Result Analysis

Monte Carlo Simulation Gomoku 5 Stone Test Result							
Winner / First Position	White Win No.	%	Black Win No.	%	Tie No.	%	Total Test No.
1.7	49	4.9%	52	5.2%	859	85.9%	1000
2.7	70	7.0%	31	3.1%	880	88.0%	1000
3.7	44	4.4%	32	3.2%	924	92.4%	1000
4.7	133	13.3%	162	16.2%	705	70.5%	1000
5.7	83	8.3%	134	13.4%	783	78.3%	1000
6.7	107	10.7%	195	19.5%	698	69.8%	1000
7.7	155	15.5%	248	24.8%	597	59.7%	1000

From the board start position I tested from the board edge to the board center, I have found that just as we expected, the black stones tend to win more times than white stones. I set black stone to make the first move for all these 7000 times. This discovery looks more obvious as the start position getting closer to the center.

When the start position at the board edge, the result of white stone and black stones tend to be similar. As the start position getting closer to the board center, the tie number decreases while the difference between number of black stone wins and the number of white stone wins is getting bigger.

Monte Carlo Simulation Gomoku 4 Stone Test Result							
Winner / First Position	White Win No.	%	Black Win No.	%	Tie No.	%	Total Test No.
1.7	15	1.5%	985	98.5%	0	0.0%	1000
2.7	214	21.4%	786	78.6%	0	0.0%	1000
3.7	40	4.0%	960	96.0%	0	0.0%	1000
4.7	239	23.9%	761	76.1%	0	0.0%	1000
5.7	265	26.5%	735	73.5%	0	0.0%	1000
6.7	287	28.7%	713	71.3%	0	0.0%	1000
7.7	237	23.7%	763	76.3%	0	0.0%	1000

In this round, we consider 4 stones in a line to be the winner. The rule is easier, so the time consumption is much shorter than last one. The first move position does not contribute much effects on the result, but the side who does the first move takes more advantage. In this test, there is no tie for any of the positions. The reason is the game rule is easy. If the rule is considered to be 6 stones to win, the tie number will be very big.