Computers vs humans in games

MoGo vs Motoki Noguchi
in 9x9 Go

Organized by the LAIC (Clermont-Ferrand, France)
with the help of the Go club of Clermont-Ferrand

Whereas in many games computers are now stronger than humans, the Asian game of Go, played by millions of players in Japan, Korea, Taiwan, China, is still very hard for computers. The LAIC laboratory, in Clermont-Ferrand (France) and the Go club of Clermont-Ferrand, organized a Go and computer-Go event in the "IUT de Clermont-Ferrand". After a seminar day, Go initiation afternoon, and computer-Go / Go discussions (December 11th), there were games between a very high level human player, Motoki Noguchi, and a French computer-Go program, MoGo. For the first time, MoGo, which had already won games against professional players, managed to draw a match: MoGo won two out of four games (playing alternatively black and white).

Motoki Noguchi
MoGo

MoGo, result of a collaboration Inria/Cnrs/Lri/Univ. Paris-Sud/Univ. Maastricht/Pascal2/Digiteo, has won the international Hakone GPW cup, the Taiwan International Computer-Go championship, and realized the first ever win against a professional player in 9x9 Blitz (Amsterdam, 2007), the first ever win against a professional player in 9x9 (IAGO tournament, Paris, 2008), the first ever win against a professional player in 19x19 Go with handicap 9 (Portland, US-Open, 2008); MoGo also won a homologated game in Taiwan against a 4D amateur player in 2008 (Taiwan Invited Games of Computer-Go, NUTN, 2008). MoGo was running on Huygens, a cluster provided by Sara/NCF (Netherlands); 20 nodes of 32 cores (Ibm Power6) were used for the normal games (30 minutes per side), and one node of 32 cores for the blitz games.

Above, the water cooling system of the supercomputer Huygens.

The main games

First, Motoki and MoGo played 4 games in 9x9, with 30 minutes sudden death per side, MoGo using 640 cores. MoGo lost the two first games and won the two last ones, leading to a draw. Motoki pointed out that he made a mistake in the fourth game: he could have played otherwise and kept a significant group alive (with a Seki situation), sufficient for him to turn table on MoGo and win. The four games are presented below.
Black (Motoki Noguchi) wins.

Below, the (important) situation after move 9, analyzed by Motoki. Motoki felt that MoGo was embarrassed.

White (Motoki Noguchi) wins.
Comment by Motoki: very difficult game. The fifth move (black) was perhaps not sufficiently severe.
White (MoGo) wins after a *ko*-fight (involving G5 and D6). Motoki decided to play a different opening and felt that MoGo was stronger on this opening and played a very good game.

Below, the situation after move 14 under analysis by Motoki.

**blackWins**

Black (MoGo) wins.

The white group in the lower left part died; Motoki’s postgame analysis is that without a mistake of white in this part, a *seki* would have given a few more points to white, sufficient for a win.

The sequence E5 / G5 / G4 / F4 / F5 / G3 / H4 / G6 / F7, played here by MoGo as white, is good, but G7 (white) seemingly was a trouble for MoGo, which did not find a good answer, and Motoki (white) felt confident and would have won without the mistake discussed above.
Then Motoki and MoGo played 4 blitz games (5 minutes per side, sudden death, 32 cores for MoGo, only single brain for Motoki), and Motoki won 3 of these 4 games, in spite of the fact that Motoki played original openings for fun - this suggests that winning in blitz against MoGo is easier as Motoki managed to win whenever he played “experimental” initial moves.

Finally, MoGo played simultaneous games against Go amateur players and was undefeated in those games.

*Several people from the LLAIC and the Go club of Clermont-Ferrand.*