# PROJECT PROPOSAL

## A COMPARITIVE STUDY OF NATURE-INSPIRED ALGORITHMS FOR AUSTISM SPECTRUM DISORDER(ASD) DETECTION

**By**

**Rajas Deshpande (SUID – 588939943)**
**Vinayak Kukreja (SUID – 580935977)**

- **Problem Statement** –

  Perform a comparative study of five nature-inspired optimization algorithms for detecting autism in young adults.

- **Dataset** –

  The Autism Spectrum Disorder (ASD) screening dataset is used for detecting autism in young adults. This dataset is obtained from UCI machine learning repository. The following link can be used to download this dataset –

  http://archive.ics.uci.edu/ml/machine-learning-databases/00426/

- **Implementation Details** –

  In this comparative study, we plan to implement five different nature-inspired optimization algorithms and compare their results with backpropagation and particle swarm optimization (PSO). The five algorithms that we will be implementing are as follows:
  - Cuckoo Optimization
  - Cat Swarm Optimization
  - Grey Wolf Optimization
  - Firefly Algorithm
  - Bat Algorithm

  A python library SwarmPackagePy will be used for implementing these optimization approaches. We intend to design a feed-forward neural network model and find out the best weights of the neural net model using these different approaches.

- **Expected Outcome** –

  A comparative study of accuracies, errors and other metrics which will give an overview of the best nature-inspired optimization algorithm for detecting ASD.