**Title: - *Logic for Neural Networks using NeuroEvolution.***

**Title: - *Logik til Neural Networks ved hjælp af NeuroEvolution.***

NeuroEvolution is a genetic algorithm to train and develop neural networks using genetic algorithms and LEN (Logic explained networks) are neural networks that provide logical explanations to the decisions/outputs given by neural networks after training has been completed. In this project the aim to read in depth and understand the theory behind the two unique ideas and find a method to combine the two ideas to provide a more robust neural network.  
  
LENs tend to trade accuracy, to provide good logical explanations. To achieve these good readable explanations, LENs in the end go through a step call pruning which removes small/weak connections between layers to keep the output logical explanations readable.  
  
NeuroEvolution allows layers and nodes to be added and removed from the neural network during the training process. Thus, allowing the neural network to grow only if the current neural network architecture cannot solve the problem in hand.  
  
Therefore, combining the above two ideas will provide a way to develop neural networks which may have the optimal architecture, which can then be used to provide the logical explanations without using the pruning step in the creation of LENs.

Since, LENs require human understandable features as inputs the above algorithm can be tested using old arcade video games for performance.