

The effect of artificial intelligence on the improvement of prosthetic hands

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Introduction. There are more than 40 million amputees across the globe, according to the Health Organization. Recent advances in prosthetic hand and limb technology have greatly improved the quality of life for upper-limb amputees. However, gaps remain in the control of prosthetic hands, specifically in using naturally generated electric signals from the patient's muscles.

Materials and method. Artificial intelligence (AI) makes it possible for machines to learn from experience, adjust to new inputs and perform human-like tasks. Using these technologies, computers can be trained to accomplish specific tasks by processing large amounts of data and recognizing patterns in the data.

Results. One of the tasks of AI is the control of prosthetic hands. Nowadays there are only a few companies that use AI to do control of prosthetic hands. According to Robert Armiger, bioengineers are increasingly looking to create "human-machine interfaces embodied by a prosthetic limb that really feel like an extension of the body." The nonprofit Amputee Coalition estimates, and that number is expected to nearly double to 3.6 million by 2050. An estimated 185,000 new lower-limb amputations occur each year. So those people need smart prosthetic arms for a fulfilling life. The most challenging in this work is to make movement of robotic hand as natural as a real hand. Simple calculations are very inefficient in this case, so the prosthetic arm moves very uneven and unnatural. AI can help to stimulate the arm to move as close as it possible with the human one. At present there are a few prototypes that use the power of AI to make a generic prosthetic arm [1;2;3].

According to latest research, last experiments have shown an unbelievable success in the mentioned above sphere. Researchers make a special prosthetic that allow a patient to move not only all hands by his will, but also move his fingers separately. It is AI that gives the mankind this unique, incredible possibility. Nowadays, this prosthetic hand is not perfect yet. But with the help of AI the prosthetic hand makes a progress with every use [1;2].

Conclusion. AI is only on the start of its way but it has already made a breakthrough in medical research. It has been designated to solve a range of health problems and to make people live better. The problem of prosthetic hands and their controls are still urgent for computer experts. With the help of artificial intelligence prosthetic hands can fulfill the same functions as natural ones.

References.

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