

A STUDY OF ARTIFICIAL INTELLIGENCE WITH REFERENCE TO ROBOTICS

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ABSTRACT

Artificial Intelligence is the branch of computer science concern with making computers behave like humans. Artificial Intelligence is a way of making a computer, a computer-controlled robot, or a software think intelligently, in the similar manner the intelligent humans think. AI is accomplished by studying how human brain thinks and how humans learn, decide, and work while trying to solve a problem, and then using the outcomes of this study as a basis of developing intelligent software and systems. Robotics develops man-made mechanical devices that can move by themselves, whose motion must be modelled, planned, and controlled and whose motion behaviour can be influenced by programming. Robots are called intelligent if they succeed in moving in safe interaction with an unstructured environment, while autonomously achieving their specified tasks.

Keywords: *Artificial Intelligence, Human, Machine, natural intelligence, Robotics.*

I. INTRODUCTION

The central scientific goal of AI is to understand the principles that make intelligent behaviour possible in Natural or Artificial system. This is done by

- The analyses of Natural and Artificial agents
- Formulating and testing Hypothesis about what it takes to construct Intelligent Agents.
- Designing, building and experimenting with computational systems that perform tasks commonly viewed as requiring intelligence
- Intelligence is the computational part of the ability to achieve goals in the world. Varying kinds and degrees of intelligence occur in People, many animals and some machines.
- Artificial Intelligence is the study of How to make computers do things which, at the moment people do better.
- Solve knowledge intensive tasks.

1.1 Research area of AI

1. **Expert system:** Examples: Flight Tracking System, Clinical System etc.
2. **Natural Language Processing:** Examples: Google now features, Speech recognition, Automatic voice output etc.

3. **Neural Network:** Examples: Pattern recognition systems such as face recognition, Character recognition, Handwriting recognition.
4. **Fuzzy Logics:** Examples: Consumer electronics, Automobiles, etc.
5. **Robotics** Examples: Industrial robot for moving, spray, painting, precision checking, welding, material handling, drilling, cleaning etc.

II. ROBOTICS

Robotics is the branch of AI, which composed of electrical engineering, mechanical engineering and computer science for design, construction and application of robot.

2.1 Types of robotics

1. **Industrial robots** - Industrial robots are robots used in an industrial manufacturing environment. Usually these are articulated arms specifically developed for such applications as welding, material handling, painting and others. If we judge purely by application this type could also include some automated guided vehicles and other robots.
2. **Domestic or household robots** - Robots used at home. This type of robots includes many quite different devices such as robotic vacuum cleaners, robotic pool cleaners, sweepers, gutter cleaners and other robots that can do different chores. Also, some surveillance and telepresence robots could be regarded as household robots if used in that environment.
3. **Medical robots:** Robots used in medicine and medical institutions. First and foremost - surgery robots. Also, some automated guided vehicles and maybe lifting aides.
4. **Service robots:** Robots that don't fall into other types by usage. These could be different data gathering robots, robots made to show off technologies, robots used for research, etc.
5. **Military robots** - Robots used in military. This type of robots includes bomb disposal robots, different transportation robots, reconnaissance drones. Often robots initially created for military purposes can be used in law enforcement, search and rescue and other related fields.
6. **Entertainment robots** - These are robots used for entertainment. This is a very broad category. It starts with toy robots such as robosapien or the running alarm clock and ends with real heavyweights such as articulated robot arms used as motion simulators.
7. **Space robots** - This type would include robots used on the International Space Station, Canadarm that was used in Shuttles, as well as Mars rovers and other robots used in space.

2.3 Applications of robotics

1. **Industries:** Robots are used for handling material, cutting, welding, color coating, drilling, polishing, etc.
2. **Medicine:** The robots are capable of carrying out hundreds of clinical tests simultaneously, rehabilitating permanently disabled people, and performing complex surgeries such as brain tumors.

3. **Agricultural robots:** **Agricultural robots** or **agribot** is a robot deployed for agricultural purposes. The main area of application of robots in agriculture today is at the harvesting stage. A possible emerging application is robots or drones for weed control.
4. **Entertainment:** Disney's engineers have created hundreds of robots for movie making.

2.4 Advantages of Robots

1. **Abilities:** Robotic abilities, what robots can do, are now extremely vast and growing.
2. **Productivity:** Robots do not tire and can work very long hours without service or maintenance. As a result, robots can be significantly more productive than people.
3. **Strength:** Without a doubt, robots can be significantly stronger than people.
4. **Speed:** Additionally, robots can be significantly faster than people too.
5. **Size:** Robots can come in any size. Whatever size needed for any task can be created.
6. **Environment:** Robots can be designed to work in extremely harsh environments, such as in space, without air, underwater, fire, etc. Thus, robots can be used instead of people when human safety is a concern.
7. **Dangerous and Unwanted Work:** Finally, robots can do jobs that people are unwilling to do. I don't think many people would be willing to do those types of jobs.

2.5 Disadvantages of Robots

1. **Jobs:** In my opinion, the biggest issue with using robots is the huge loss of jobs for people. Basically, robots have eradicated a wide range of middle class jobs in several industries, such as car manufacturing.
2. **Limited Functionality:** Robots are very good at doing perfectly defined jobs, however robots typically do not handle the unexpected as well as people do.
3. **Lack of Intelligence:** Since robots are not intelligent or sentient, robots can never improve the results of their jobs outside of their predefined programming. In other words, robots do not think. At least, not yet.
4. **Lack of Emotions or Conscience:** Similarly, robots do not have emotions or conscience; therefore, robots lack empathy and all of the advantages that come with it. As a result, this limits how robots can help and interact with people.
5. **Dangerous:** Robots can be extremely dangerous. Whether robots are malfunctioning or designed for warfare, robots can be very hazardous to people.

2.6 Challenges

1. Till today robots are lacking in showing emotions and feeling according to situations.
2. Think and react like human brains.

III.SUGGESTION &DISCUSSION:

Many robots have used by a mechanical engineering or electrical engineering background and do not have the time or money to learn the ins and outs of the most useful computer science techniques, but they do need to be able to take advantage of those techniques. Programming capabilities like object-oriented programming and recursion can be critical in a robust autonomous system, so they need a language that is capable of these features. Additionally, the user interface must be intuitive and flexible. Often the end users of the autonomous system are rescue professionals like fire-fighters, soldiers, or the elderly, none of whom should be faced with a complex or confusing interface to complete their task.

IV. CONCLUSION

Make a Computer program that should be used to make (character) Robot with the help of Character building software's like Adobe illustrators. We are also to animate this character through well programmed commands of animations through animated software's to add emotions and feelings in to the character like natural intelligence (input human nervous system).

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