

ROBOTICS: TYPES AND THE MOST POPULAR PROFESSIONS

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ANNOTATION

In this article, opinions were expressed about robotics, their types, and professions within it.

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We live in an age where the pace of automation is impressive. Today, robots can do tasks that humans do faster and better. Some complain that the complete automation of processes in many fields of activity, especially in manufacturing and industry, is the cause of unemployment. In fact, it's a wave of new opportunities for everyone. No matter how functional these devices are, they need to be developed, improved, repaired and maintained, so there is a need for professionals to do this. Therefore, there are more and more students focusing on robotics who want a high-paying and competitive career.

Robotics is a field that combines mechanical engineering, electrical engineering and computer science. In this program, students learn to design, build, and use robots, as well as computer systems to control them, process thoughts, and information. They are part of modern equipment, from cars to home appliances. Robotics is not about the future, but about the present, so learning about it is more important than ever in development.

Today, there are many types of robots with different applications in different environments. Although the purpose and appearance are different, they all have 3 similarities in terms of structure: The mechanical basis of each robot is a device consisting of a frame. The type of frame varies depending on the purpose of its use. For example, tracked tractors can be used if the robot moves over mud and sand. The mechanical side of the inventor's solution to a particular problem depends on the environment in which the robot moves. The shape of the robot directly depends on the function it performs. Each robot consists of electrical parts. These parts completely control the robot systems. For example, take a robot that moves along chains, and power is required to drive these chains. This power comes as electricity, passes through wires and is stored in a battery; this is the basic scheme. Gas-powered machines also require electricity to process the gas. This is why cars, like gas-powered vehicles, have batteries. The electrical system is used in the movement of the robot (motor) for measurement (electrical signals to determine the amount of heat, sound, position and energy) and general use (the robot needs to send some energy to its motors and sensors in order to perform general operations). All robots need some computer code. The same algorithm shows how the robot works. The person who writes the code writes in the program how and when the robot makes decisions and how it works. Due to its mechanical design and construction, the robot moving along this chain does not move without a computer program, even if it absorbs the required amount of energy from the battery through the wires; because the program tells the robot when and where to move. The program is the main part of the robot. If the mechanical and electrical parts of the robot are perfectly designed, but the written program is bad, the robot will not work, and even if it does, its movement and performance will be erratic. There are three main types of algorithms: remote control, artificial intelligence and hybrid. Remotely controlled robots have a set of commands. Executes commands only after receiving a signal from the remote control. In general, a person uses a tool to remotely control a robot. Artificially intelligent robots make environmental decisions. Various reactions to environmental factors and objects are recorded in the robot system. Artificial intelligence itself takes into account these reactions and influences environmental factors. Basically, artificial intelligence should resemble or mimic human thinking. And the hybrid is a combination of remote control and artificial intelligence.

Graduates of robotics programs can find careers in a variety of fields, depending on their area of interest, from servicing unmanned vehicles in aerospace and underwater robots to consumer goods. According to industry estimates, in the future robotics will not only develop as a field of activity, but especially all the necessary equipment of the service sector will be automated. By 2025, investment in robotics is expected to reach \$66 billion. The rapid development of the field determines the corresponding demand for specialists. At the same time, it is an interesting profession in terms of income, because the same robotics engineer can earn from 64 to 96 thousand dollars per year, and this is an average amount. In the USA, specialists in the field of robotics with relevant qualifications and experience can earn up to 173 thousand dollars per year.

Foreign universities that train specialists in the field of robotics are also popular because they offer favorable conditions for study and practice. Students of the robotics program get internships at well-known companies like IBM, Intel, and some of them go on to work for these companies after graduation with good references and high success rates.

The most popular careers in robotics are: a robotics engineer is a professional who is responsible for developing the equipment on paper and after it is built, a robotics engineer is responsible for testing the developed equipment and analyzing its performance.

A software developer is a specialist responsible for the development of software, since each such device has its own computerized internal system.

A technician is a specialist who works with an engineer to design new equipment or maintain existing equipment and maintain its functionality. Robotics sales managers are professionals who must know their products inside and out because they are responsible for the sale of ready-made devices and services for the development of individual projects for potential customers.

An operator is a specialist who monitors the operation of existing devices throughout the day. If the device breaks down, the operator will be the first to respond and, if necessary, involve other specialists. Typically, operators are especially needed to service equipment such as drones, underwater devices, and devices used in the military.

As technology advances rapidly, so does robotics, as robotics is closely related to technology. As technology advances, research and development is changing and developing, and as a result, the field of robotics is also growing. Today, robots are used in homes, businesses, and the military.

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