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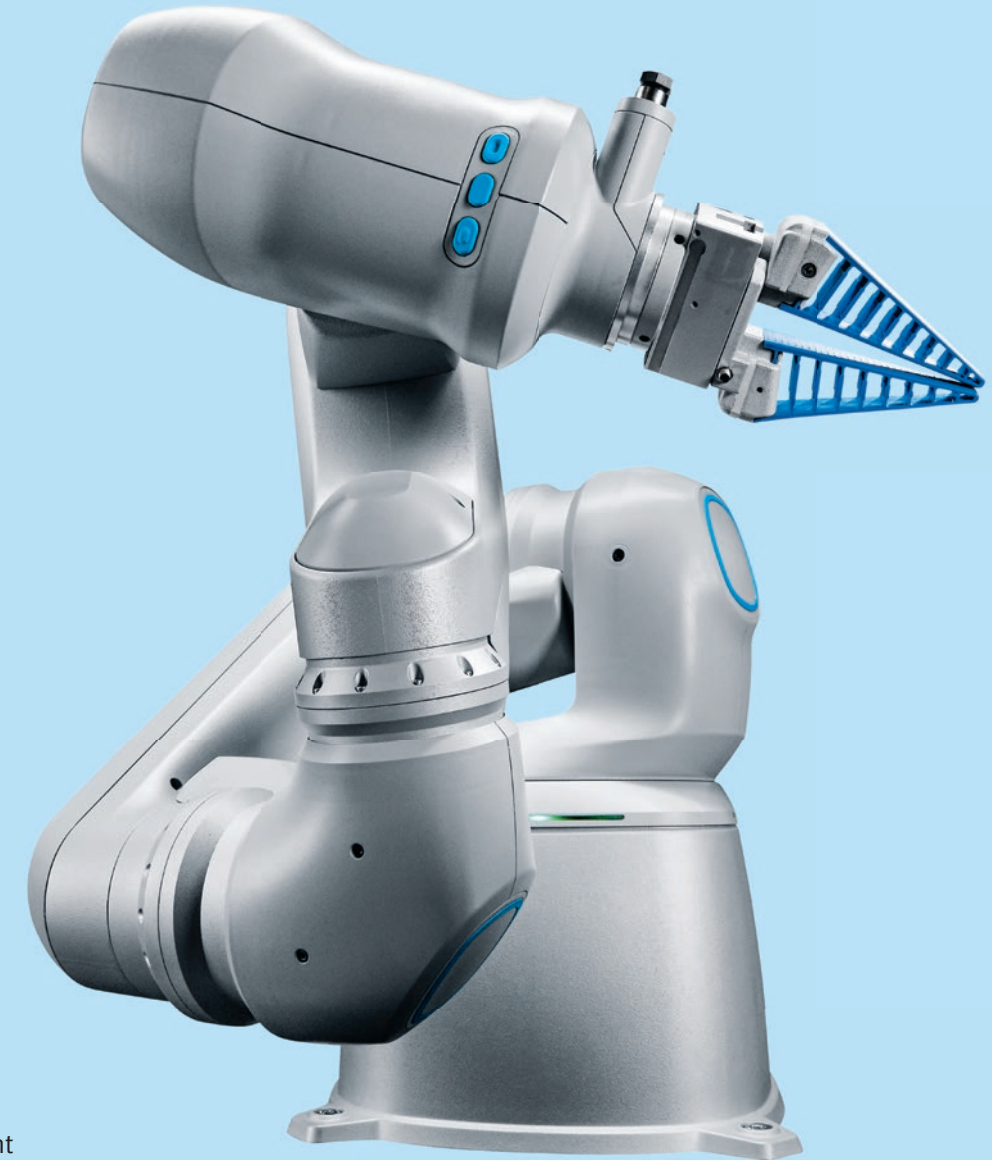
“Imagination is more important
than knowledge, for knowledge is
limited.”

Albert Einstein physicist (1879–1955)

Do Something, Robots!

Machine Assistants in Everyday Life

Whether real or not, robots capture our imagination. They are protagonists in science fiction movies, novels, and video games, with a spectrum ranging from lifesaving superheroes and unpredictable villains to cyborgs—machine-human hybrid beings with supernatural abilities. In the real world you can find robots in factories, operating rooms, agriculture, road traffic, and in the home. They are made of metal, plastic or textiles, come in various shapes and sizes, and have an appearance that is adapted to their intended use. Some resemble humans or animals, while others are rather ordinary-looking. What all robots have in common, however, is that they are machines and are sometimes equipped with artificial intelligence.



Robot as assistant



360°

Human-robot collaboration with artificial intelligence

What Does “Robot” Mean?

Robots are technical devices developed by humans for humans. They are designed to reliably support us, make our lives easier, and expand our capabilities. The term “robota” comes from Czech and means “servitude” or “forced labor.” It was coined about a century ago by the science fiction author Karel Čapek (1890–1938), who came up with the idea of man-made mechanical beings for a play. These were intended to serve humans and liberate them from all forms of work, but the “robota” in his drama rebelled. Since then, this term has been adopted by many languages throughout the world.



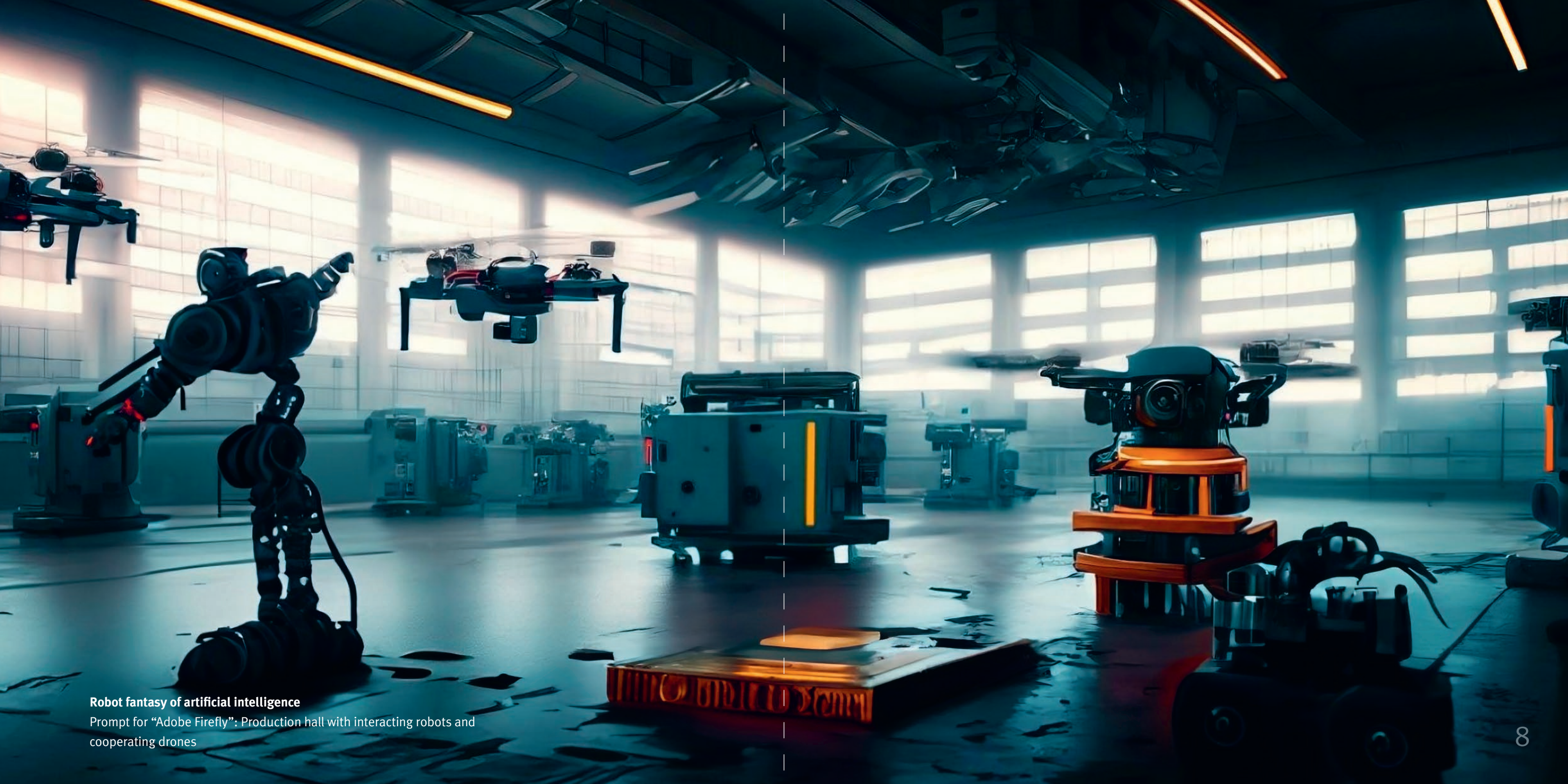
To Grip Means to Survive

A human grips objects with their thumbs and fingers, a chameleon with their overlapping tongue, a buzzard with their talons, a puma with their jaws. In nature, gripping food is important for survival, and gripping is also of fundamental importance in industrial production. Robots must be able to securely grip sensitive, hard, soft or heavy items without destroying them. The animal and plant kingdoms provide examples that, with the help of bionics, can be implemented in robotic gripping systems.



Can Robots Help Deal with Domestic Chaos?

Vacuuming and mowing lawns are two ways that robots help out around the house nowadays. But what about tidying up rooms, or doing laundry and kitchen chores? The fact is, these kinds of jobs are complex. Even for us humans, tasks such as arranging fragile glasses in the dishwasher, stowing awkwardly shaped pots in the right kitchen cupboard or clearing off unnecessary items from a messy desk require some concentration and skill. For robots to be able to do this, they need to develop solution strategies and train, and this requires suitable gripping tools and smart algorithms. In the years to come they will take on more and more domestic tasks and distribute the work among themselves.



Robot fantasy of artificial intelligence

Prompt for "Adobe Firefly": Production hall with interacting robots and cooperating drones