Genetic algorithm. Phenotype

What is GA?

A genetic algorithm is a search technique used in computing to find true or approximate solutions to optimization and search problems.

GAs are categorized as global search heuristics.

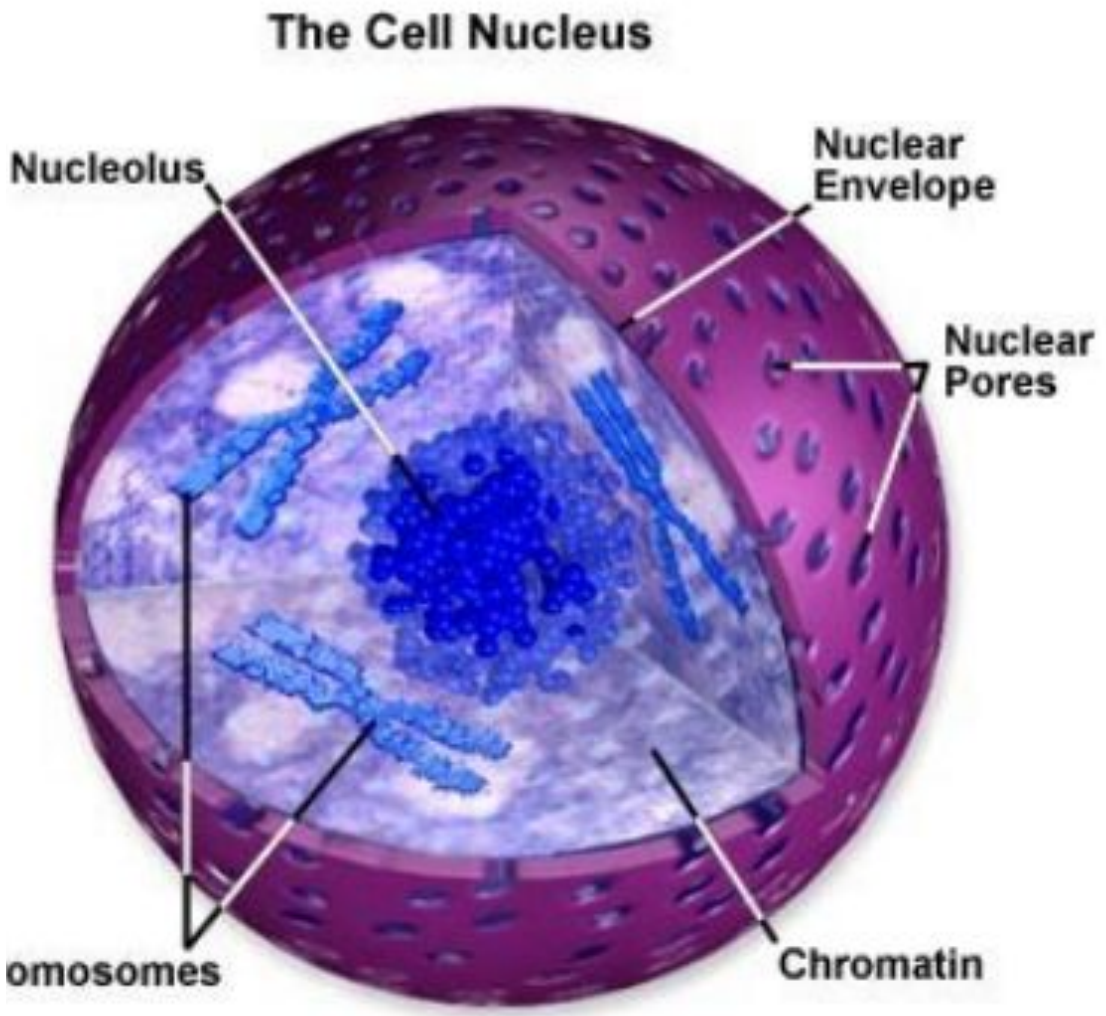
GAs are a particular class of evolutionary algorithms that use techniques inspired by evolutionary biology such as inheritance, mutation, selection, and crossover.

The cell

Every animal cell is a complex of many small “factories” working together.

The nucleus in the center of the cell.

The nucleus contains the genetic information



Chromosomes

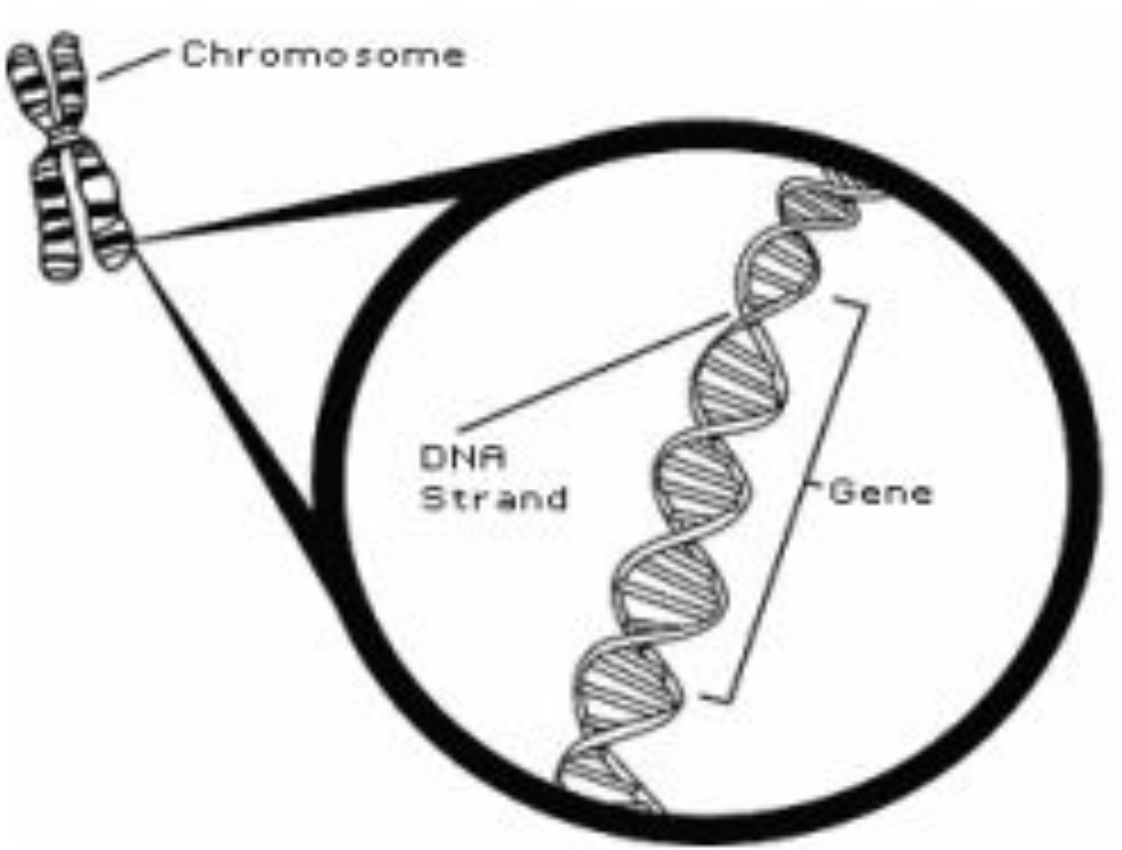
Genetic information is stored in the chromosomes

Each chromosome is built of DNA

Genes are encoded in the chromosomes

Genes code for proteins

Every gene has a unique position on the chromosome



Genotype and phenotype

Genotype is a set of chromosomes of a given individual. Therefore, genotypes or single chromosomes can be a special population.

A phenotype is a set of values corresponding to a given genotype, i.e. allowed structure or set of task parameters.

Genotype and phenotype

The entire combination of genes is called genotype

A genotype leads to a phenotype

The phenotype is affected by changes to the underlying genetic code