pg 1-4

Lec # (Week#1) Date 20 M T W T F S

ARTIFICIAL INTELLIGENCE

Definition:

Intelligence: Ability to learn and solve problems

The study and design of intelligent agents, where an agent is a system that percieves its environment and takes actions that maximize its chances of success.

Applications of AI:

- Smart Seach Algos (eg: Traveling Salesperson)
- NLP Applications (eg: search engines)
- knowledge base Apps (eg: logic based games)
- Machine Learning (eg: Facial Recognition)

- Hard or Strong AI:-

Generally, AI research aims to create AI that can replicate human intelligence completely.

Strong AI :- machine that approaches or supersedes human intelligence
- if it can do humanly tasks
- if, it can apply wide range of background knowledge
- if, it has some degree of self-consciousness.

Strong AI aims to build machines whose overall intellectual ability is indistinguishable from that of a human being.

Date 20
M T W T F S

- Soft or Weak AI:

Weak AI: use of software to study or accomplish specific problem solving or reasoning tasks that do not encompass the full range of human cognitive abilities.

Does not achieve self-awareness; demonstrates a few level of human-level cognitive abilities.

- General AI Goals:

- Replicate human intelligence: distant goal.
- Solve knowledge intensive tasks
- make an intelligent connection b/w perception and action.
- Engineering based AI goal
- develop concepts, theory & practice of building intelligent machines
- Emphasis is on system building
- Science based AI goal.
- Develop concepts, mechanism and vocabulary to understand biological intelligent behaviour.
- Emphasis is on understanding intelligent behaviour.

- What is AI?

Thinking humanly	Acting humanly
Thinking rationally	Acting rationally.

Date 20
M T W T F S

- Cognitive Science: Think human-like.

  - Focus is not just on behavior and I/O, but looks at reasoning process

  - Computational model as to how results were made.

  - Not just to produce human-like behaviour but produce a sequence of steps of the reasoning process, similar to the process followed by a human in solving the same task.

- Laws of though: Think Rationally.

  Study of mental faculties through use of computational models (makes it possible to perceive, reason and act)

  Focus is on inference mechanisms that are provably correct and guarantee an optimal solution.

  Goal is to formalize the reasoning process as a system of logical rules and procedures for inference.

Date 20
M T W T F S

• Act like human: Turing Test.

- Study of how to make computer do things which atm people are better at.
- Focus is on action and not intelligent behaviour centered around representation of the world.

- A behaviourist approach, not concerned with how to get results but to similarity to what human results are.

• Rational Agent: Act Rationally.

- Tries to explain and emulate intelligent behaviours in terms of computational process; concerned with automation of intelligence.

- Focus is on systems that act sufficiently if not optimally.

- Goal is to develop systems that are rational and sufficient.