

ACADEMY OF TECHNOLOGY

Department: CSE

Semester: 7th

Paper name: Soft Computing

Paper code: PEC-CS702B

Power Point Presentation on -
Concept of Soft Computing and its applications in the real world

Presented by-

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To fulfill the requirement of Continuous Assessment 1 [CA1] of B. Tech Course.

Introduction:

- **Soft Computing** is a subfield of artificial intelligence that focuses on developing algorithms capable of solving problems that are difficult or impossible to solve with traditional computing methods.
- It includes fuzzy logic, neural networks, and evolutionary algorithms. Soft Computing provides a powerful tool for real-world applications.

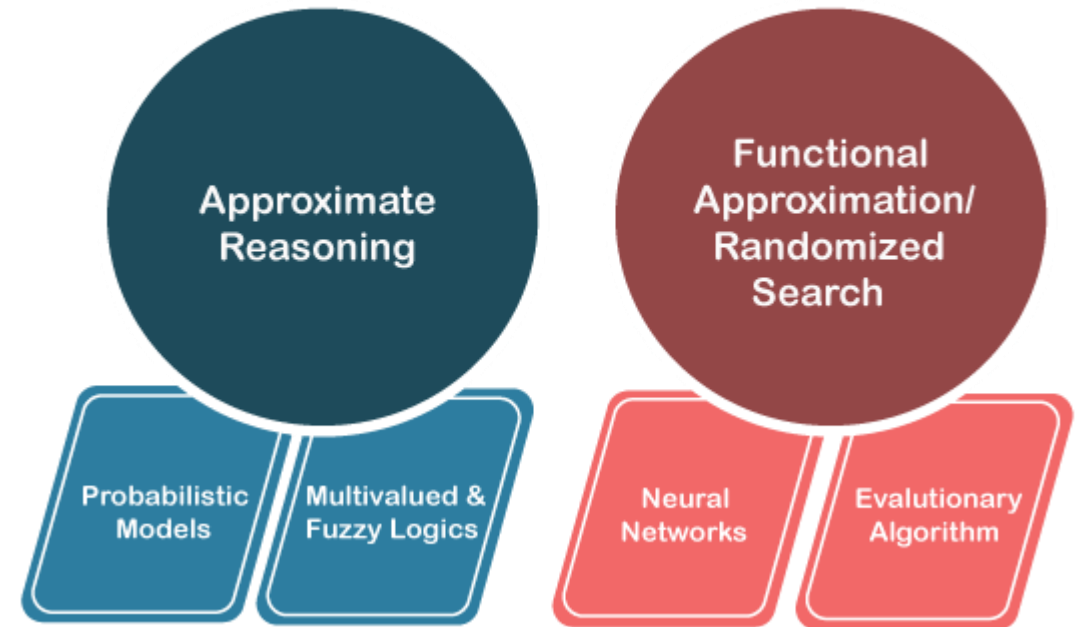


Elements of soft computing:

These are -

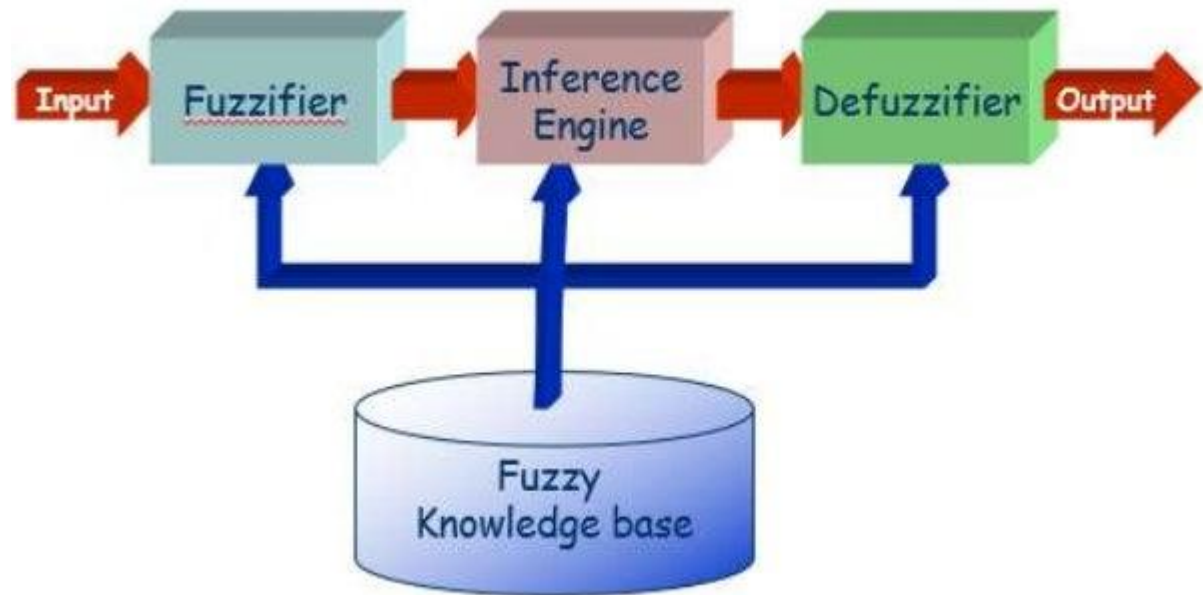
- Fuzzy Logics
- Neural Networks
- Evolutionary Algorithms

Soft Computing



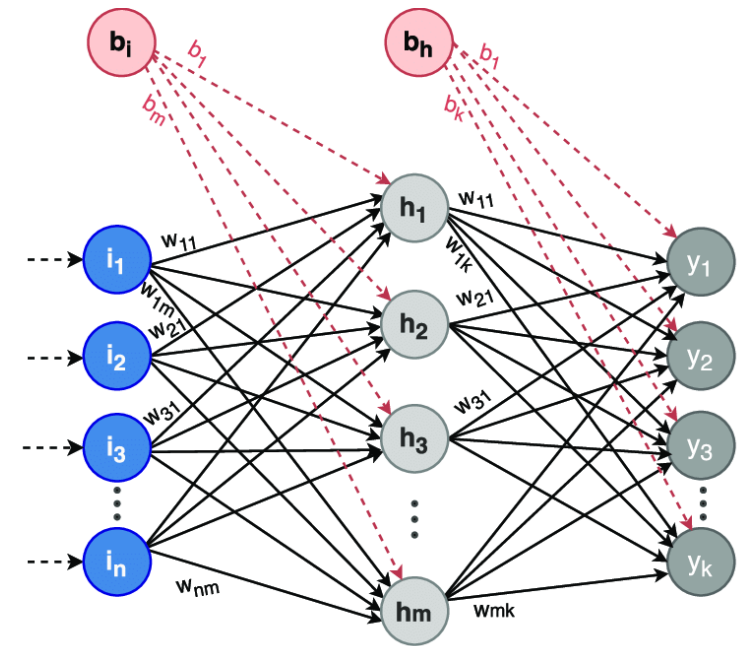
Fuzzy Logic:

- *Fuzzy Logic* is a mathematical framework that allows for imprecision and uncertainty in decision-making.
- It is particularly useful in situations where there are multiple possible outcomes, and it is difficult to determine which one is the best. Fuzzy Logic has been applied in a wide range of fields, from control systems to image processing.



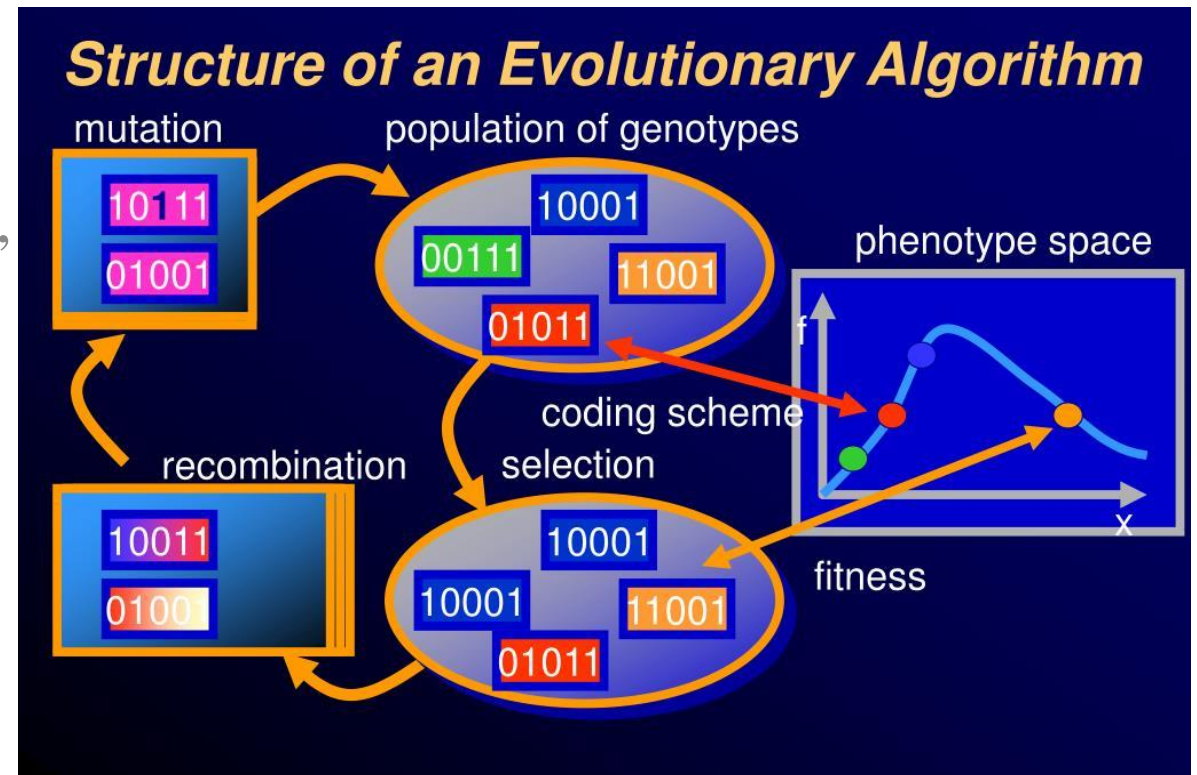
Neural Networks:

- *Neural Networks* are a type of machine learning algorithm that are modeled after the structure of the human brain.
- They are capable of learning from data, and can be used for tasks such as pattern recognition, image classification, and speech recognition.
- Neural Networks have been successfully applied in fields such as finance, healthcare, and marketing.



Evolutionary Algorithms:

- *Evolutionary Algorithms* are a class of optimization algorithms that are based on the principles of natural selection and evolution.
- They are particularly useful for solving complex optimization problems, such as those involving multiple variables and constraints.
- Evolutionary Algorithms have been applied in fields such as engineering, finance, and biology.



Real-World Applications:

- Soft Computing has been successfully applied in a wide range of fields, including finance, healthcare, transportation, and manufacturing.
- Examples include predicting stock prices, diagnosing diseases, optimizing traffic flow, and designing more efficient manufacturing processes.
- Soft Computing provides a powerful tool for solving complex problems in the real world.



Computer Vision



Image Processing



Speech Recognition



Automated Manufacturing



Power System



Large-Data Compression

Conclusion:

Soft Computing is a powerful tool for solving complex problems in the real world. Its subfields, including fuzzy logic, neural networks, and evolutionary algorithms, have been successfully applied in a wide range of fields. As technology continues to advance, Soft Computing will play an increasingly important role in shaping the future.



References:

- Neural Networks, Fuzzy Logic And Genetic Algorithms: Synthesis And Applications by S. Rajasekaranm
- Principles of Soft Computing by S.N. Sivanandam



**Thank
you**