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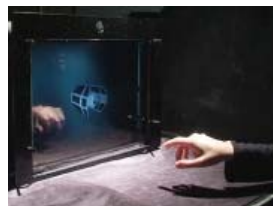
The 'sci' behind the 'fi'

A public television program explores the ways real science is starting to catch up with the futuristic visions in Star Trek.

David L. Chandler, MIT News Office

today's news

Computing with a wave of the hand



Media Lab researchers demonstrate a laboratory mockup of a thin-screen LCD display with built-in optical sensors. Photo: Matthew Hirsch, Douglas Lanman, Ramesh Raskar, Henry Holtzman

A new Media Lab system turns LCD displays into giant cameras that provide gestural control of objects on-screen. And that's just for starters.

A social network that ballooned

December 11, 2009

December 11, 2009

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As the voyagers of the Starship Enterprise boldly went to explore new worlds week after week on Star Trek, they used a host of futuristic technologies — including tricorders, holodecks, teleportation systems and warp drives — that may have seemed almost beyond possibility to many of the shows' (and movies') legion of devoted viewers. But, say many scientists (including some from MIT) interviewed on a new program airing on public television, real science and technology is starting to catch up to — and sometimes even surpass — some parts of that future.

The program, Science Trek, is hosted by LeVar Burton, better known as Geordi on Star Trek: The Next Generation. Among the technologies discussed on the program is the visor that Geordi (who, in the show, was supposedly blind from birth) always wore over his eyes, which not only restored his vision but allowed him to see some things ordinary vision could not, such as infrared light.

Ed Boyden, assistant professor in the Media Lab and the Department of Biological Engineering, says he has been working on systems to make neurons in the brain directly respond to pulses of light — something that might eventually allow visual data to be transmitted directly into the brain, bypassing the normal optical channels for people whose visual systems have been damaged. "It might be the missing part of that puzzle," he says, referring to the fact that the show never explained how the visor's output was conveyed into Geordi's brain.

Another featured MIT participant is Hugh Herr, associate professor of media arts and sciences, who specializes in biomechatronic devices — ones that interact with human muscle, skeleton, and nervous systems with the goal of assisting or enhancing human motor control. The program notes that Herr, a double amputee who uses such devices himself, is a kind of "Borg" — a reference to the race of cybernetic organisms from the Star Trek universe. Herr says the technology has the potential to not only substitute for lost functions, but ultimately to improve on them. He says that as the technology matures, he expects that by the time he reaches the age of 80, his biomechatronic legs will actually give him better balance than most 20-year-olds. "At some point they'll be superior to biological legs," he says.

The program also features Institute Professor Emeritus Mildred Dresselhaus, as well as Tomas Palacios, assistant professor of computer science, talking about the properties of



multimedia



Screenshots from the program, "Science Trek." From top to bottom are professors Ed Boyden, Tomas Palacios, Mildred Dresselhaus and Hugh Herr. Images courtesy of Santa Fe Productions

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carbon fibers and a recently discovered material called graphene, a single atomic layer of carbon, which is the strongest material known. Dresselhaus points out that carbon fibers have been an essential enabling technology for a variety of technologies in the space program, to the point that “the space industry wouldn’t exist without carbon fibers.”

Palacios adds that graphene also is “one of the best materials for electronics” that could someday lead to computers embedded in clothing — a point illustrated in the program with a scene of an alien wearing clothing with embedded electronics, who gets zapped by the Star Trek crew.

Dresselhaus stresses that real research often produces results more amazing than those dreamed up in science fiction. “The reality of what comes from the lab goes beyond anything we can think of,” she says.

The program, which has already aired a few times on PBS stations, will next air on Boston’s WGBH at 5 a.m. on Sunday, Dec. 13, and again at 1 a.m. on Tuesday Dec. 15, and Friday Dec. 18.

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realdreamer - **high fi (ve)!**

2009-12-11 06:52:56

This article is repeating, in deep ways, what I wrote about as commentary with respect to the fascinating piece on Jules Verne in the recent MIT pages on line.

Just maybe, if you can do it with words, it can happen, meaning it's all in the potentials within words themselves, the letters.

The Fibonnaci number, no doubt well known to MIT folks, is named after a man who spent time thinking deeply about Phi. And Fi is aurally in his name, Fi bonnaci.

Maybe there is something, about words, themselves, not a new notion. Certainly we have that Biblical phrase: In the beginning was the Word and the word made flesh. And we do have, even today, the Sufi understanding that naming and numbers do carry significance. And as for Hebrew, Chai, meaning 18, signifies Life. They say, l'Chayim, for life!

I am saying, in the deconstruction of language itself, perhaps a radical view, is what we are seeing, in discovery after discovery, as in your fabulous article about vision.

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