




SPACE X

(OUT OF)
OUR WORLD
NOW:
SPACE

Imagine that the Earth was created out of one of many bubbles in not a universe, but a so-called *multiverse*, and then try to imagine that there is more than one multiverse out there. That's what it's like talking to astrophysicist Neil deGrasse Tyson. Or imagine floating in a balloon 24 miles above the Earth and then jumping out. Felix Baumgartner can check that one off his list. Space has always been the subject of movies (see below) but it's increasingly becoming the realm of private citizens and companies, as well. Here, we explore the Final Frontier, still waiting at our doorstep. ➡

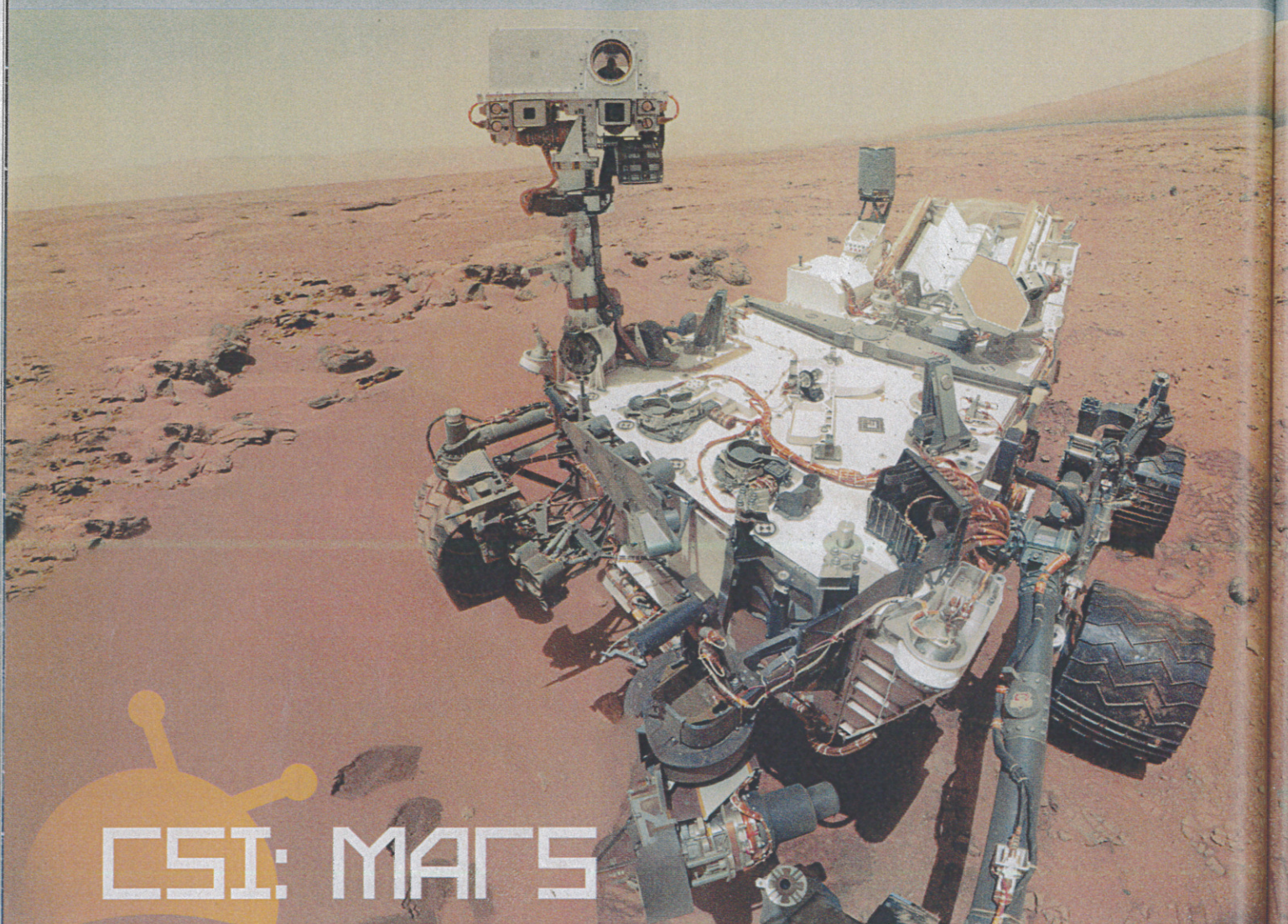


"OPEN THE POD BAY DOORS, HAL."

If Hollywood is right, there are some nasty creatures in space. All the more fun to watch unsuspecting astronauts seek and ... well, be destroyed. We'll always have *Star Wars* and *Star Trek*, of course, but here are a few other must-see films that seldom end well for us Earthlings. —Geoff Kinsey

2001: A Space Odyssey (1968)

In this Stanley Kubrick masterpiece, two men and the HAL 9000 computer track monoliths deep in space. Bad things happen. Because, you know, computers are smarter than us.



CSI: MARS

NASA's Mars rovers seek clues to a planetary mystery

Think of them as detectives at the scene of what may be the solar system's biggest whodunit. NASA's four Mars rovers—*Sojourner*, *Spirit*, *Opportunity* and, most recently, *Curiosity*—each have cased out diverse regions of the Red Planet to piece together a complex but ever more enticing case. Namely, evidence today suggests that Mars once had conditions on its surface that would have been suitable for life. If Mars was once alive with oceans and rivers and microbes and who knows what else, are any remnants left today? If not, how did it end? And when was such a planet-sized crime committed?

For residents of Mars' neighboring planet, Earth, these questions make for good science and could yield answers about the development of life on Earth. And even help us learn from Mars' mistakes. "It comes down to trying to read the record from billions of years ago," says Steve Squyres, a planetary scientist at Cornell University and author of the book *Roving Mars*. "Geology is like a forensic science. Something happened here long ago. What happened? Well, the clues that are left are in the rocks."

Squyres, one of thousands of scientists and engineers who helped design and operate the *Spirit* and *Opportunity* rovers that NASA landed on Mars in January 2004, says sometimes it's best just to sit back and let the Red Planet drive: "What you should wish for is for your machine to work properly. Mars is going to be what Mars is going to be."

Humans' fascination with Mars traces back as far as recorded human history. Ancient civilizations, dazzled by its red hue, built mythologies around Mars and associations with war and fire. In the 1960s, U.S. *Mariner* space probes cruised past Mars,

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Alien (1979)

Ridley Scott's film is the definitive classic of the genre. Sigourney Weaver plays Ellen Ripley on a space mission to investigate a suspected SOS on a distant planet.



Outland (1981)

Sean Connery is a cop in this old-school Western set on a space station, complete with fist fights, smuggling and the old "make your opponent shoot out the ship's windows so he'll be sucked into space" trick.

(Mars continued from pg 62)

collecting the first close-up views of our neighbor. Then, in 1975, NASA launched two spacecraft—*Viking 1* and *Viking 2*—that became the first to land on its surface.

The hope was *Viking* could, as *Popular Mechanics* put it, “settle once and for all the long-pondered question: Is there life on Mars?” It didn’t. But it found enough clues of water and key ingredients for life to spur on the chase. After a 1997 Mars mission that featured a microwave-sized, 23-pound test rover (named *Sojourner*), NASA was ready to try tackling the Mars mystery on wheels.

So in 2003, the agency launched two solar-powered, golf-cart-sized, six-wheeled rovers to two very different locations on the Red Planet. *Opportunity* landed in a formerly very wet place. *Spirit’s* landing site, by contrast, gave a glimpse into Mars’ tumultuous young life.

“There were volcanic eruptions that would create big explosions and outpourings of volcanic material. There were probably geysers, hot springs and steam vents. It was a very violent place,” Squyres says of the events from three and a half billion years ago that *Spirit’s* geological investigations uncovered.

William J. Clancey, a computer scientist at NASA and the Florida Institute for Human and Machine Cognition and author of the new book *Working on Mars*, says the discovery of Mars’ watery past poses big questions: “We believe it had to be warmer, it had to be wetter and the atmosphere had to be thicker,” he says of Mars’ ancient climate. “What happened to it?”

Last August, in a perfectly choreographed sequence, NASA landed its fourth rover, *Curiosity*, on the Red Planet. A nuclear-powered, SUV-sized vehicle, *Curiosity* was built to discover and learn a quantum leap more than its predecessors.

“*Spirit* and *Opportunity* were designed to last for three months, and *Opportunity’s* still going strong after nine years,” Squyres says. “*Curiosity* was designed from the outset to last at least two years. So we probably have years ahead of us and a lot of discoveries we’re going to make.” //

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Cover //

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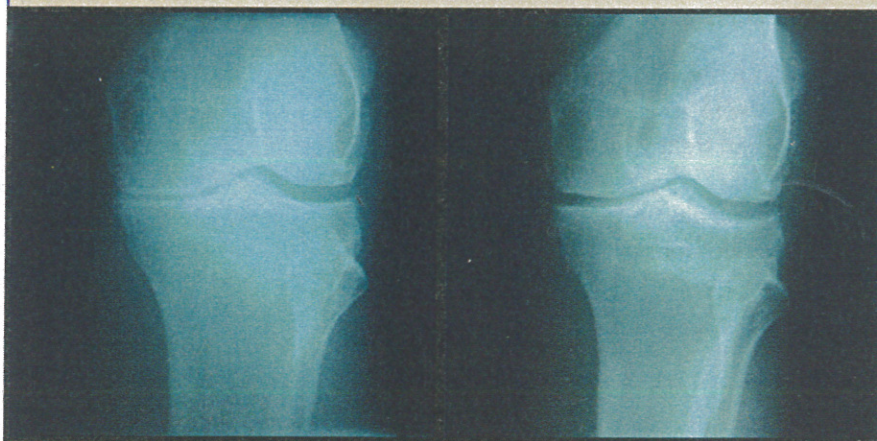
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THE CENTER FOR REGENERATIVE MEDICINE A NON-SURGICAL TECHNIQUE TO FIGHT AGAINST ARTHRITIS AND SPORTS INJURIES



The Knee Diaries: SJ is a 60-year-old male with the chief complaint of knee pain who visited The Center for Regenerative Medicine over a year ago. He was diagnosed with bone-on-bone osteoarthritis of the left knee, causing much pain and discomfort; at that point he was told only a total knee replacement could help him. He is otherwise healthy. On exam he had point tenderness to the medial side of the left knee (medical lingo: inner side). An X-ray showed severe arthritis of the knee (X-ray on the left). Patient started receiving treatments at The Center for Regenerative Medicine. Today he is feeling better (X-ray on the right).

This is how it works: The physician introduces **Cell Therapy** into damaged, arthritic cells by means of a precise injection. This process is followed by several other modalities, including Collateral Artery Flow Exercises (C.A.F.E.), in order to accelerate the process. Depending on tissue damage, severity of the condition and the size of the joint that needs to be injected, people usually need a series of 1 to 6 treatments to improve. There is usually no downtime, and people can go back to their usual activities or work immediately. The treatments can help most musculoskeletal problems such as low back pain, neck pain, knee pain, shoulder pain, whiplash, sciatica, tendinitis, sprain, strains, torn ligaments and cartilage damage.

Located in Miami, Florida, The Center for Regenerative Medicine includes a team of professionals that are dedicated to improve your quality of life, paving the way to enhance the science of non-surgical orthopedic medicine. World champions, sports legends, professional and amateur athletes, dancers, and people with just plain pain and arthritis go to The Center for Regenerative Medicine for nonsurgical orthopedic care. Using the facility to improve their condition, thousands of successful cases have been treated over the past twelve years.

For more information and to read more on “The Knee Diaries”, please visit www.arthritisusa.net or call (305) 866-8384.