Title

Subtitle

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Contents

1 Analysis

1.1 Background

1.2 Evidence of Analysis

1.3 Current Systems

1.4 Identification of end-user

1.5 Modelling of the problem

1.6 Set of objectives

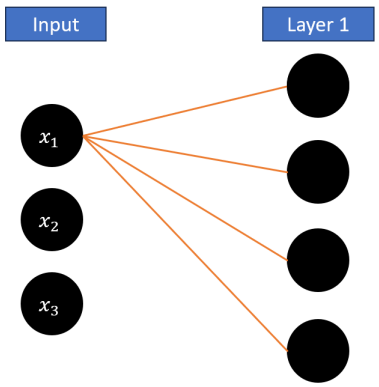
2 Research Log

https://www.mastersofgames.com/rules/draughts-rules.htm

Rules of draughts

https://www.ibm.com/topics/neural-networks

A neural network is a machine learning model which aims to mimic the processes of the human brain. Each network contains inputs and outputs, as well as one or more layers of hidden nodes - which act as artificial neurons. In a fully connected network, each node is connected once to each node in the next layer - an example of how one node connects to the next layer can be seen in the image below.



Neural networks are a supervised learning model, meaning that they learn from labeled data (which has the objective correct answer in the data). They are sometimes referred to as artificial neural networks (ANNs) or simulated neural networks (SNNs).

Neural networks can be modelled as a collection linear regression units.

A single linear regression unit has the formula:

$$\hat{y} = \sum_{i=0}^{n} w_i x_i + b$$

Where $\hat{y}$ is the predicted output, n is the number of inputs, x_i is the ith input, w_i is the weight of x_i, and b is a bias. If, for example, there were 3 inputs the full equation for $\hat{y}$ would be:

$$\hat{y} = w_1 x_1 + w_2 x_2 + w_3 x_3 + b$$

https://courses.cs.washington.edu/courses/cse446/20wi/Lecture8/08_Regularization.pdf

This calculation can be vectorized to improve efficiency and would be notated:

$$\hat{y} = WX + b$$

Where we let

$$W = \begin{bmatrix} w_1 \\ w_2 \\ \vdots \\ w_n \end{bmatrix} \qquad X = \begin{bmatrix} x_1 & x_2 & \dots & x_n \end{bmatrix}$$

https://www.turing.com/kb/mathematical-formulation-of-feed-forward-neural-network Maths?
https://en.wikipedia.org/wiki/Automatic_differentiation Automatic differentiation