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# PITTSBURGH *Feature* Article

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## To Boldly Go to CMU

When I went to work with William Shatner on a book about the future, I knew I had to bring him home to Pittsburgh, where a good bit of the future is already being shaped.

BY CHIP WALTER

I'm not a huge "Star Trek" fan. I have yet to attend even one "Star Trek" convention. On the other hand, I'll admit I've seen all of the series' original episodes, at least twice. This probably puts me in a category with several million other people: knowledgeable but not encyclopedic when it comes to understanding the underlying mythos of "boldly going."

On the other hand, I don't walk around dressed like a Talosian or a Klingon, or any member of the Borg collective. Ever.

So when I receive a call from my agent, asking me if I'm interested in writing a book with William Shatner about the technologies of "Star Trek." I figure I can handle it.



The next morning, coffees in hand, we make our way through the university's maze of interconnected buildings to expose ourselves to the improbable. We talk (really) with Flo the Nursebot, a robot designed to extend independent living for the elderly by becoming a kind of mechanical helpmate. (Her digital daughter, Pearl, is now being tested in retirement community Longwood at Oakmont.)

At the Entertainment Technology Center, Bill walks a virtual version of the Enterprise deck, a "place" constructed entirely of bits and

I'm less certain about working with Shatner himself. From my stint in the 1980s as a Hollywood screenwriter, I knew that egos in the entertainment universe could often be like giant planets -- filled with gas and often noxious.

"Oh no," says my agent. "He's great, very easygoing. Give him a call -- you'll see."

So I dial up the Captain. And he IS great. Never once does he remind me how fame has touched him. No names are dropped. No rank is pulled. He's charming, unpretentious and, for a former Star Fleet officer, damned down-to-earth.

"Look, I don't know anything about this high-tech stuff," he says after we talk for a while, "but that doesn't mean I'm not interested in it. In fact, I'm fascinated. I think most other people are, too. But who understands it? Anyhow, I'm told you DO understand a little about these things, so maybe between the two of us, we can figure something out."

Of course. Why pretend that William Shatner knows anything about high technology just because he played a 23rd-century starship captain? In fact, why not build on the irony of the whole situation? Why not let him play the role of the techno-greenhorn he admits

bytes whipped up, as ETC co-director Randy Pausch tells us, by graduate students over the previous weekend. They're all there when Randy sets off the "red alert" sirens, and they see Bill almost jump out of his skin -- I mean leap into action -- then catch himself, and sheepishly remove his VR goggles.

"OK. You got me. But lucky for you it was only a virtual emergency. Otherwise, I might have had to start using my phaser." The students all howl. I mean, how often do you get to outwit Captain Kirk, even if you are a graduate student?

At the end of the session, Randy, a big "Trek" fan, pulls out a replica of the original communicator and shows it to Bill. Bill looks at it, whips out his StarTac phone and flips it open with that Kirkian gesture and says, "Yeah, well, look at that!" The cell phone is less than half the size of the plastic communicator, and IT works.

Next we transport ourselves to Alex Weibel's lab, where we experience a kind of universal translator that he and his team have developed. In a conversation with a mock German travel agent, the system seamlessly and accurately translates our English questions into German, and the German answers back into English. To solve the thorny issue of converting the meaning of one language directly into another,

he is?

After all, aren't most of us techno-greenhorns? Aren't most of us mystified by the insufferable technological interfaces that afflict us? Shouldn't somebody get out there and ask the stupid questions we all want to ask?

So we quickly settle on a new Star Trekian mission: "To explore strange, new concepts; to seek out new technologies and gadgets that none of us comprehend a single wit. To explain them in a way even a rock would understand. To boldly (and with light, self-deprecating humor and fewer split infinitives) go where few curious readers have ever gone before."

Bill (no one, I learn, calls William Shatner William), inspired by a comment made by the great physicist Stephen Hawking when he was visiting the "Star Trek" set in the early '90s, settles on the title, I'm Working on That -- "that" being the future. (As Hawking was being wheeled by the Enterprise's imaginary warp drive engines, he asked what they were. When he was told, he considered them and said, "Oh. Yes. I'm working on that.")

Thus the book's basic premise: As we round the corner on a new millennium, lots of the technologies inspired by "Star Trek" seem

Weibel's team has created a separate master language into which ALL tongues can be translated. It's a very elegant solution that makes it much easier to translate everything from English or Korean or German accurately back into any number of other languages. I'm sure Star Fleet would love to have the patent on THAT.

We also spend hours in mind-bending discourse over dinner with Hans Moravec, considered by many the world's most provocative visionary in robotics. Hans was the first to propose that humans may someday upload their minds into a robotic version of themselves, basically making immortality a reality. When asked when we can expect a creature like Data, he doesn't even blink. "2050," he says. Not even "Star Trek" creator Gene Roddenberry envisioned androids before the 23rd century. Nevertheless, Hans tells us he's "working on that," developing a vision system for robots that he hopes will rival the accuracy and speed of our own within two years.

Finally, we speak with Albert Einstein -- a virtual one. He resides inside a computer screen, but answers our questions (with occasional glitches) just as if we're all at dinner. He even asks Bill if he had ever met Marilyn Monroe. (Bill hadn't.) The technology that makes something as

to be coming true. So let's go find out. Let's mind-meld with the very best thinkers in the world, the people who are inventing the future.

Part of my job in all of this is to search out the interesting work being done in the real world that matches up sensibly with "Star Trek's" imagined universe. And that's when I know we have to visit Carnegie Mellon University.

Here's the thing about Carnegie Mellon:

Researchers don't mess around. The future doesn't just get theorized about, it gets created. "We just keep our head down and work hard here," says Christina Gabriel, vice-provost for corporate partnerships. It's true. I've been lucky enough to meet scores of fascinating scientists and visit first-rate research institutions everywhere that exist expressly to create BIG breakthroughs. Of all of them, Carnegie Mellon, pound for innovative pound, has more working hardware and more proofs of concept to show than any other institution I can think of (though NASA does pretty well, too). For our book, Carnegie Mellon simply has to be on the short list.

Bill arrives in Pittsburgh on a beautiful fall evening. We have dinner downtown and talk over whom we're going to interrogate the next day and what slices of the future he or

seemingly simple as a conversation like this possible is far from trivial. We take for granted that we can hear the noises we make at one another, apply some sort of meaning to them, and then process it all to provide an appropriate response. For machines, this is hellishly difficult. Yet there we are, talking at an off-the-shelf computer (running some very sophisticated software), which hears our questions, "understands" what they mean, searches a database, and plays the appropriate video clip that addresses the question -- or at least takes a good shot at it. And does it all in just a few seconds.

Altogether, we spend two days at CMU sampling various stabs at the future, and scorching our minds from morning to evening with high-speed thinking. Bill seems to have got more than his usual kick out of it all. And Carnegie Mellon's students and professors certainly did. After all, it's not every day that you open up the future to a starship captain.

As we leave Oakland and thread our way through the gold and auburn trees out to the airport, he says, "What a delightful city. I like the brick buildings and the shady streets, the older neighborhoods." Then he turns and looks at me. "And don't they do some wild and amazing stuff at Carnegie Mellon."

she plans to show us. There's the Interaction Design Studio (IDS), a collaboration of engineers, computer scientists and designers working on "wearable computers," the next generation beyond the cell phones and other handhelds so many of us fumble with. There's the Robotics Institute, world-renowned and the largest in the United States, and the Entertainment Technology Center (ETC). Virtual reality and the creation of digital worlds are its specialty.

By dessert, we're pretty sure we've hit the mother lode. Given "Star Trek's" imagined universe of androids and cyborgs, universal translators, holodecks and vanishingly small, but outrageously powerful gadgets and gizmos, CMU seems exactly right.

Well, naturally, I have to agree. They do, which is, of course, why we came here in the first place. Because if there is one thing we can be certain about when it comes to the future, only the wild and amazing will be admitted.

Chip Walter is a science writer and futurist who lives in Penn Hills (mostly in the present) with his two daughters, Molly and Hannah. For more information about "I'm Working on That" (\$24.95; Simon and Schuster, hardback), see [www.mindfireunlimited.com](http://www.mindfireunlimited.com).