

Humanoid Robots: Design and Engineering

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EDITORIAL

A humanoid robot is one whose body is designed to look like a human's. The design could be for utilitarian goals, such as engaging with human tools and settings, or it might be for experimental goals, such as studying bipedal walking. Humanoid robots feature a torso, a head, two arms, and two legs in general, while other types of humanoid robots may just replicate a portion of the body, such as the waist up. Some humanoid robots have heads that are meant to look like human characteristics like eyes and mouths. Androids are humanoid robots that are designed to look like people. Humanoid robots are increasingly being employed as research tools in a variety of fields. To create humanoid robots, researchers investigate human body structure and behaviour (biomechanics). The endeavour to imitate the human body, on the other hand, leads to a deeper comprehension of it. Human cognition is a branch of psychology concerned with how people gain perceptual and motor capabilities through learning from sensory information. This information is used to create computational models of human behaviour, and it has gotten better over time. It has been proposed that advanced robotics will allow ordinary humans to be enhanced. Transhumanism is a term used to describe a group of people who believe in. Despite the fact that the original goal of humanoid

research was to develop better orthoses and prostheses for humans, knowledge has been shared across the two disciplines.

Powered leg prosthesis for neuromuscularly disabled people, ankle-foot orthosis, biologically realistic leg prosthesis, and forearm prosthesis are only a few examples. Aside from research, humanoid robots are being created to do human functions such as personal support, which will allow them to help the sick and aged, as well as unclean or dangerous professions. Humanoids are also ideal for some procedurally-based jobs, such as receptionists and assembly line workers in the automotive industry. In essence, because humanoids can utilize tools and operate equipment and vehicles made for the human form, they could theoretically perform any task that a human can, as long as they had the appropriate software. However, doing so is extremely difficult. They're also getting more well-known as performers. At Universal Studios, for example, Ursula, a female robot, sings, plays music, dances, and speaks to her audience. Animatronic robots that appear, move, and speak like humans are used in several Disney theme park presentations. Humanoid robots, particularly those equipped with artificial intelligence algorithms, could be beneficial for future perilous and/or far-flung space research missions, eliminating the need to turn around and return to Earth after the mission is over.

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