

***Duško Vejnović*, PhD, Full Professor at the University of Banja Luka, President of the European Defendology Center, Banja Luka, Chief Editor of the journals Defendology and Sociological Discourse**

Humane Robotics and Ethics

In contemporary society, technological advancements are transforming all aspects of human life, and one of the most intriguing and significant fields is humane robotics. Humane robotics, which focuses on the development of robots that mimic human behavior and interaction, raises numerous ethical dilemmas. This essay explores key issues related to humane robotics and ethics, including moral implications, social consequences, and future challenges. Humane robotics involves the creation of robots designed to assist humans in various activities, from healthcare and education to social interaction and physical assistance. Advances in artificial intelligence (AI) and machine learning have enabled robots to become more sophisticated and adaptable, allowing them to understand and respond to human emotions and needs. These robots can be humanoid, with human-like shapes and behaviors, or non-humanoid, designed specifically for particular tasks.

One of the primary ethical questions in humane robotics is how to treat robots that possess a certain level of autonomy and awareness. If robots become advanced enough to simulate human emotions and consciousness, the question arises whether they should have some basic rights. For example, is it ethically correct to switch off or destroy a robot that can express fear or pain? These questions open a debate on the nature of consciousness and ethical obligations towards non-human entities. Humane robotics also has a significant impact on society. Robots that replace human workers can lead to mass job losses, particularly in sectors such as manufacturing, logistics, and healthcare. This technological advancement can exacerbate social inequalities, as jobs requiring lower levels of education and skills are most at risk. On the other hand, humane robotics can improve the quality of life, especially for the elderly and people with disabilities, by providing them with necessary assistance and increasing their independence.

Another important ethical issue is privacy and security. Robots equipped with cameras, microphones, and sensors can collect vast amounts of data about the people they interact with. This data can include sensitive information about health, habits, and personal relationships. If these data are not adequately

protected, they can be misused, leading to serious breaches of privacy. Additionally, there is a risk that hackers could take control of robots and use them for harmful purposes. The ethics of designing and using robots also play a crucial role in humane robotics. Designers and engineers developing robots must consider the ethical implications of their creations. For example, robots designed for military purposes could be used in situations involving violations of human rights or international law. Additionally, robots that imitate human interactions could be used for manipulation and deception, such as in cases of fake profiles on social networks.

The future of humane robotics brings new challenges and opportunities. As technology advances, robots will become increasingly integrated into daily life. One of the key challenges will be developing legal and ethical frameworks that can adequately regulate the use of robots. This includes the issue of responsibility: who is responsible if a robot causes harm? The manufacturer, the programmer, or the user? Humane robotics is a field that brings numerous ethical dilemmas and challenges. While robots can significantly improve the quality of life and efficiency in many sectors, they also raise questions about the nature of consciousness, moral obligations, privacy, and security. It is important for society to proactively address these issues and develop ethical and legal frameworks that will ensure humane robotics is used in a beneficial and fair manner for all members of society. The future of humane robotics depends on our ability to balance technological advancement with ethical principles, ensuring that robots become reliable allies, not threats to our society.

Humane robotics has a wide range of applications in medicine. Surgical robots, such as the Da Vinci system, enable precise operations that reduce the risk of complications and speed up patient recovery. These robots allow surgeons to perform complex procedures with a high degree of accuracy and controlled movements, which is particularly useful in minimally invasive surgeries. In addition to surgery, robots are also used in rehabilitation. For example, exoskeletons help patients with spinal cord injuries or strokes relearn to walk. These robots provide the necessary support and adapt to the individual needs of patients, allowing them to achieve better results in a shorter period. One of the greatest advantages of humane robotics in medicine is the increase in precision and efficiency of medical procedures. Robots can perform tasks with a level of accuracy that is difficult to achieve with human hands, reducing the risk of errors and complications. This is particularly important in surgery, where millimeter precision can be crucial for the success of the operation.

Additionally, robots can take on repetitive and physically demanding tasks, freeing medical staff to focus on more complex and critical aspects of patient care. For example, hospital assistance robots can deliver medications, transport patients, or perform other logistical tasks, reducing the burden on medical staff.