Illustration of how a virtual interviewer sees a human. The interviewer assesses the psychological state of the human by tracking and analyzing their facial expressions, body posture, and speech.
Although most would agree that the average person is smarter than the average cat, comparing humans and machines is not as straightforward. A computer may not excel at abstract reasoning, but it can process vast amounts of data in the blink of an eye. In recent years, researchers in artificial intelligence (AI) have used this computational firepower on the scads of data accumulating online, in academic research, in financial records, and in virtually all walks of life. The algorithms they develop help machines learn from data and apply that knowledge in new situations, much like humans do. The ability of computers to extract personal information from seemingly innocuous data raises privacy concerns. Yet many AI systems indisputably improve our lives; for example, by making communication easier through machine translation, by helping diagnose illness, and by providing modern comforts, such as your smartphone acting as your personal assistant. This special issue presents a survey of the remarkable progress made in AI and outlines challenges lying ahead.

Many AI systems are designed for narrow applications, such as playing chess, flying a jet, or trading stocks. AI researchers also have a grander aspiration: to create a well-rounded and thus more humanlike intelligent agent. Scaling that research peak is daunting. But triumphs in the field of AI are bringing to the fore questions that, until recently, seemed better left to science fiction than to science: How will we ensure that the rise of the machines is entirely under human control? And what will the world be like if truly intelligent computers come to coexist with humankind?

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Rise of the Machines
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