Project Title:

GO-CHESS VARIANTS

NEW MEXICO SUPERCOMPUTING CHALLENGE Final Report April 2, 2014

Team No: 75

Schools: Los Alamos, NM

TEAM MEMBERS:

Andrei Popa-Simil - 8th grade LAMS

Victor Popa-Simil - 6th grade Mountain Elementary

Ming Yuan-Lo - 3rd grade Aspen Elementary

TEACHERS:

Mrs. Pauline Stephens, LAMS

Mrs. Zeynep Unal, Mountain Elementary

MENTORS:

Liviu Popa-Simil

Li-Ta Lo

EXECUTIVE SUMMARY

Chess and Go are two brain intensive games, that helps the development of strategy and thinking it is adopted by many schools as a way to develop brain and comportment since early ages.

Inspired by the original game with the difference that it might include one or more of the following:

• different board (larger or smaller, non-square board shape overall or different intra-board cell shapes such as triangles or hexagons);

 addition, substitution or removal of pieces in standard game (non-standard pieces are known as fairy pieces);

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different rules for capture, move order, game objective, etc.

These games are difficult to learn and understand, and even known procedures done by grand masters are difficult to be applied without a large experience, using the actual teaching methods based on books and computer games.

Our program will make an attempt to improve the learning efficiency by making possible that the player to know and analyze various variants and to coordinate on a virtual board, with complex information transfer capabilities. It will be at the interface between computing science, artificial intelligence, graphics modeling and behavioral science, accelerating the cognitive development for educational purposes.

The idea of this project is related on our personal experience as chess players, and our difficulties in improving our rating in the last years, due to the difficulties of better understand and identify the grand masters strategies dynamically variable context of the game in order to deliver the optimal performance. We feel the need of a friendlier tool to help us have a global vision on the board and its evolution along the game time-line. The code there will make possible to make computer follow a written chess or go game, and make possible that 2 opponents to play on screen chess or go variant. Provide a better visualization on how the parts have been moved on board in order to understand much better how grand masters played and made their decision, helping to faster progress.

STATEMENT OF THE PROBLEM

Chess and Go are two brain intensive games that are difficult to learn and understand, and even known procedures done by grand masters are difficult to be applied without a large experience, using the actual teaching methods based on books and computer games.

There is a large bibliography and game experience that can be used to implement computer assisted fast leaning of the previously used strategies, developed as computer programs that allow the confrontation between the artificial intelligence and humans.

Our goal is to create a more friendly environment to better see and understand the strategically games, and develop faster a cognitive environment for multi-player action.

DESCRIPTION OF THE METHOD

The procedural plan consists in implementing the Net logo programming to use the agents as game parts, and the patches to form the board. We will use algorithms to indicate the agents possible movements on the board, and a game like coding to be compatible with the actual notations, making possible to analyze any previous games.

A variant is a game related to, derived from or inspired by the original game with the difference that it might include one or more of the following:

- different board (larger or smaller, non-square board shape overall or different intra-board cell shapes such as triangles or hexagons);
- addition, substitution or removal of pieces in standard game (non-standard pieces are known as fairy pieces);

different rules for capture, move order, game objective, etc.

We will consider many variables, as different starting positions, boards dimensions and formats, different forces attributed to agents, unusual rules, incomplete information and elements of chance, multi-move, multi-players, synergistic compounds, etc.

DISCUSSION

The idea of this project is related on our personal experience as chess players, and our difficulties in improving our rating in the last years, due to the difficulties of better understand and identify the grand masters strategies dynamically variable context of the game in order to deliver the optimal performance. We feel the need of a friendlier tool to help us have a global vision on the board and its evolution along the game time-line. We will aim to provide tools for representing the games, and analyze them based on the best data base matching.

Chess is a two-player strategy board game played on a chessboard, a checkered game board with 64 squares arranged in an eight-by-eight grid. It is one of the world's most popular games, played by millions of people worldwide at home, in clubs, online, by correspondence, and in tournaments.

Both games have many variants.

We believe that Net Logo coding environment is friendly and workable for our problem, helping us to highlight important aspects of the problem.

We will have to find out along the project how, the proposed variability will help us better understand and develop the strategic thinking, and optimization in various limited resources environments.

Up to now we programmed in Net-Logo the go and chess boards, and created the pieces, making them move on the board, based on code commands.

RESULTS

We programmed the chess and go tables, the parts and the rules of moving the parts. We need to program more variants and to apply a more effective approach for variants definitions, and selection.

After programming, testing, and refining of the code there will be possible to make computer follow a written chess or go game, and make possible that two opponents to play on screen chess or go variant. We also hope to provide a better visualization on how the parts have been moved on board in order to understand much better how grand masters played and made their decision, helping to faster progress.

CONCLUSIONS

In conclusion we built a go board that you can place six types of pieces that can be placed anywhere on the board. But, the rules are not enforced. In chess we built the chess board and we have the pieces on their spot. We need to make it so that the chess pieces move and that both chess and go rules are followed. We all learned more about both chess and go and also about netlogo programming.

SOFTWARE,

We used netlogo to make our program

REFERENCES,

Here are our references:

http://en.wikipedia.org/wiki/Chess_variant

http://en.wikipedia.org/wiki/Go_variants

http://ccl.northwestern.edu/netlogo/docs/dictionary.html

http://en.wikipedia.org/wiki/Chess_notation

http://en.wikipedia.org/wiki/Kifu

SCREENSHOTS,





MOST SIGNIFICANT ACHIEVEMENT

Our most significant achievement is being able to place the go pieces any where on the board.

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