

# By 2020, Droids Could Explore Space For Us | Universe Today



- [Subscribe](#)
- [Podcast](#)

36920 readers  
BY FEEDBURNER

- [Home](#)
- [Additional Resources](#)
- [Advertise](#)
- [Carnival of Space](#)
- [Contact Me](#)
- [Guide to Space](#)
- [Forum](#)

## [Solar System Screensaver](#)

View the Galaxy on Your PC w/ a Free Screensaver!  
Screensaver.com/Planets

## [Star wars arcade game](#)

Download the first & only Software allowing you to Play without Paying  
www.FreeRideGames.com

## [Outer Space](#)

Looking for Outer Space? Find exactly what you want today.  
Yahoo.com

## [Hugh Downs Reports](#)

Little known heart attack symptom many people tragically ignore.  
www.bottomlinesecrets.com

## [Space Physics](#)

Major in Space Physics and earn your Bachelor's Degree  
www.ERAUprescott.com

## [Robotic Palletizer](#)

Fuji Robotics Bags, Boxes, Totes. We do them all.  
www.fujiyusoki.com/usa/

## [Star Wars Kids Pajamas](#)

Explore 10,000+ Clothing Choices. Save on Boys' Apparel!  
Shopzilla.com/Apparel

Ads by Google

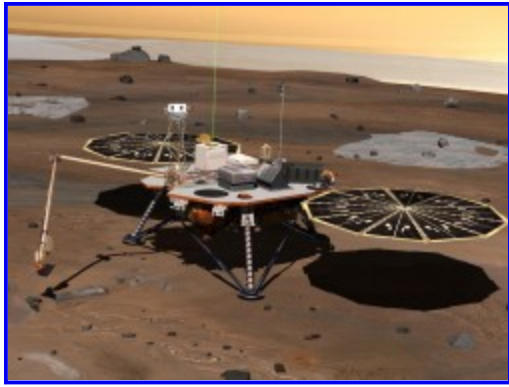
Ads by Google

July 28th, 2008 [del.icio.us](#) [Digg](#) [Reddit](#) [StumbleUpon](#)

## [By 2020, Droids Could Explore Space For Us](#)

Written by [Ian O'Neill](#)

If you're new here, you may want to subscribe to my [RSS feed](#). Thanks for visiting!



All the best sci-fi films have them, and they may become our future automated space explorers. Currently, one of the biggest drawbacks for using robots in space is that they depend on human input (i.e. commands need to be sent for every robotic arm motion and every rover wheel rotation). This means that, especially with missions operating far from [Earth](#) (such as the Phoenix Mars Lander and Mars Expedition Rovers), very simple and mundane tasks can take hours or even days to complete. One of the main reasons supporting manned exploration of space is that very complex science can be carried out very rapidly (after all, astronauts *are* human and many robotic operations that take weeks can be completed in seconds). But say if our robotic explorers had a high degree of automation? Say if they could sever the requirement for human input and carry out tasks with intelligent reasoning? As robotic and computer technology increases in sophistication, one Caltech scientist believes space exploration by artificial intelligence is closer than we think...

I remember watching the start of *Star Wars: The Empire Strikes Back* thinking it was so unfair that Darth Vader and his ilk had access to intelligent space exploration droids that could fly around the galaxy, land on alien worlds and automatically seek out the rebels on Hoth (directing the battle fleet to the icy moon, creating one of the most famous and atmospheric sci-fi battle sequences in movie history. *In my opinion at least*). But say if we were able to build such "droids" (in fact, *droid* is a good description of these space explorers, defined as 'self-aware robots') that could be sent out into space to explore and report back to mission control without depending on instruction from Earth?

Wolfgang Fink, physicist and researcher at Caltech, believes robotic exploration of space will always take the lead, and even reverse the need for manned missions. "*Robotic exploration probably will always be the trail blazer for human exploration of far space,*" he says in an [interview with Sharon Gaudin](#). "*We haven't yet landed a human being on Mars but we have a robot there now. In that sense, it's much easier to send a robotic explorer. When you can take the human out of the loop, that is becoming very exciting.*"

While Fink is encouraged by the progress made by missions such as Phoenix and its robotic arm, he is keen to emphasize that the link between human and robot needs to be removed, thus allowing robots to make their own decisions on what science needs to be carried out. In reference to Phoenix's robotic arm he said, "*The arms are the tools, but it's about the intent to move the arms. That's what we're after. To [have the robot] know that something there is interesting and that's where it needs to go and then to go get a sample from it. That's what we've after. You want to get rid of the joystick, in other words. You want the system to take control of itself and then basically use its own tools to explore.*"



An Imperial probe droid from the film

## Star Wars: Empire Strikes Back (Lucasfilm)

The key attribute robots need to possess is the ability to recognize something of interest, such as a rock or crater, something that a human mind would see as a scientific opportunity. At Caltech, Fink and others are working on programs that use images for robots to distinguish colours, textures, shapes and obstacles. Once artificial intelligence has the ability to do this, if the programming is complex enough, the robot can notice something that is out of place, or a region worth investigating (such as a strangely coloured patch of Mars regolith that a Mars robot will decide to dig into).

As you'd expect, software is being tested and Caltech scientists are beginning to try it out on a rover's navigation functions. However, the robotic decision-making is very basic presently, but NASA has taken a keen interest in Fink's work. For example, in 2017 NASA intends to send a robotic mission to [Titan](#), one of [Saturn](#)'s moons. In all likelihood the moon will be explored by a balloon-type vehicle. However, it would be impractical for such a vehicle to depend on commands being sent from Earth (as it would take more than an hour for communications to transmit over that distance), so there would need to be a certain degree of automation built into the craft so fast decisions can be made in a dynamic environment such as Titan's atmosphere.

Although this is all interesting and necessary, there will still be a basic human desire to explore space via manned missions, although a certain degree of self-awareness may be required of our robotic explorers as they carry out reconnaissance trips before we make the trip...

Source: [PC World](#)



Enjoyed this article? [Subscribe](#) to the feed.

Filed under: [Missions](#), [Science](#)

## Related stories on Universe Today

- [Chinese Moon Shot by 2020](#)
- [Is China Building a Space Station?](#)
- [Orion Crew Module to Begin Testing in Run-up to 2020 Mission \(Gallery\)](#)
- [Ares V Rocket Gets an Upgrade: It will be Bigger and Stronger for 2020 Moon Mission \(Video\)](#)
- [New Crew Exploration Vehicle Named Orion](#)

## 12 Responses to “By 2020, Droids Could Explore Space For Us”

1. *Hans Bausewein* Says:  
[July 28th, 2008 at 1:16 am](#)

Using intelligent robots also makes it a lot easier to avoid contamination of the target environment with earth life.

2. *Prathapan* Says:  
[July 28th, 2008 at 3:24 am](#)

What your are telling us is that we do not have intelligent robots.  
my my my my

3. [Ralph Rewes](#) Says:  
[July 28th, 2008 at 5:43 am](#)

Fine, this is a good first step. I only hope these robots will be equipped with efficient stereoscopic cameras, not red and blue obsolete one, so they can take good quality color pictures for public distribution.

BTW, any one interested in converting all the red and blue junky pictures from NASA to stereoscopic pictures, I just posted the instructions at UTUBE, and there is a huge amount of these photos at their archives, some of them when you convert them to stereoscopic pictures will give you interesting pictures, not given in regular photos.

<http://www.youtube.com/watch?v=zOjncRzW7hY>

4. [Yoo](#) Says:  
[July 28th, 2008 at 5:52 am](#)

It may turn out that instead of organic humans colonizing the Solar System and beyond, it will be robotic "humans" that do it, where robotic explorers become steadily more advanced until they're sentient enough to actually *be* considered humans (at least in the legal sense of possessing rights equivalent to those of humans). Or it could be actual humans that have been made inorganic through gradual replacement of organic brain tissue with cybernetic components.

Given how much easier it is to maintain robots in space compared to organic humans, it might even be more likely.

5. [LLDIAZ](#) Says:  
[July 28th, 2008 at 6:04 am](#)

anyone ever think of just sending a camera?  
I mean nothing else just a camera so that we could at least see whats going on out there....

6. [oletonto](#) Says:  
[July 28th, 2008 at 6:19 am](#)

LLDIAZ  
NO WAY NEVER !! 😊  
nasa corporation Space ? i dont think so

7. [Steve](#) Says:  
[July 28th, 2008 at 6:52 am](#)

Sending "just" a camera is the whole idea. Just think of it as sending different generations of cameras.

For instance. First you send a camera that takes a few pictures and sends them back. Then it waits for more commands on what to take a picture of next.

Next Generation may continually stream pictures back simultaneously listening for new commands.

Next Gen after that may be able to "guess" at what would be interesting to take a picture of.

Keep improving that simple "camera" and after many generations, you may "just" end up with C3PO (or possibly the Terminator)

8. *Tech Roach* Says:

[July 28th, 2008 at 7:06 am](#)

But isn't it dangerous to give intelligence to robots ? I mean, Matrix totally freaked me out.

Someone explain pls.

9. *David R.* Says:

[July 28th, 2008 at 9:49 am](#)

"The key attribute robots need to possess is the ability to recognize something of interest, such as a rock or crater, something that a human mind would see as a scientific opportunity."

Yes, but that could mean that the robot decides that its own rear end is something of interest, resulting in a mobius loop where the robot's viewer would be eternally stuck up its own rear end. What a shame that would be.

Once we get a lander's baking martian soil nailed down, I might be convinced that this sort of thing is "closer than we think."

'till then, the mobius event seems more probable...

10. *quantum\_flux* Says:

[July 28th, 2008 at 1:33 pm](#)

Nice (-:

Or should I say "Nice :-)"



11. *quantum\_flux* Says:

[July 28th, 2008 at 1:34 pm](#)

Hmmm, one more time....

"Nice! :)"

12. *Frank Glover* Says:

[July 28th, 2008 at 3:11 pm](#)

Of course, the Star Wars universe also has inexpensive, FTL interstellar travel and inexpensive, human-capable AI technology....

Their probes (which, somewhat like a Predator drone) were searching for rebel activity and with the express purpose of sending humans (or other biological species) in to follow up on any sightings.

I've always said that as long as we don't have advanced AI or FTL communications, there will continue to be a place for humans in space exploration.

## Leave a Reply

Name (required)

Mail (will not be published) (required)

Website

Submit Comment

« [Bad Idea: Blowing Up Asteroids with Nuclear Missiles](#) [A Midsummer Night's Dream: NGC 4618 and NGC 4625](#) by [Martin Winder/Dietmar Hager](#) »

1,285

Ads by 

### [Hugh Downs Reports](#)

Little known heart attack symptom many people tragically ignore.  
[www.bottomlinesecrets.com](http://www.bottomlinesecrets.com)

### [Space Physics](#)

Major in Space Physics and earn your Bachelor's Degree  
[www.ERAUprescott.com](http://www.ERAUprescott.com)

### [Robotic Palletizer](#)

Fuji Robotics Bags, Boxes, Totes. We do them all.  
[www.fujiyusoki.com/usa/](http://www.fujiyusoki.com/usa/)

### [Star Wars Kids](#)

#### [Pajamas](#)

Kids' Clothes & Style. Deals on Boys' Apparel!  
[Shopzilla.com/Apparel](http://Shopzilla.com/Apparel)

### ['The Clone Wars'](#)

#### [Preview](#)

A Lot Happened Between 'A New Hope' And 'Revenge Of The Sith.' A Lot!  
[www.UGO.com/SummerMovies](http://www.UGO.com/SummerMovies)


## • Categories

- [Archive](#) (93)
- [Asteroids](#) (138)
- [Astrobiology](#) (51)
- [Astronomy](#) (1051)
- [Astronomy For Kids](#) (12)
- [Astrophotos](#) (166)
- [Astrosphere](#) (101)
- [Black Holes](#) (84)
- [Blog](#) (37)
- [Book Reviews](#) (177)
- [Carnival of Space](#) (32)
- [Chandra](#) (35)
- [China](#) (6)
- [Comets](#) (26)
- [Constellation](#) (17)

- [Cosmology](#) (28)
- [Dark Energy](#) (8)
- [Dark Matter](#) (22)
- [Earth](#) (42)
- [Earth Observation](#) (200)
- [Eclipses](#) (10)
- [Environment](#) (39)
- [Europa](#) (5)
- [Evolution](#) (3)
- [Extrasolar Planets](#) (162)
- [Extreme Life](#) (7)
- [Fraser's News](#) (2)
- [Gamma Ray Bursts](#) (7)
- [Gravitational Lensing](#) (16)
- [Hubble](#) (162)
- [IYA 2009](#) (1)
- [James Webb](#) (2)
- [Jupiter](#) (64)
- [Mars](#) (577)
- [Mercury](#) (18)
- [Meteor Showers](#) (7)
- [Meteorites](#) (19)
- [Military](#) (5)
- [Missions](#) (252)
- [Moon](#) (121)
- [NASA](#) (161)
- [Neptune](#) (12)
- [Observatories](#) (91)
- [Observing](#) (37)
- [Orion](#) (4)
- [Physics](#) (45)
- [Planet News](#) (6)
- [Planetary Formation](#) (7)
- [Pluto](#) (32)
- [Podcasts](#) (135)
- [Questions](#) (31)
- [Satellites](#) (172)
- [Saturn](#) (402)
- [Science](#) (11)
- [SETI](#) (12)
- [Skywatching](#) (2)
- [Solar Astronomy](#) (44)
- [Space Exploration](#) (125)
- [Space Flight](#) (71)
- [Space Shuttle](#) (223)
- [Space Station](#) (117)
- [Space Tourism](#) (23)
- [Spitzer](#) (13)
- [Sponsors](#) (1)
- [Telescope Reviews](#) (5)
- [Titan](#) (11)




- [Uncategorized](#) (3)
- [Universe Today News](#) (2)
- [Uranus](#) (4)
- [Venus](#) (26)
- [What's Up](#) (86)
- [Where In the Universe?](#) (13)


- 

  - Web
  - universetoday.com

- **Email newsletter**

- Daily Edition
- Weekly Edition

- 

- 

- **Most Popular Articles**

- [One-Way, One-Person Trip to Mars](#)
- [Maximizing Survival Time Inside the Event Horizon of a Black Hole](#)
- [The Mars Landing Approach: Getting Large Payloads to the Surface of the Red Planet](#)
- [Why is Pluto Not a Planet?](#)
- [The Value of Space Exploration](#)
- [How Long Does it Take to get to the Moon?](#)
- [Building a Base on the Moon: Part 1 - Challenges and Hazards](#)
- [What is the Biggest Star in the Universe?](#)

- [Binoculars For Astronomy](#)
- [Name a Star](#)
- [No Domsday in 2012](#)

## • Blogroll

- [Astronomy Cast](#)
- [Bad Astronomy](#)
- [Centauri Dreams](#)
- [Cosmic Log](#)
- [Kids Astronomy](#)
- [Nine Planets](#)
- [The Skeptics' Guide To The Universe](#)

## • Recent Questions

- [How Does a Star Die?](#)
- [How Does a Star Form?](#)
- [What are Saturn's Rings Made Of?](#)
- [Why is Mars Red?](#)
- [What is the North Star?](#)
- [What is a Binary Star?](#)
- [What is a Shooting Star?](#)
- [What is a Neutron Star?](#)
- [Can You See the Great Wall of China From Space?](#)
- [What Was the First Animal in Space?](#)

[Universe Today](#)

