AI Applications prior to 2000

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***Abstract*—This article is to list important AI applications in the early stage prior to 2000, describing the applications, the significance and limitation of each application.**

Keywords—AI, application, early, significance, limitation

I. INTRODUCTION (*HEADING 1*)

Artificial Intelligence nowadays is one of the most striking and game-changing technology in the computer science domain, its ubiquitous influence is profoundly and thoroughly changing all fields in our daily lives. This article is to explore a bit how it was in the early years specifically prior to 2000 to help us better understand how it become prosperous today and how it is going to continue flourishing in the future. We will select significant 5 early applications to penetrate the main functionality and significance and limitation respectively.

II. AI APPLICATIONS

A. Deep Blue

Deep Blue was a computer chess player innovated and developed by IBM, it was the first computer chess player defeated human reigning world champion under regular time and rule control.

Deep Blue used custom chips to execute alpha-beta search algorithm in parallel and derived its strength mainly by taking advantage of massive computing resources to brutally compute, it was able to compute 200 million positions per second at that time, which was astounding at that time.

The significance laid in that it was capable of leveraging massive, distributed computing resources to attain its strength, the limitation was it only used preliminary search algorithm alpha-beta, due to the development level of AI at that time, and won the human champion luckily.

B. Chinook

Chinook was a checker computer player initiated in 1989 and matured in 1994 when defeated the checker champion and became the first computer player won human champion player.

Chinook was also using some standard searching algorithms at that time for brute-force cracking a 5 x 10^20 search space to figure out the optimal path within a limited time window.

He significance was that it was the first computer player beating a human champion in checker game, 3 years earlier than Deep Blue in chess, and technically it managed to drive computing engine to search a daunting large space. Along the way of the project, it produced numerous papers and publications on the AI adventure journey.

Limitation laid in the AI advance level in algorithm as well as in the computing capability in hardware.

C. TD-Gammon

.TD-Gammon is a computer backgammon player created by an AI expert in IBM in 1920, achieved a play level near the top human players at that time, it was able to explore play strategies that human players had never pursued which led to advancement of the theory of correct play of backgammon, displayed elementary level of artificial intelligence.

It used min-max algorithm examining all possible moves and their possible response on each turn, and chose the move that leads to best result on the board positions, according to its evaluation function. In the strategy perspective, it did not differ from any other computer game player, however, it exceled at the innovation of the evaluation function.

Significance laid at the innovation of exploring evaluation function, which allowed it to evaluate and predict the future tuns further and accurately. And thanks to the evaluation function, it also can play with itself and expand its knowledge base and explore strategies that human had never thought about through self-paly, demonstrated astonishing non-supervised autonomous learning.

Limitation was still on the less developed computing resources.

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Number equations

[1] https://en.wikipedia.org/wiki/Deep_Blue_(chess_computer)
[2] https://www.ibm.com/ibm/history/ibm100/us/en/icons/deepblue
[3] http://webdocs.cs.ualberta.ca/~chinook/project/
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