RAMA UNIVERSITY

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FACULTY OF EGINEERING AND TECHNOLOGY

Soft Computing

LECTURE -24

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OUTLINE

- Fitness Function
- Selection
- References

Fitness Function

The fitness function determines how fit an individual is (the ability of an individual to compete with other individuals). It gives a fitness score to each individual. The probability that an individual will be selected for reproduction is based on its fitness score.

GENETIC ALGORITHM

Fitness Evaluation

❑A fitness function is a particular type of objective function that prescribes the optimality of a solution in a genetic algorithm so that that particular chromosome may be ranked against all the other chromosomes.

❑Fitness computation time of a single solution is extremely high,

❑Precise model for fitness computation is missing,

❑The fitness function is uncertain or noisy.

GENETIC ALGORITHM

Operator used for fitness computations or evaluation

- Selection
- Crossover
- Mutation
- Replacement
- Termition

GENETIC ALGORITHM

Selection operator

❑Selection is the process of selecting two or more parents from the population for crossing.

❑The purpose of selection is to emphasize fitter individuals in the population in hopes that their off springs have higher fitness.

❑how to choose individuals in the population that will create offspring for the next generation and how many offspring each will create.

❑Selection is a method that randomly picks chromosomes out of the population according to their evaluation function

MULTIPLE CHOICE QUESTION

1. What is the name for information sent from robot sensors to robot controllers?

a) temperature

b) pressure

c) feedback

d) signal

2. Which of the following terms refers to the rotational motion of a robot arm?

a) swivel

b) axle

c) retrograde

d) roll

3. What is the name for space inside which a robot unit operates?

a) environment

b) spatial base

c) work envelope

d) exclusion zone

4. Which of the following terms IS NOT one of the five basic parts of a robot?

a) peripheral tools

b) end effectors

c) controller

d) drive

5. Decision support programs are designed to help managers make _____

a) budget projections

b) visual presentations

c) business decisions

d) vacation schedules

REFERENCES

- https://shodhganga.inflibnet.ac.in/bitstream/10603/41504/12/12_chapter%202.pdf