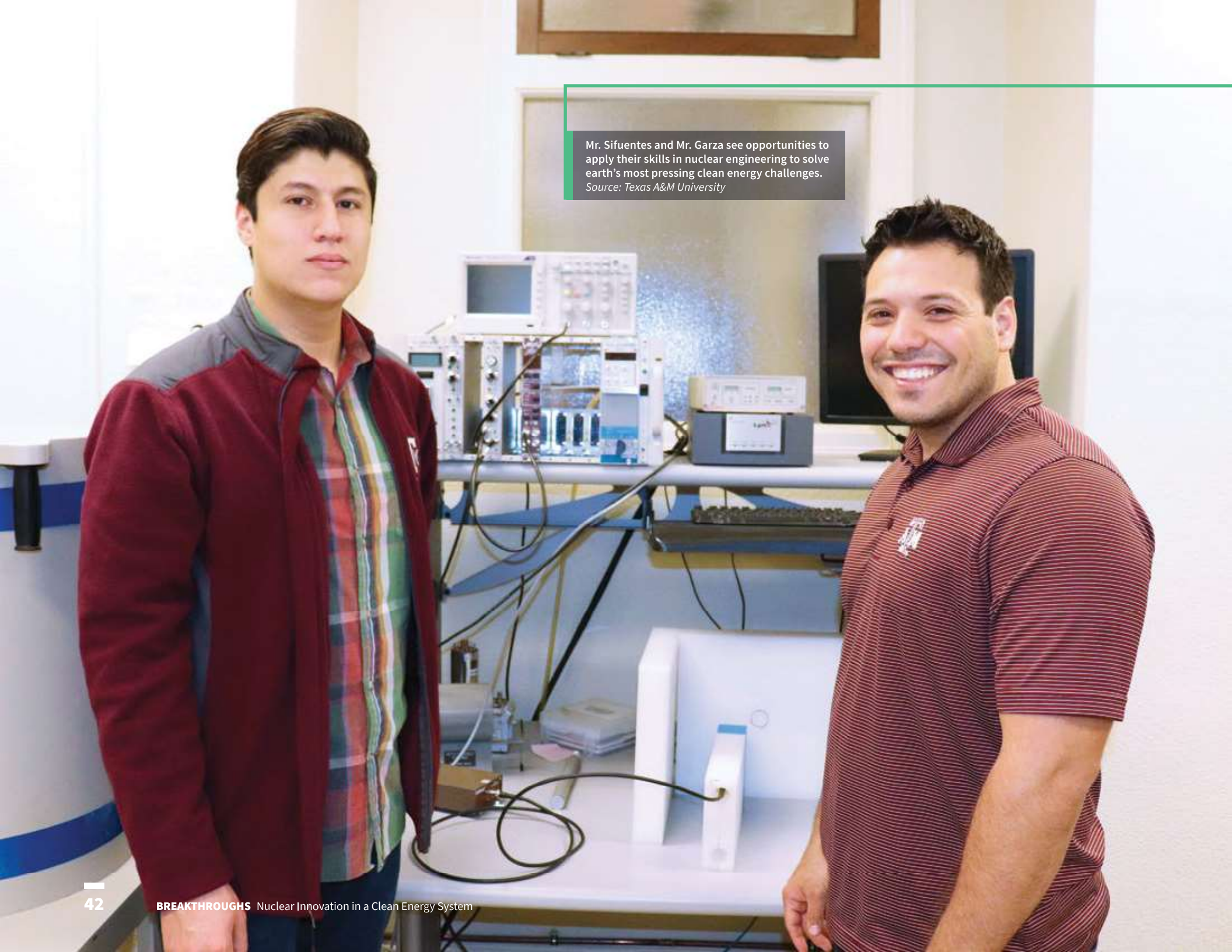

Mr. Sifuentes and Mr. Garza see opportunities to apply their skills in nuclear engineering to solve earth's most pressing clean energy challenges.
Source: Texas A&M University

THE ENVIRONMENTALISTS

Cristian Garza and Christian Sifuentes

The path to a career in clean energy isn't always straight. Growing up in Texas in the United States, Christian O. Garza managed an auto repair shop after he graduated from high school. Now he's part of a team that is designing a nuclear reactor that will one day power a colony on Mars.

As a boy, Garza was fascinated by science fiction. "Every show you'd watch, the spaceships and what-not were always powered by nuclear," he said. Now 27 years old, he will graduate soon with a degree in nuclear engineering. The Mars reactor design is his senior project.

He is the first in his family to pursue a career in technology or science. His mother is an accountant and his father is a building contractor who installs floors. As a nerdy kid who used to dream about space, Garza says his education is "a dream come true."

But what he would like to do is apply the engineering background he is acquiring to problems here on earth. "I started seeing how nuclear could benefit the world and provide clean, sustainable energy," he said.

His classmate Christian Sifuentes, who will graduate this fall, shares Garza's passion for the environment. Sifuentes joined engineering with an early interest in wind and solar power. Those carbon-free sources come to mind because they are visible, and "look really cool," he says.

Nuclear plants, on the other hand, are mostly tucked away in places off the beaten path, but Sifuentes now sees them as an important part of the equation because nuclear energy "is energy-dense and it is carbon free," he says. Sifuentes believes nuclear energy has a key role to play in meeting a lot of the world's growing energy demand.

Sifuentes, like Garza, is the first in his family to go to college. He is now studying criticality safety and used fuel management and will spend this summer at an experimental fusion energy laboratory in Kazakhstan, where scientists are testing materials for a power plant.

Meanwhile, Garza is hoping to work in a field that is on the cutting edge of advanced reactors. Most reactors today put the uranium fuel in water, but the Mars reactor design uses a molten metal that allows for a reactor that is smaller and generates higher-temperature steam. This will require developing better codes for computers, and probably some new materials. But as Garza, the environmentalist/science fiction buff points out, that's good for Mars and good for Earth too.