MAHARASHTRA INSTITUTE OF TECHNOLOGY, AURANGABAD.

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (2021-22 PART-I)

MINOR PROJECT REVIEW - 1

IMAGE SEGMENTATION OF OPTICAL OPTIMIZATION

Group Member: Guided by:

Ganesh Jamkar(59)   Ms. B.P. Chaudhary Mam

Somesh Kharat(53)

COURSE OUTCOMES:

☐ CO 1 Identify real world problems.

☐ CO 2 Recognize system requirements and analyze them.

☐ CO 3 Apply design methodologies.

☐ CO 4 Implement and validate the results.

☐ CO 5 Image Processing

INTRODUCTION:

image segmentation is the process of partitioning a digital image into multiple segments (sets of pixels, also known as image objects). The goal of segmentation is to simplify and/or change the representation of an image into something that is more meaningful and easier to analyze. Image segmentation is typically used to locate objects and boundaries (lines, curves, etc.) in images. More precisely, image segmentation is the process of assigning a label to every pixel in an image such that pixels with the same label share certain characteristics.

GENETIC ALGORITHM:

Genetic Algorithm (GA) is one of the most well-regarded evolutionary algorithms in the history. This algorithm relates Darwinian theory of survival of the fittest in nature. This Algorithm presents the most fundamental concepts, operators, and mathematical models of this algorithm. The most popular improvements in the main component of this algorithm selection, crossover, and mutation. The algorithm has the application of this technique in the field of image processing. In fact, the GA algorithm is employed to reconstruct a binary image from a completely random image.

Five phases are considered in a genetic algorithm.

1) Initial population

2) Fitness function

3) Selection

4) Crossover

5) Mutation

OBJECTIVES AND NECESSITY:

• To develop computational methods and algorithms to analyze and quantify biomedical data.

• To monitor the changes in pathologies of medical images.

• To provide better image processing(object detection and segmentation) and better image quality for biomedical data.

• Applying information analysis and visualization to biomedical research data.

DOMAIN/AREA OF APPLICATION (SOCIAL/RESEARCH/PRODUCT.ETC) :

1) RESEARCH
2) MEDICAL

Technical Area (cloud, security etc..) :

Image Processing

Python

Literature survey (format 1):

Sr. No	Paper Title, Author, Journal/ conference	Method / Approach used	Dataset used	Advantages	Drawback(s)	Future Scope
1.	Genetic Algorithm. MDU Rohtak	Genetic Algorithm, Crossover operators, Mutation Operators		employed for a wide variety of optimization problems.	Premature convergence occurs.	Function Optimizations.
2.	Genetic Algorithm. IEEE Conference.	Genetic Algorithm,Inheritance,Crossover		Handles large, poorly understood search	Definition of representation for the problem	Strategy planning.
3.	Genetic algorithm: past, present, and future	Classical Genetic Algorithm.		Easily modified for different problems.	The problem of identifying fitness function.	TSP and sequence scheduling

PROBLEM STATEMENT AND SCOPE:

1) Machine Learning–Designing neural networks, both architecture and weights, improving classification algorithms.

2) Strategy planning.

3) Very vigorous to difficulties in the evaluation of the objective function.
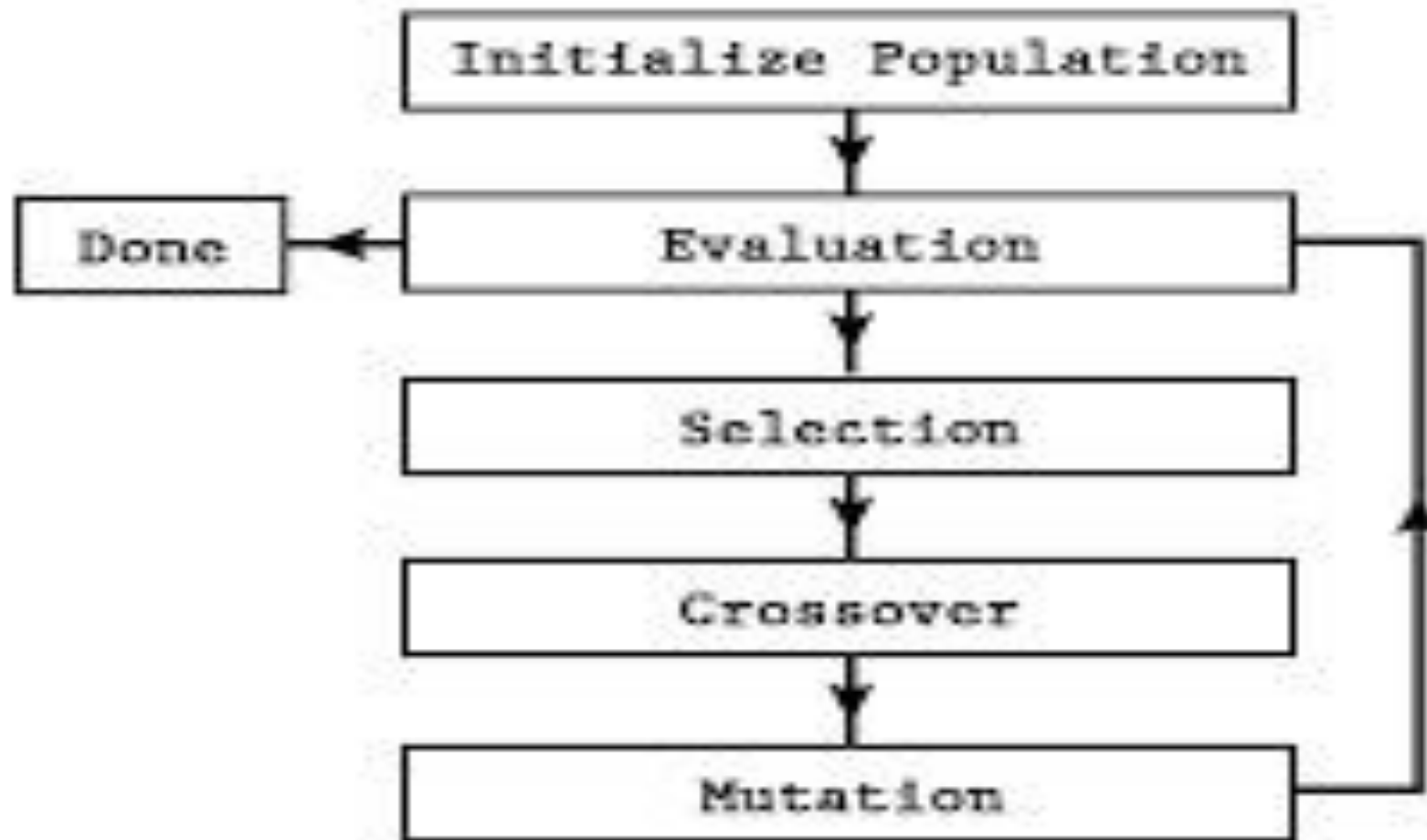
GENETIC ALGORITHM FLOW CHART

Figure 2

REFERENCES:

https://link.springer.com/article/10.1007/s11042-020-10139-6

https://www.researchgate.net/publication/341371936_Literature_Review_on_Genetic_Algorithm

https://ieeexplore.ieee.org/document/8862255/keywords#keywords

1/31/2022

THANK YOU.