

**UNIVERSITI TEKNOLOGI MARA  
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**POWER LINE FAULTS  
CLASSIFICATION BY NEURAL  
NETWORK TRAIN BY ANT  
COLONY OPTIMIZATION**

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## ABSTRACT

This proposal concentrates on arrangement of electrical cable issues. Flaws arrangements have been accomplish by utilizing manufactured neural systems. The diverse blames on the electrical cable ought to be arranged and found effectively. In this paper, the selected method is to train the neural network with the Ant Colony Optimization. In This paper it will show the performance for Neural Network and the performance train with Ant Colony Optimization for case of classification. Ant Colony Optimization is a meta-heuristic way to deal with take care of troublesome streamlining issues. Preparing a neural system is a procedure of finding the ideal set. An Ant Colony Optimization (ACO) is utilized to prepare with the neural systems. In this venture, the Ant Colony Optimization (ACO) calculation used to prepare neural system was studies, usage and tried with preparing issue. The execution of this Ant Colony Optimization (ACO) usage was contrasted and that nonpartisan system and discovered it is more compelling than neural system. Metaheuristic algorithms are algorithms which, in order to escape from local optima, drive some basic heuristic: either a constructive heuristic starting from a null solution and adding elements to build a good complete one, or a local search heuristic starting from a complete solution and iteratively modifying some of its elements in order to achieve a better one. The metaheuristic part permits the low level heuristic to obtain solutions better than those it could have achieved alone, even if iterated. The characteristic of ACO algorithms is their explicit use of elements of previous solutions. This paper will show the best performance of Ant Colony Optimization compared to Neural Network.

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# CHAPTER 1

## INTRODUCTION

### 1.0 OVERVIEW OF STUDY

A Neural Network comprise of interconnected manufactured neurons that attempt to mirror the working of the natural neural system in the human mind. Simulated neural system can be prepare so as the coveted arrangement of yield for a specific arrangement of sources of info, which enables a neural system to be utilized to take care of complex order and expectation issues which are troublesome understand by ordinary techniques back proliferation is the most well-known calculation used to prepare neural system.

Preparing utilizing backpropagation is a moderate and dubious process; preparing disappointment emerges from components like system loss of motion and neighborhood minima [1]. To conquer these downsides specialists are trying heuristic strategies like Genetic Algorithms, Particle Swarm Optimization, Simulated Annealing, and so on to prepare neural systems all the more effectively. One such swarm knowledge based meta-heuristic way to deal with critical thinking is Ant Colony Optimization (ACO), which misuses the capacity of an Ant Colony to locate the most brief way between its home and nourishment source to take care of issues. In this venture ACO is utilized to prepare the neural system and its execution is contrasted and the execution of backpropagation, in the expectations that they will prepare neural systems all the more successfully.

The Ant settlement streamlining calculation (ACO), is a probabilistic procedure for illuminating computational issues which can be diminished to discovering great ways through charts. This calculation is an individual from insect state calculations family, in swarm knowledge methods, the to begin with calculation was planning to scan for an ideal way in a diagram; in view of the conduct of ants looking for a way between their province and a wellspring of nourishment. The first