

IEEE Spectrum

THE MAGAZINE OF TECHNOLOGY INSIDERS

8.1

SPECTRUM.IEEE.ORG

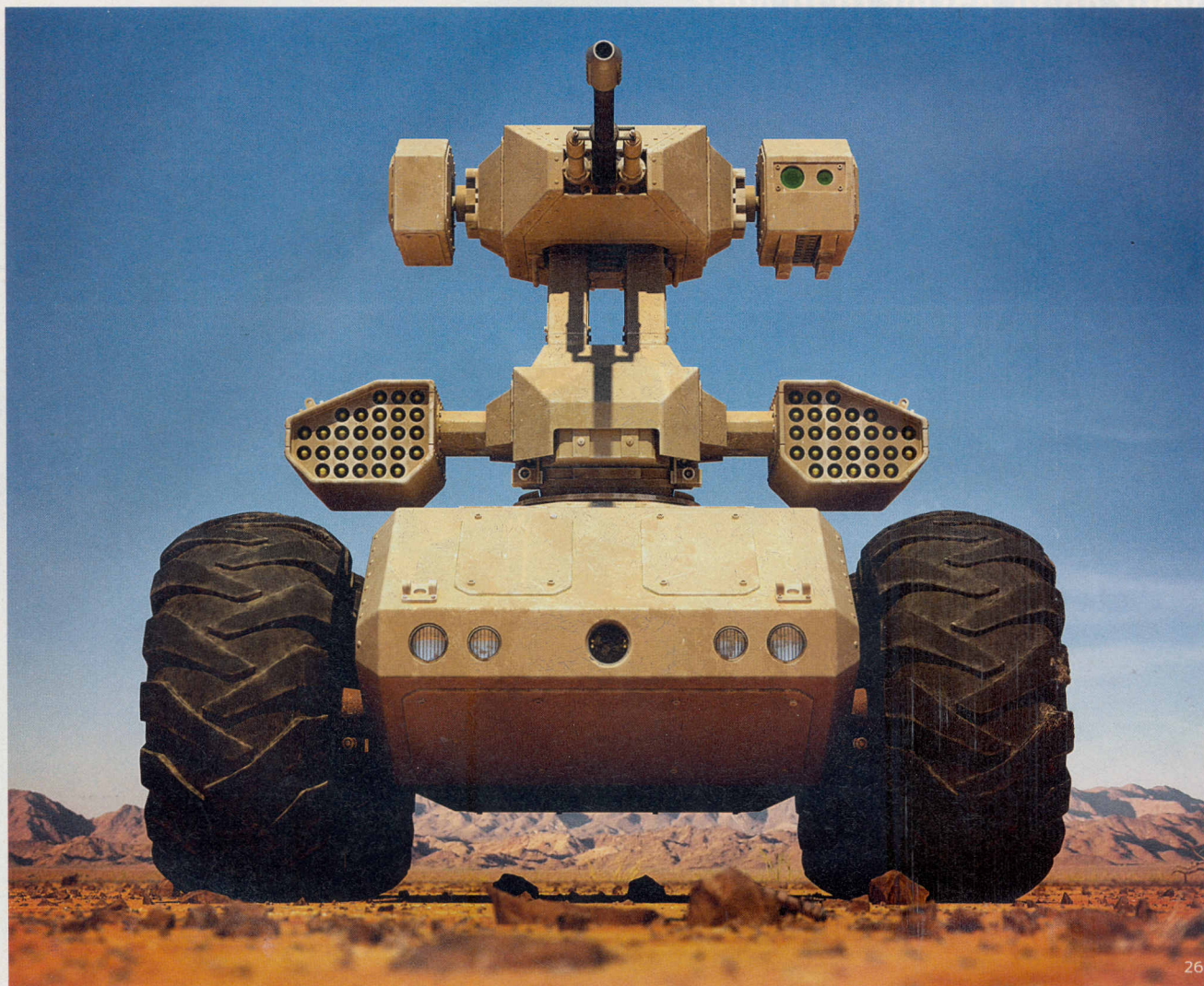
ROBO-WARRIORS

THE REMOTELY CONTROLLED VEHICLES OF IRAQ AND AFGHANISTAN WILL EVENTUALLY GIVE WAY TO FULLY AUTONOMOUS FIGHTING MACHINES

THE SMALLEST SPACECRAFT WAS LAUNCHED IN MAY, AND IT'S 4 CENTIMETERS LONG

HIGH-TECH SONARS REVEAL CITY-SIZE SCHOOLS OF FISH





COVER STORY

26 AUTONOMOUS ROBOT IN THE FOG OF WAR

Military robots are getting smarter all the time, but they're still far from ready to act on their own. Here's why.
By Lora G. Weiss

COVER: NOEMOTION

THIS PAGE: TOP, NOEMOTION; BOTTOM, FRED BAVENDAM/GETTY IMAGES

32 MAGNET MAKEOVER

Composite construction could make the permanent magnets inside motors and generators twice as good as today's best.
By George Hadjipanayis & Alexander Gabay

38 CHIPS IN SPACE

Shrinking spacecraft down to the size of integrated circuits could revolutionize the way we explore the solar system.
By Mason Peck

44 UNIDENTIFIED FLOATING OBJECTS

Wide-area sonar is changing the game of underwater exploration, revealing patterns of ocean life that no one has ever seen before.
By Nicholas Makris

