# Research review: Summary of the Deep Blue paper

The goal of the paper is to describe the Deep Blue system and to give some rationale of the design decision.

There were a series of machines that led to Deep Blue: ChipTest, Deep Thought, Deep Thought 2 and Deep Blue I. The improvement in each step made the final Deep Blue possible.

About the system, it had a large searching capacity and the search was highly non-uniform, it also provided insurance against simple errors. The hardware was also able to evaluate positions and the Deepblue had the possibility of a hardware/software (hybrid) search with massive parallel search.

The chess chip had the possibility to generate moves and evaluate position, it also had a search control, the search control could keep track of the repeated moves, so it could avoid it.

The software search looked for forcing moves, forced expectations, fractional extensions, delayed extensions (isolated forced moves) and it preserved the search envelope so it would avoid repeating the search. It also had a way to give credits to the movements.

The credit mechanism is used to each move and its behavior, if the move appears to be good it would give more credit to this move and search deeper, while to bad moves it would search less. The credit generation is complex, for example, in the case of a draw, it would count as positive for move repetition if the machine is striving for a draw and it would count as negative if the machine is trying to avoid a draw.

Hardware search is fast but relatively simple, once the search is initiated the host processor is free to perform other work. The main parameters of the hardware search is the depth of the search and the depth of the offset searches, to detect specific conditions.