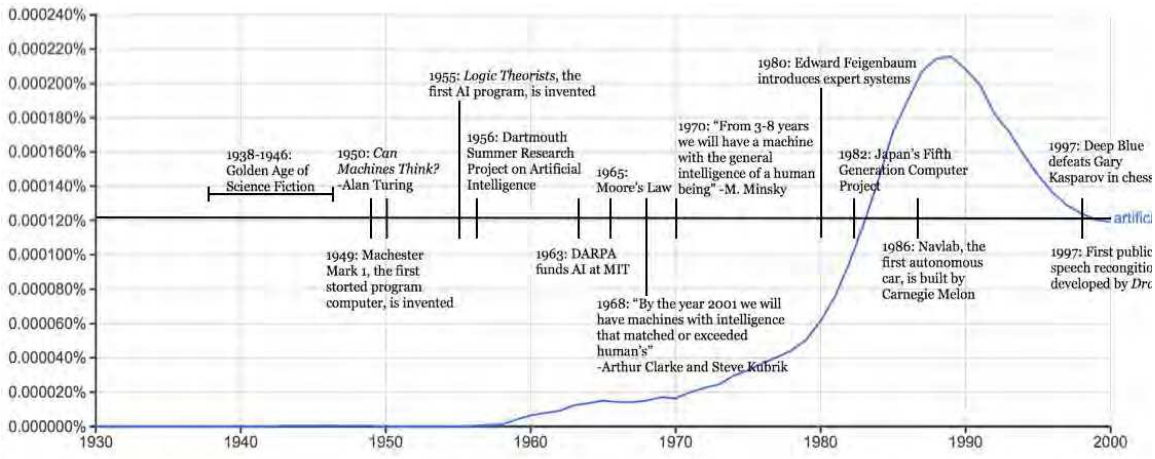


Fig.3. Artificial Intelligence timeline [6]

Key players in early AI research

Some of the key players in early AI research include John McCarthy, Marvin Minsky, Nathaniel Rochester, and Claude Shannon, who organized the Dartmouth Conference. Other notable figures include Allen Newell and Herbert Simon [5], who developed the Logic Theorist program that could prove mathematical theorems, and Arthur Samuel, who developed the first machine learning algorithm for game-playing [7].

Despite these early successes, progress in AI research slowed down in the 1970s and 1980s, as researchers realized that the rule-based approach had limitations and that creating machines that could "think" like humans was more difficult than they had anticipated. However, these early developments laid the foundation for future research in AI and helped to pave the way for later breakthroughs in the field.

Evolution of Artificial intelligence

Artificial intelligence has undergone significant changes over the years, marked by different approaches and techniques that have led to its current state. The evolution of AI can be divided into four major phases: the birth of AI, the AI winter, the emergence of machine learning, and the current phase of deep learning.

The birth of AI began in the 1950s, during this phase, AI was focused on rule-based systems, where expert knowledge was programmed explicitly using rules and logic [7]. The AI systems of this era were largely symbolic and lacked the ability to learn from data.

The AI winter refers to a period in the 1970s and 1980s when AI research funding and interest declined due to the inability of rule-based systems to solve complex real-world problems. This led to the emergence of a new paradigm in AI, machine learning, which allowed machines to learn from data and make decisions without explicit programming. The emergence of machine learning

marked the beginning of a new era of AI and led to significant progress in natural language processing, speech recognition, and computer vision [8].

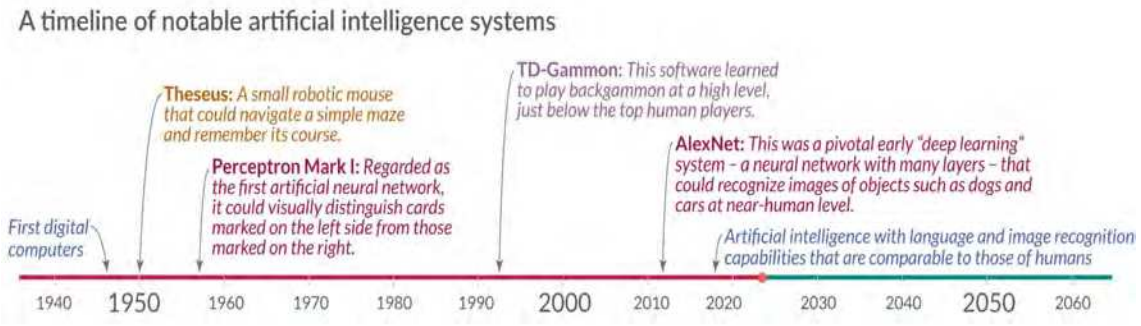


Fig. 4. Timeline of AI

The current phase of AI is characterized by deep learning, which involves the use of artificial neural networks to analyze and learn from large datasets. Deep learning has revolutionized the field of AI, allowing for the creation of intelligent systems that can perform tasks such as image recognition, natural language processing, and game playing at superhuman levels [9]. The success of deep learning can be attributed to the availability of large amounts of data, the development of powerful hardware, and breakthroughs in algorithms and techniques.The current phase of AI has opened up new possibilities for intelligent machines that can perform tasks beyond human capability.

Future and Conclusion

The history of AI has shown significant progress, from rule-based systems to deep learning, and the current phase has opened up new possibilities for intelligent machines. With the rapid advancements in hardware, algorithms, and data availability, the future of AI is promising. AI will continue to evolve and transform the world around us, leading to new breakthroughs in healthcare, finance, transportation, and many other fields. However, AI also poses ethical and societal challenges that need to be addressed. It is essential to ensure that AI is developed and used responsibly to avoid potential negative consequences. In conclusion, the history of AI has laid a strong foundation for its future, which promises to be exciting and full of possibilities.

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AUTOENCODERS AND GENDER-BASED APPROACH FOR DEPRESSION DETECTION USING BERT AND LSTM MODEL

Abstract: Depression is a austere medical ailment that upsets numerous people worldwide, causing a persistent decrease in mood and significantly impacting their emotions. The article focuses on utilizing BERT techniques and Autoencoders to detect depression from text data, considering gender differences. The work stresses on feature engineering of text data provided by benchmark dataset DAIC_WOZ. We experiment with BERT embeddings that encodes the meaning of text to derive text features. They are then fused with the help of Autoencoders with other parametric features from PHQ-8 survey responses, absolutist word count and gender information. The study found that incorporating this information significantly enhances the performance of the model. Our proposed method outperformed the baseline models. We emphasize the potential of machine learning for mental health research that considers gender differences. We report 98.6% accuracy demonstrated by our method.