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Exploring Distant Worlds as a

# Space Robot Engineer

By Ruth Owen

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**by Ruth Owen**

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# We're Safe on Mars!

It's the evening of August 5, 2012. The place is **mission control** at **NASA**'s Jet Propulsion Laboratory (JPL) in California. **Engineers**, scientists, and controllers are watching computer screens and waiting. Millions of miles from Earth, the robot **rover** *Curiosity* is hurtling toward the surface of Mars.

The final minutes of the robot's journey to Mars slowly tick by. Then NASA engineer Al Chen makes the announcement everyone has been waiting for.

"Touchdown confirmed—we're safe on Mars!"

Mission control erupts. People cheer, clap, hug, and cry. Tonight is the end of a very long journey. But it's just the beginning of a robot's incredible mission on a distant world.

**Engineers and scientists in mission control celebrate *Curiosity*'s safe arrival on Mars.**

When *Curiosity* landed on Mars, the red planet was about 154 million miles (248 million km) from Earth.

It took more than 10 years and the hard work of thousands of people to send *Curiosity* to Mars.

A *Curiosity* selfie from Mars in 2015

*Curiosity*'s engineers thought of everything. They even designed equipment that lets the robot send selfies back to Earth!

# Building Space Robots

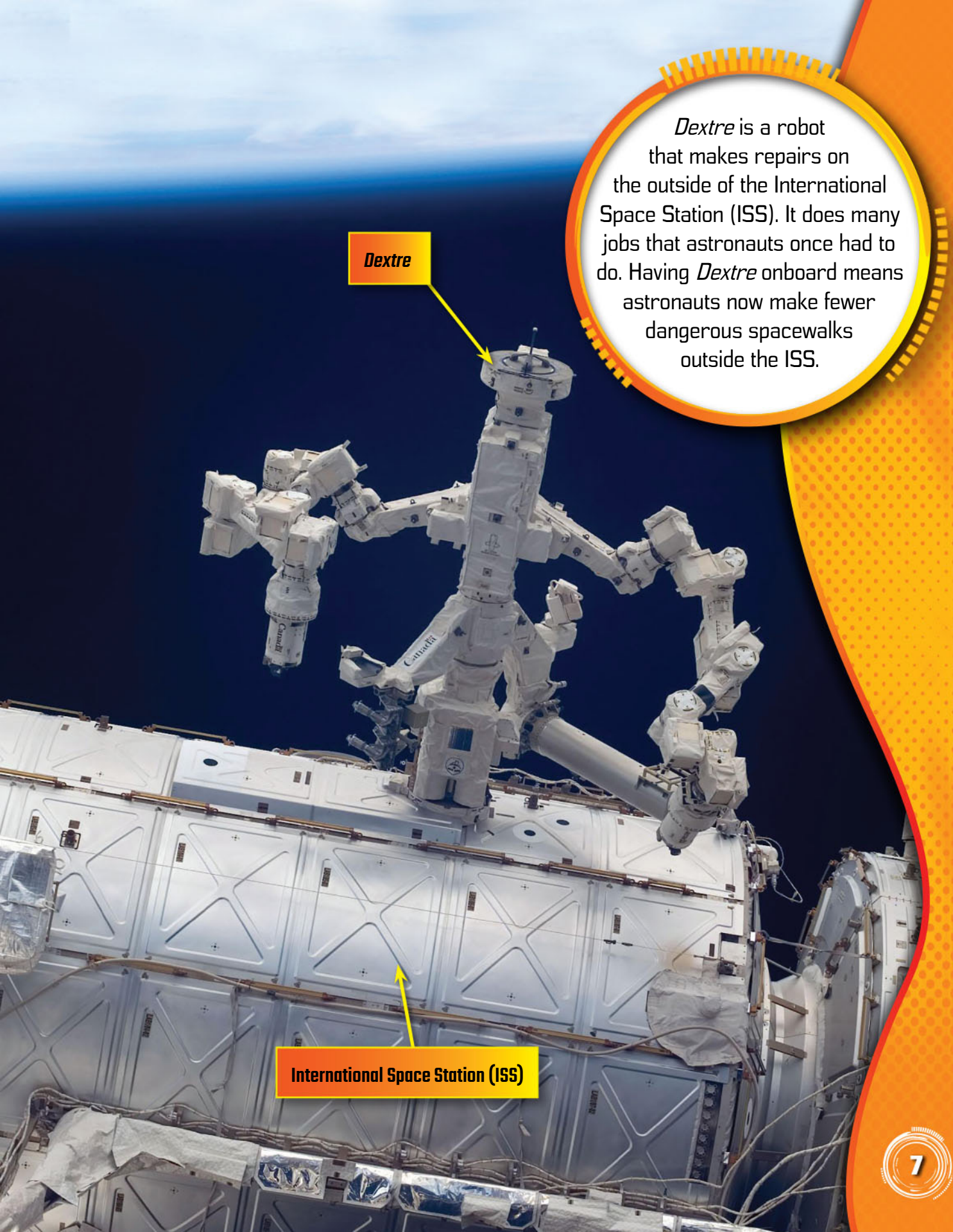
Mars is a hostile world. It's colder than the Arctic in winter, and the thin air is made up of poisonous gases. It's no place for human explorers and scientists. It's possible, however, for a robot like *Curiosity* to survive and work in this environment.

Today, robots are used to do work in space that is dangerous for humans to do. Designing and building these space robots is the job of an engineer.

Some space robot engineers are mechanical engineers. They design and build a robot's structure, or skeleton. Electrical engineers work on the electronics that power and control the robot.

Computer engineers design and build a robot's computer "brain." They also write the computer **software** that allows the robot to move, carry out tasks, and even think for itself.

**In 1997, tiny *Sojourner* became the first rover to explore Mars. Here, engineers are preparing the robot for its mission.**




*Dextre* is a robot that makes repairs on the outside of the International Space Station (ISS). It does many jobs that astronauts once had to do. Having *Dextre* onboard means astronauts now make fewer dangerous spacewalks outside the ISS.

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# Read More


**Forest, Christopher**. *Robot Competitions (Edge Books)*. Mankato, MN: Capstone Press (2013).

**Owen, Ruth**. *Robots in Space (It's a Fact!)*. New York: Ruby Tuesday Books (2015).


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**www.rubytuesdaybooks.com/spacerobotengineers**

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# Exploring Distant Worlds as a Space Robot Engineer

The engineers and scientists in mission control nervously watch a bank of computer screens. The minutes slowly tick by. Finally, the moment the team has been waiting for arrives—touchdown! Everyone claps and cheers. The robot that has taken years of hard work to create has just landed safely on Mars!

Inside this book, meet the space robot engineers who use science, math, and technology to design and build incredible machines that do work in outer space. How do robot engineers turn ideas and sketches into fully functioning machines? Why would a robot engineer be in a laboratory one day and a desert the next? And how do you drive and control a robot rover that's on a planet millions of miles from Earth?

**Titles in this series**

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Exploring Distant Worlds as a Space Robot Engineer

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