Implementation Perceptron Method Can Recognition the Open Ruy Lopez

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Abstract
The Research make with Perceptron method from group Artificial Neural Network for open Ruy Lopez. Data processed with base open chess, with 8 step a position white Pion from end op, n chess. With method perceptron have many input and one output process many bobot and refraction until output equal goal. Data trained and test with software Matlab and system can recognize the chess opening Ruy Lopez or Not open Ruy Lopez.

Keywords: Ruy Lopez; perceptron; white pion; Matlab

INTRODUCTION
Chessing is popular among the people. Chessing is known, not only among the public as a filling but also is considered as a way of thinking politicians and strategic. Because when viewed from the original of the word, chess originated from the word element "Chaturangga" means the four-tine or four constitutive elements of the armed forces. It can be seen that chess is not only related to the calculation, forecast, strategy but a combination or blend of science and sport (Indonesia Wikipedia, the free encyclopedia Indonesia, 2008). If looking at the game's legendary world champion Bobby Fischer 1972-1975 played chess with beauty, harmony, and art, chess board like a canvas where the pieces into a tool for expression. Chessing is the art because the chess pieces can produce harmony of a symphony or a beautiful painting. Chess becomes a game of sport as an element of competition not only but physical, emotional, psychological environment well. Chess became a science because it can be learned and created with the theory and provable. A beautiful masterpiece chess party, with the logic from beginning to end, is a work of art in of chess enthusiasts. There is an intellectual satisfaction when playing a masterpiece party. So the real chess is a combination of the three "Arts, Sport and Science.

Moreover, chess also teaches the importance of concentration. That is, if the child playing chess should be concentration in performing step by step, focused, patient and persistent in order to maintain a good game. Characters like that can be applied at school, especially when facing exams. And this according to the research of Dr. Robert Ferguson that games or chess can improve the ability to think critically and creatively, to analyze the impact of chess on students' thinking skills in a school in the USA. Fifth and sixth grade students who follow this research is already listed as a child talented that his scoring above 130. from the results of two different tests, he found that after playing chess for 60-64 hours and learn chess for more than 32 weeks, the students have made great progress in critical thinking.

Chessing can also be seen as a model of problem solving. With so many benefits of supply are very important to learn, and the basis of this chessing is to understand the pattern of the opening. The opening is key of chess itself. It is the foundation of the next game will be done by the players who are going to play a decisive victory. There are more than 1000 chess opening or 10 billion in the know Fitz 6 which is program Chess Base [1]. To improve the knowledge and practice should be supported chess player base which is a collection of chess programs. Based on
this, it is necessary to research a system that can recognize patterns based on the positions of chess opening end of a pawn using Perceptron. The algorithm of perceptron method used iterate over and over again to find out the possibility of the existing pattern so that the system can recognize patterns chess opening characterized by equal all network output with the desired output targets. Which is expected to improve the performance of existing chess programs and increase knowledge of the chess players preparing for it in every game.

In this study, the authors focus with the formulation of the problem, is the planned system with Artificial Neural Networks application can recognize Ruy Lopez opening or not.

RESEARCH METHODOLOGY
1. Variable research
   The variables in this study consisted of independent variables and one dependent variable. The independent variables are the input pattern (x1, x2) and the dependent variable is the output (y).

2. The research design
   The research design is a design experiment with using the input vector 8*8 = 63 components, according to the regional chessboard 8x8, 8 columns and 8 rows. The figures fill the pattern, namely: the number 1 marked, white pawn chess pawn position and the number 0 in the pattern that marked positions other than the pawns I white pawns or empty areas.

3. Research Model
   The model used in this study are the Perceptron. This method has a network architecture that consists of several units and a bias input that has an output unit, and the activation function is a binary function or bipolar, with a possible value of -1.0 or 1. For a price determined threshold: f(\text{net}) = 1 if \text{net} > , f(\text{net}) = 0 if - < \text{net} <- , f(\text{net}) = 1 if \text{net} <-

RESULTS AND DISCUSSION
The algorithm make perceptron training for introduction of several patterns at once is as follows;
1. Indicate each input pattern as a vector whose elements are 1, -1 and 0
2. Give the target value \( t_j = 1 \) if the pattern resembles the desired opening. Otherwise, provide a target value, \( t_j = -1 \) (\( j = 1,2,2, \ldots, m \)),
3. Give initiation weights, bias, rate of comprehension and threshold.
4. Make perceptron training process for each unit of output, namely: to calculate the output response of the j-th; \( \text{net}_j = \sum x_i.w_i + b_j, f(\text{net}) = 1 \) if \text{net}> , \( f(\text{net}) = 0 \) if - < \text{net} <- , and \( f(\text{net}) = \) and fix weighting pattern contains an error output that is not the same as the (target), the equation; new \( W_{ji} = w_{ji} (\text{old}) + \alpha t_j x_i \), \( B_j = b_j (\text{old}) + \alpha t_j \) and Perform steps continuously until \( t_j = y_j; j = 1, \ldots, m \) [2].

Mechanical Chess Games
To be able to master how to play chess well, full of variety and the dynamics there are steps that need to be considered and lived by chess players, Chess players both novice level, as well as an advanced degree or an expert. Technique playing, is divided into three acts namely: the initial round (opening), around the middle, Final round.

a. Preliminary Round (Preamble). Early rounds are the initial stage of the game of chess.
b. Round Mid; It is estimated that after the chess players stepped between 8 to 15 steps, it can be said that the game went in the middle rounds.
c. End Game; the final game can be started at step 20, could step into the 50th but also less than 10. In this round required precision and accuracy in determining step, so as not to make a blunder to be fatal [3].

Computer chess opening with Fritz 6
Fritz is a computer chess program that always uses the theory of the opening. Hence, if you play without opening theory, then the next step will experience a lot of emphasis. Fritz 6 been aware
opening move as much as 10 billion. Therefore, if making strides opening new ones, then Fritz 6 will say: "I have ten million moves and this guy comes up with something new!" (I already know 10 billion steps and this guy comes up with something the new "). It shows us, bring Fritz 6 already know all the steps of opening and determine if we get out of theory.

Fig.1: The Open Ruy Lopez & Input matrix 8x8 The Open Ruy Lopez (Morphy Defence)

Fig.2: The Open Ruy Lopez & Input matriks 8x8 The Open Ruy Lopez (Berlin Defence)

Fig.3: User interface
CONCLUSIONS
Based on experimental tests, the system was created by method perceptron to recognize pattern Ruy-Lopez opening and not the Ruy Lopez. The training is first with bias and weights are random or determined user. Next, system test to Recognize the opening Ruy Lopez or not the Ruy Lopez.

REFERENCES