Research Report paper: Deep Blue

The Goal of this Deep Blue project developed by IBM to defeat the human world chess champion.

Deep Blue became the first computer to defeated human World Chess Champion. There were several factors that contributed to this success. This was a milestone for evolved AI research.

Deep Blue is a massively parallel system designed for carrying out chess game tree searches. The system is composed of a 30-node and 480 single-chip chess search engines, with 16 chess chips per SP processor. The master searches the top levels of the chess game tree, and then distributes leaf positions to the workers for further examination.

Deep Blue relies on many of the ideas developed in earlier chess programs, including quiescence search, iterative deepening, transposition tables, and NegaScout. These ideas and others formed a very sound basis for designing and building a chess-playing system. Deep Blue that gave rise to new or unusual challenges.

Deep Blue built dedicated chess chip incorporated move generator, evaluation function, and search control.

Deep Blue search functions implemented in Hybrid software/ hardware, and parallel searches.

The Evaluation function implemented in the Deep Blue chip is composed of a “fast evaluation” and a “slow evaluation”. This is a standard technique to skip computing an expensive full evaluation when an approximation is good enough.

This paper satisfies the technics used in isolation game agent project like mini-max, alpha-beta pruning, and evaluation functions.