

Moravec's paradox is the observation that reasoning requires very little computation, but sensorimotor skills require enormous computational resources. The principle was articulated by Hans Moravec, Rodney Brooks, Marvin Minsky and others in the 1980s. It has been used in artificial intelligence and robotics research.

Minsky says the most difficult human skills to reverse engineer are those that are unconscious. "We're least aware of what our minds do best", he wrote. He also said we're more aware of simple processes that don't work well than complex ones that work flawlessly.

1 The biological basis of human skills

All human skills are implemented biologically, using machinery designed by the process of natural selection. The older a skill is, the more time natural selection has had to improve its design, according to Moravec's theory. Natural selection has tended to preserve design improvements and optimizations.

Scientists have been studying the evolution of human skills for millions of years. Some examples include recognizing a face, moving around in space, judging people's motivations, catching a ball, recognizing a voice, setting appropriate goals, paying attention to things that are interesting and so on.

It is hard for us to learn some of the skills that have appeared more recently. These are skills and techniques that were acquired recently, in historical time, and have had at most a few thousand years to be refined. Some examples include mathematics, engineering, games, logic and scientific reasoning.

2 Historical influence on artificial intelligence

In the early days of artificial intelligence research, leading researchers predicted that they would be able to create thinking machines in just a few decades. They were wrong, and one reason is that these problems are not easy at all, but incredibly difficult for machines to solve.

Inventor of artificial intelligence Rodney Brooks explains how AI was first developed in the 1970s. He says it was designed for male scientists who found challenging tasks difficult for children to do.

Brooks work led him to pursue a new direction in artificial intelligence and robotics research. He decided to build intelligent machines that had "No cognition, just sensing and action". His work was highly influential on the field of robotics and AI.