



A Study on Humanoid Robots and Its Psychological Evaluation

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Abstract. Humanoid robots are professional robots designed to mimic human movement and communication. Like all service robots, they provide value by automating tasks that lead to cost savings and productivity. Humanoid robots are a relatively new form of professional service robot. The humanoid robot is one of the humanoid robots developed by Hanson Robotics. Sophia has a human-like conversation and can express many human-like facial expressions. Human robots research and space exploration, personal assistance and maintenance, education and recreation, search and rescue, production and maintenance, public relations and health. Human figures move, speak and function through certain features such as sensors and actuators. Android is a human robot that looks like a human, while ginoids look like female humans. Human figures function through certain features. They have sensors that help them sense their surroundings, and they have many features such as Changeable flexibility, law enforcement and mobility. The humanoid robot assists working people by ensuring their care and complete safety. Such robots work in factories as well, while humanoid robots, which can perform repetitive tasks without error, are not intended to imitate humans in form and ambiguous function. They have more specific roles - than just being a "do it all" assistant. Our own TUG mobile robots and Robot's Rumba are every prime example of humanoid robots. Robots made in human form or in the shape of a human body - one head, one body, two arms and two legs. Androids are artificial creatures like humans, at least in appearance but also in behavior. Now available for purchase or rent for an undisclosed amount, the related Android labeled Ameca has beautiful face and movable hands and is charged as the "perfect human robot operating system for human-robot communication".

1. Introduction

Actuators are the motors responsible for the movement of the robot. Humanoid robots are designed to mimic the human body. Although with different structures, they use accelerators that act like muscles and joints. The actuators of humanoid robots can be electric, pneumatic or hydraulic. Robots with good aesthetic design, rich personalities and social cognitive intelligence can connect deeply and meaningfully with humans. Android is a humanoid robot or other artificial creature often made of flesh-like material. Functional analysis is facilitated by obtaining objective data describing the movement and physical examination of a subject and the associated medical history. Sports and fitness science is another important area with studies of human movement in athletics, golf and other activities. For example, Human-robot interaction plays an important role in the design of exoskeleton rehab robots because the exoskeleton system makes direct contact with the human body. Psychological assessment includes many Elements such as protocol-based psychological tests, informal tests and studies, interview information, school or medical records, clinical evaluation and monitoring data. A psychologist decides which information to use based on the specific questions asked. Dynamic walking is a theoretical approach to left locomotion in several steps, not one step at a time, in an effort to understand or improve sustainability and energy economics. The interface goes through a chain of devices that on the one hand translate commands that can be understood by humans into robotic commands, and on the other hand converts robotic concepts into information that can be understood by humans. Kinetic planning is a term used in kinetics that breaks down the desired kinetic function into individual kinetics, satisfying kinetic controls and improving certain aspects of kinetics. The two-legged robot is a kind of humanoid robot Man can also plan to do certain tasks as needed. ... You can also control the movement of the robot using the remote controller. This two-legged robot can help humans perform tasks or activities in dangerous environments. The bipedal walking robot is a humanoid robot that is designed to perform certain tasks as needed. ... You can also control the movement of the robot using a remote controller. This two-legged robot can help humans perform tasks/ activities in dangerous environments.

2. Humanoid Robot

In 1986, Honda began research into two-legged human robots. Honda Cruisers, Cars and Energy Products In 1986, Honda took on another test and fostered the versatile two-legged human robot. The fundamental thought of Honda's R&D robot was that in 1986, Honda started research on two - legged human robots. [1]. Utilizing the experience acquired from the P2 and P3 models, ASIMO exploration will help this reason and our most recent bipolar robot. Its name, ASIMO, alludes to the high level advance of the creative development, and is the aggregate name of all Honda human robots shows the Humanoid Robot Fig 1 [2].



FIGURE 1. Humanoid Robot

Humanoid robots are amazingly complex machines, capable of traveling on the same terrible terrain that humans can cross, and capable of performing the same tasks as humans, with the potential consequences of Challenging control problems and computationally difficult planning problems. In this chapter, we look at gait planning and locomotion to guide human robots through complex and rugged terrain. Human robots are capable overcome obstacles in their path, and allow versatility and agility in all directions. [3]. We design humanoid robots to operate spontaneously and safely in natural work environments without human control or supervision. We do not design them as solutions for specific robot needs. Create robots that operate in different real world environments based on our goal. Simulations of neural networks are used to read and refine models from neuroscience, and we can use human simulation robots. [4].

3. Body Movement Analysis

This encourages people to consider the robot as a human child. Our evaluation approach compares the measurement and results of physical movement interactions between human robots with human and traditional subjective evaluation. The results indicate that there are links between subjective assessment and body movements. Multiple linear regression analysis confirms the rating score from body movements, confirms the analysis and reveals how much each body movement is affected assessment [5]. To estimate a moment in body movements the score is called the entry score. Gives computers the ability to reflect human emotions and identify emotions that are physically expressed by others. Movement should be neurologically and psychologically based. Studies of visual analysis of psychological body movement show that human movement differs. It is the only visual stimulus from other movements because we have experience in both perceiving and producing. Emotionally Body Language [6]. Our approach to video analysis of gesture and body movement allows us to track the silhouette and body parts without the need for markers. Used Eyes Web Platform Lessons from Background to Extract Full Shadow and Hands. The Eyes Web Expressive Gesture Processing Library used to calculate five different explicit motion cues: size body motion and compression index, speed, acceleration and fluity peripheral [7]. Includes important notes that arise From the body movement of the musician. This movement is related to both the completion of the music and the music that expresses the emotional purpose. In this experiment, a pianist was asked to play the same role with different emotions and obvious intentions. You should check that movement by trying to determine which movement profile is most sensitive. The analysis was conducted with an automated system capable of detecting temporary profiles of two motion tips: body movement and speed movements in the position of the head. The results show that both are emotional expressions, especially the speed of head movements [8].

4. Human–Robot Interaction

These interactive studies show one of the significant contributions to the design of Kismot's emotion and expression system. That is, the ability to engage Face-to-face, rich, energetic, mutually organized and close-knit Emotional contacts. The resulting interactions are very impressive because the robot's expressive behavior is synchronized in a timely manner. Human behavior in microscopic time measurements. Focus on this its synchronization with contemporary human behavior is very important to establish the natural flow and rhythm of human-robot communication Characterization of human-human relationships. [9] In distinguishing From human-robot collaboration to other types of human-robot interactions, the applications of individuals interacting with robots as competent partners are important. That is, communication is the activity of one person or another, and cooperation is the natural work of others. The robot is often seen as a tool with some limited autonomy. The Remote Human Operator commands a task. 12–14 Robot in this type of master-slave arrangement does not like the sense of partnership when it acts as an instrument. The human-robot alliance is a very important and relatively unexplored topic in many applications and interfaces displays coming under the human-robot interaction domain [10]. The ability to use given references Learning theory is based on the structure of relationships in a social context and context. An important element of located learning is Vaikotsky's Proximity Development Zone. 18 This theory assumes that a child learns new skills from another person through the scaffolding process, where the teacher provides structure and assistance in a new process, i.e. the learner can accomplish something that they cannot do independently [11]. Upon entering the premises, participants were called to Humanitarian service Asked permission to record contacts on robot and camera. If permission was granted, the participant went to the robot. Communication began with welcoming the robot participant to ensure natural communication; He asks how they behave. The features of the robot remained the same, and it provided appropriate responses to the participant's comments. Then, the robot asks the participant the reason for the visit and where the participant wants to go. In response, the robot physically pointed in that direction with accurate information about the exact location. Finally, the researcher filled out a survey on the tablet provided participants [12].

5. Psychological Evaluation

The robot uses the human body and voice to interact gently and naturally with humans, to behave like a human child, and to interact with humans on a daily basis. Our strategy is to analyze human-robot interactions based on body movements using motion-capture. We performed experiments comparing body movements with subjective assessment based on the psychological method. In addition to evaluation, we would like to know about the metaphor that partner robots can use to motivate humans. Familiarize yourself with them [13]. If robots are able to achieve adequate communication functions, Various applications of interactive human robots will emerge and they will participate in our daily lives. Partner refers to the potential uses of robots. Of course, these robots have the direct psychological ability to perform enrichment tasks such as psychotherapy and entertainment just like pet robots like animals. In addition to these basic functions, enable the humanoid robot to streamline communication support functions such as human appearance dialogue. And language education, as well as physical support tasks in the human daily environment [14]. Here we have a psychological test of the subjects Records of a complex robot. Vision control, which powerfully affects a subject's robot's intelligence. In the experiment by, we verified the hypothesis: a robot has functions that not only give intelligent recordings, but also by revealing functions. Our results confirmed our hypothesis of visual control Promotes human-robot interactions. Also, it was the computer ability of the subjects affects them Robot records. This paper suggests Extensive examination, analyzing and discussing the results there were problems. We consider this to be the first report basically the psychological assessment of an intelligent robot adequate number of lessons [15]. The results show that contact with the seal robot will be provided we evaluated Barrow's neurological effects on dementia patients the results of analyzing their EEGs show the activities of the patients. Cortical neurons are enhanced by interaction with the pharaoh, especially in their case who loved the borough. Real animals have safety and health issues. Barrow can be an alternative to real animals in animal therapy. [16] Different types of robots have been introduced in the social environment for both entertainment and service, and the psychological acceptance and performance of the pharaoh robot origin is very important. Such robots are certainly safe, both physically and psychologically threatening. In Psychological Assessment of Robots, Nomura et al proposed to measure human fear of robots and to manipulate questionnaires on human records of robots courts and others. Robbins & Woods et al. Changes in the way baby robots work due to the appearance of Konda et al., Using the semantic difference (SD) method. Studied human and robot interactions and records. [17].

6. Walking Dynamics

Since the first robot design mentioned in Lizzie's speech, the humanoid robot was explored for centuries in 250 BC. However, the first full-scale humanoid robot, WABOT 1, was developed by Vasada in 1973 at the University of Japan. In other words, modern robotics is still a relatively new field of research. The two main concerns of control when using both legs are the dynamics of walking and the dynamics of the human robot operating system in everyday life. Kinesiology is the study of human movement in general in the context of sports, the arts and medicine [18] "Walking Dynamics" In part, the basics of man introduced the walking mechanism. The three cardinal planes of the body, both human mechanics and operating systems, are described step by step. Several measurement and analysis approaches are listed. In the "Foot Robots"

section, different generations of foot robots are shown and compared. In the "Two-Leg Dynamic Control" section, the control approaches used to operate both legs are described. In the "Running Dynamics" section, running dynamics is compared to simple gait dynamics. And various strike modes and possible running injuries. "[19]. The discussion begins with the dynamics of an anthropological mechanism, followed by the equation of motion with computer and communication dynamics. Kinetics is summarized in some small representations of both robotics and communication. The former is referred to as the core operating system derived from the total speed, the latter being the sum of the contact wrench and the zero moment point. [20] Doing a representation is a common contract Anthropological mechanism consisting of a stem, A pair of arms, a pair of legs and a head. The stem is usually made up of a few sections. Other areas include some sections and branches from any section. Each of those parts does not form closed loops, the other may have internal loops. The equation of motion of the humanoid robot points to several degrees of freedom derived from the previous division Miyazaki and Arimoto. Furusho and Masubuchi showed a control system to summarize the primary mode derived from this. Above the angle moment [21]. The equation of motion of the humanoid robot points to several degrees of freedom derived from the previous division Miyazaki and Arimoto. Furusho and Masubuchi demonstrated the control system for summarizing the primary mode obtained this. A real-time human simulation environment, SAI is a unique virtual environment that integrates multidisciplinary robot control, multivariate simulation and haptic communication [22].

7. Robot Interface

Designing human robot behavior like natural and human is not easy for non-professional users. It is hoped that this instructional function, which recommends algorithms Based on the extracted rules for the interface for designing robot behavior, new users and experts can design robot behaviors such as natural and human. This interface does not require numeric input to format the behavior, intuitive buttons on the right to enhance the simplicity of the design. The findings contributed to the development of an instructional interface that could be used incompetent newcomers. Human Robot Behavior and Professional Robot Designers Easily Design Human Behavior. The evaluation test results indicate that our approach is correct [23]. Different from conventional sensors as proposed by researches, we propose that the PIF Sensitive Cover can overlay around the surface of the robot and overlay the entire body. Failure to sense PIF on body surfaces and surfaces where robots can detect various external force vectors. With such sensitive haptic devices the interface can be identified and understood by robots PIF in detail by touch sensation over the entire surface Whole body. [24] during the offline training session, the interface system showed a training note that represents one of the four mental states. In the states. In all Three MI States, it was advisable to select one page in a series of lessons for the "Call Image" Call to avoid confusion. Sat comfortably in a chair and watched the scene. For the first 4 seconds a marked text and a solid circle appeared on the screen to inform users of the start of the test. After the break, the MI test started with one of the three MI specifications. The subjects tried to imagine motor work [25]. Many human-adaptive properties are Included in the human-robot system. Under shared control, the human-robot interface modifies the skill level and capability of the human operator. In production, the clipper is modified by adjusting the smooth position and alignment steps to grasp an object under shared control. size and speed of the alignment correction. This is done on condition and error basis. [26].

8. Conclusion

Humanoid robots are amazingly complex machines, capable of traveling on the same terrible terrain that humans can cross, and capable of performing the same tasks as humans, with the potential consequences of Challenging control issues and computationally difficult planning issues. To estimate a moment in body movements the score is called the entry score. Gives computers the ability to reflect human emotions and identify emotions that are physically expressed by others. Movement should be neurologically and psychologically based. The ability to use given references Learning theory is based on the structure of relationships in a social context and context. Location is an important component of learning Vaikotsky's Proximal Development Zone. If robots are able to achieve adequate communication functions, Various applications of interactive human robots will emerge and they will participate in our daily lives. Partner refers to the potential uses of robots. Of course, these robots have direct psychological ability to perform enrichment tasks such as psychology and entertainment. Animals are like pet robots. Kinetics is summarized in some small representations of both robotics and communication. The former is referred to as the central operating system derived from the total momentum, the latter being the sum of the contact wrench and the zero moment point. Failure to sense PIF on body surfaces and surfaces where robots can detect various external force vectors. With such sensitive haptic devices the interface can be identified and understood by robots PIF in detail by touch sensation over the entire surface Whole body.

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