Scientists from the University College of London, Google DeepMind and Intrinsic presented the Roboballet system, which allows dozens of robotic hands to work together in difficult conditions of factory workshops. The new algorithm can significantly reduce operations planning and increase production efficiency.

In industry, there has long been a problem: coordination of the movements of several robots in one space requires hundreds of hours of work of programmers and is often accompanied by errors. Roboballet solves this problem automatically. The system makes movements plans to avoid clashes between robots and equipment, and also helps to quickly adapt to changes in the working process.

The algorithm is based on graphic neural networks and the method of training with reinforcement. Robots learn from mistakes, receiving a “award” for the successful performance of actions. This approach allows them to master new movement schemes, even if they had not previously encountered similar tasks.

According to the results of the tests, after several days of training, the system was able to develop difficult plans in seconds. Roboballet simultaneously coordinated up to eight manipulators performing dozens of tasks, which significantly exceeds the possibilities of traditional methods.

The developers note that the system is able to adapt in real time. If one of the robots fails or the working space configuration changes, the algorithm quickly rebuilts the action plan. In addition, the technology helps to determine the optimal location of robots for maximum performance.