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Robot Learning

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Some of the jobs humans would like robots to perform, such as assisting having to stay in bed patients, or helping soldiers on the front lines, aren't possible because robots still don't recognize and easily handle objects [**Ошибка! Источник ссылки не найден.**]. The aim of the Robot Learning is to act as a focal point for wide distribution of technically results in the areas of interest around robot learning. Such areas of research interest include:

- researched models of robots, tasks or environments

- learning deep hierarchies of representations, from sensor and motor representations

- learning of plans and control policies by imitation and learning

- integrating learning with control architectures

- methods for probabilistic inference from multi-modal sensory information

- developmental robotics [0].

Pancake flipping using reinforcement learning

As Elon Musk said developing software to the home cleaning is an aim of his OpenAI robotics. This machine is going to be popular, but making it happen will be a remarkably difficult robotics challenge. Machines will need to analyze the types of messes in a house, formulate and execute a plan for rooms cleaning, and handle unexpected events.

To train robots OpenAI scientists use a technique called "learning by demonstration": Robots learn by repeating a researcher who shows a cleaning technique for the robot. At the end of the first year, scientists and students are running a robot through many trainings with colored material as "dirt test", using a variety of cleaning methods, from a broom to a feather duster. They want to get the robot to understand the cleaning motion from the human demonstration, and also identify the "state of dirt" before and after the cleaning action [**Ошибка! Источник ссылки не найден.**].

A researcher demonstrates a cleaning technique for the robot

Another perspective companies in this sphere:

BostonDynamics

American engineering and robotics design company founded in 1992 as a spin-off from the Massachusetts Institute of Technology.

Google.ai division of Google dedicated solely to artificial intelligence.

Hanson Robotics

Hong Kong-based engineering and robotics company founded by David Hanson, best known for its development of humanlike robots with artificial intelligence

The most famous of them is BostonDynamics. It is known by their 2 (3) robots:

Humanoid robot Atlas, latest in a line of advanced robots developed. It's possible to balance while doing tasks allows it to work with large objects having small footprint [0].

Four-legged robot Spot made for outdoor and indoor tasks. It's mobility shows it's unreal technology which allows it to get anywhere [5]. Spot has its mini version of it called SpotMini. It fits well in home or office. SpotMini is all-elecrtic and its battery charge allows it to work for 90 minutes.

Enthusiasts also can to try themselves in robot making without deep knowledge in programming or engineering because Europe have launched robot network where robot can get knowledges from another robots. It is called RoboBrain and absolutely free to use for any user. Also this network works like forum for robot makers where they can discuss various technical aspects and associated challenges such as modeling the correctness of knowledge, inferring latent information and formulating different robotic tasks as queries.

In conclusion it is required to say that robot learning is very perspective technology in the near future which is close to neural networks, which means that it is saving human resources. It can help humanity in different spheres of our life, like war, medicine and routine home work.

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