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Friday, 1 p.m. How to Survive a Robot Uprising

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Daniel H. Wilson

Author

Friday, November 18, 2005; 1:00 PM

Were you terrified by the Terminator and Matrix movies? Are you afraid that robots may soon take over the world? If so, robotics expert **Daniel H. Wilson** can settle your fears. In his new book, "How to Survive a Robot Uprising" (Bloomsbury, Nov. 7, 2005), he takes a humorous look at how humans can defeat a robot rebellion.

Wilson, who earned his PhD at the Robotics Institute at Carnegie Mellon University and has worked in research laboratories for Microsoft and Intel, will be online at **1 p.m. ET Friday, Nov. 18, 2005.**

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Centreville, VA: I know this is all meant in good fun, but shouldn't there be some real debate over whether AI is necessarily a good thing? If a computer ever becomes truly self aware, as self aware as a human, won't it have its own agenda and desires? And if that computer is housed in some sort of mobile machine, it may decide that it doesn't really feel like following our orders and performing whatever mundane tasks we have in mind for it. Not that it would necessarily run amok, but there might be some unexpected consequences.

Daniel H. Wilson: I went and asked a lot of robotics researchers (roboticists) how they would escape from their robots. The number one reply was, "I would walk away slowly."



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Clearly, the majority of robotics researchers aren't threatened by their creations.

Other people, the majority of whom do not actually build robots, are VERY threatened.

If you are interested, search for "Friendly AI" on the internet and learn more about how some people are trying to safeguard future versions of AI.

(In my opinion, friendly AI is a good idea, but the field is too underdeveloped for it to matter much at this point...)

Detroit, Mich.: could there possibly be an adequate survival method of 'sucking up' to any robot tyranny?

Daniel H. Wilson: I had an entire section on this in the original version of the book -- but it was cut. Who knows though, it may find its way into a sequel...

Here is an excerpt:

TIPS FOR INGRATIATING YOURSELF TO NEW ROBOT OVERLORDS

Speak clearly.

Or use a more natural interface, like a binary keyboard.

Don't show fear.

Robots have no emotions -- sensing your fear can stir feelings of jealousy, resulting in a white-hot robot rage.

Err.. maybe it was a good thing this stuff was cut!

Harrisburg, Penn.: Robots could never take over. Never underestimate the stupidity of humans to build a robot that will expire shortly after the warranty expiration date.

Daniel H. Wilson: But what about when the robots are building the robots?

(Besides, isn't that pretty smart to build a product that goes kaput two days after the warranty expires?)

Arlington, Va.: Who would win a fight, a robot or a zombie reanimated by nanobots?

Daniel H. Wilson: ROBOT VS. ROBOT ZOMBIE: WHO WOULD WIN IN A FIGHT?

Well, "robot" is vague. Are we talking a skyscraper-sized behemoth with thousands of whipping, shredding razor-wire arms? Let's assume we're talking about a humanoid robot vs. a robo-zombie.

This fight is going to be good. The zombie will function in the event of massive failure, and may even reanimate after being torn apart by it's opponent -- who, after all, is a merciless, methodical metal man.

On the other hand, could a single squishy zombie pull apart the

titanium-laced carapace of an atomic-powered killbot?

ANSWER: ONE ON ONE THE ROBOT WINS, HOWEVER,
ZOMBIES USUALLY ATTACK IN GROUPS...

Alexandria, Va.: I have never heard of this book, but the title caught my eye on the Post's homepage. Is this for real?

Daniel H. Wilson: Well, on one hand I really do have a Ph.D. in Robotics from Carnegie Mellon University (located in Pittsburgh, PA).

All the robotics information in the book is taken from my own expertise and from conversations with dozens of prominent roboticists from around the world.

Also, I didn't make up the word "roboticist."

On the other hand, I borrowed all the uprising scenarios from Hollywood. And I don't think an uprising is going to happen anytime soon.

So, you be the judge!

Undisclosed Location: Greetings. Purely hypothetically, if you were an evil mastermind, working on perfecting an army of robots to enslave the world, what would be the critical elements for creating a truly epic reign of terror? Flashing red eyes? Giant metallic tentacles? Synchronized marching?

Daniel H. Wilson: Purely hypothetically, the first problem is how to hide a robot army that is big enough to conquer the world. In the book, I describe the situation that happens in "I, Robot" where essentially a virus spreads among servant robots. The virus -- guess what -- makes them evil and all homicidal.

Burning red eyes are helpful to clue in the humans that don't understand that their servant robots aren't going to take it anymore...

Arlington, Va.: Hi, I'm one of your more aggressive berserker-type robots, bent on the utter destruction of all organic life, but unfortunately my designers created me on a wheeled chassis and I have serious problems with stairs. Do you have any advice?

Daniel H. Wilson: Please allow me to quote a line from my book for you, berserker robot:

"Densely populated city centers will be hard hit and the peaceful suburbs will be overrun; paved roads and sidewalks that allow access to disabled humans will also accommodate the wheeled robot masses."

There you have it berserker -- you're going to have to stick to eradicating all organic life within city limits.

Alexandria, Va.: Recently I saw a news story about a meat-eating robot:

Isn't it bad enough that the robots are going to enslave us? Do we have to build robots that will want to eat us too?

Daniel H. Wilson: Hah! That's very unfortunate -- I hadn't seen that.

However, I have seen a robot that runs on... slugs. That's right, it runs around all day and night and eats garden pests. An interesting alternative to pesticides, eh?

(It's those homicides you have to watch out for...)

Alexandria, Va.: How has your book been received by your colleagues in the robotics field?

Daniel H. Wilson: I was a bit worried that other robotics researchers (especially the ones that I interviewed for the book) would be threatened by the book. And for a little while before the book was published there were a few people concerned that the press would completely miss the joke and suddenly believe that Carnegie Mellon University was churning out evil robot monsters.

Luckily, almost everybody gets the joke.

And so I haven't had any trouble so far with dissatisfied colleagues, and none of the masses have lit torches and knocked down the gates of Carnegie Mellon.

Alexandria, Va.: I'm fairly sure that my neighbors are cyborgs of some sort. How can I be certain, and what should I watch for should they be agents for a (the?) future uprising?

Daniel H. Wilson: First, if you are supposed to be taking medicine and you haven't -- I suggest you get back on it.

Second, the relevant section in my book is called "How to Spot a Robot Mimicking a Human."

Some advice:

Second, trust your human instincts. We have evolved into very social mammals, and we are very good at understanding facial expressions, gestures, and voices.

Pay special attention to the face -- does it move naturally and are there normal human blemishes?

Test social skills -- How do they react when you take off your pants and wear a bowl of spaghetti on your head?

These are such dangerous times... tsk tsk

Bethesda, Md.: Are we just talking robots here, or is this more of a Maximum Overdrive kind of scenario? Will my hairdryer jump in the tub as I bathe when the robots attack?

Daniel H. Wilson: There is no set-in-stone definition for what is a "robot"...

I call a robot anything that can sense, think, and then act in the real world. Therefore, if your hairdryer was capable of sensually snuggling up to you in the bathtub, then I would call it a robot.

In the book, I cover a lot of robot prototypes but I generally ignore the big bad military robots. They aren't going to be the main culprits in a robot uprising. The uprising will come from all the robots we know and love -- those we may call our pets, friends, or lovers. Or all three. Yuck.

Bear vs. Tiger: Who would win in a fight, a robot bear or a robot tiger?

Daniel H. Wilson: Robot zombies is one thing. But robot bears!? What are you talking about -- that's just crazy.

Also, robot bear. (Imaging a bear hug from a piece of industrial machinery.)

Chicago, Ill.: I don't know. Knowing what people are capable of, I'm still far more scared of my fellow humans than I am scared of robots.

Daniel H. Wilson: I think that is a very wise statement.

However, you'd better be extra scared of your fellow human beings when you see them riding robotic bears that march lock-step in regiments through the streets, leaving bearfoot-shaped tracks in solid concrete.

Montgomery Village, Md.: What if the robots disguise themselves as your neighbors and co-workers? Are you familiar with the MIT study on the effectiveness of foil helmets on blocking mind rays and how the study showed that the helmets actually MAGNIFY the mind waves?

Daniel H. Wilson: Yah, I'm familiar with the metal foil study.

My studies are incomplete, but preliminary findings indicate that the real ultimate robot-protection only comes from lining your basement walls with copies of my book.

It's your safety we're talking about here -- trust me, it's worth it!

Atlanta, Ga: Do you believe that electronic equipment, which is essentially what "robots" are, can evolve without interference from programmers or humans in any way?

Daniel H. Wilson: Yes, this is already possible and happens all the time.

Robots are routinely built in simulation and then allowed to evolve over time in a simulated world until they become perfected. For instance, you might build a pair of robot legs and simulate their physics while automatically evolving parameters such as center of gravity or range of motion. Eventually, one pair of simulated legs will walk the best (in simulation).

The next step is to build them for real.

Another machine learning approach is to actually "evolve" answers to any problem. You just have to come up with random answers, let the best ones combine somehow, and then kill all the worst answers. Repeat about a million times and the best answers evolve. (This approach is called genetic algorithms, and it isn't that popular anymore.)

Anonymous: Would it be safe to assume that AI Robots would eventually want to study us and our own evolution for themselves? And to that extent, wouldn't they want to help us develop that "Utopia" sci-fi novelists have been writing about for years?

Daniel H. Wilson: It would be great if artificially intelligent robots could study us -- you know, plumb the secrets of man.

However, since the field of AI began it has been up to human scientists to study every inch of human anatomy and evolution in order to build powerful, useful robots that can do the things we can do.

I'm not sure what you mean by robots wanting to develop human utopias (although I'm sure they would if we programmed them to do it). Besides, don't sci-fi authors usually write about dystopias? :)

Philadelphia, Penn.: Robots are pretty cool if I must say so myself. If we use robots in everyday life, and then they rebel, in essence making us the automated machines, can we re-rebellion?

Also, why can't we just make them using parts from say, circuit city or radio shack. We know they will break down a few months after they create themselves anyway.

Right?

Daniel H. Wilson: I agree -- robots are fricking cool.

Yes, we can re-rebel. (Just how to do it is in the book.)

Robots are built with varying degrees of sturdiness. Some of them are utterly craptastic and are built from fun-but-fragile robot kits purchased from Radioshack. On the other hand, the NASA Robonaut is undergoing extreme tests to make sure it is spaceworthy and flightworthy. Robonaut is one tough hombre -- he can chill out in the vacuum of space while his human colleagues would just asplode.

Reston, Va.: I remember seeing a commercial on an old Saturday Night Live with Sam Waterson pitching "robot attack insurance" to elderly people. Do you believe this would be a wise investment?

Daniel H. Wilson: Heck yeah it's a wise investment. Didn't you see the pie chart!?

43% of old people die from heart disease, and 57% die from robot attack.

A wise investment indeed!

Chicago, Ill.: How seriously do you take the post-humanist discussion? I think that the future holds the possibility for some kind of "crossover ethic." Meaning, people will have robotic features themselves. We will not simply allow the robots to do all the work for us. We will, perhaps, enhance our own capabilities.

Do you see this as a possibility? And, please do give the humor in this. There is plenty to be had.

Daniel H. Wilson: I love to give the humor in things, whatever that means.

The post-humanist idea -- that we'll all get implants and become cyborgs -- seems very viable to me.

Why wouldn't people want to improve their bodies with technology? I'm wearing glasses right now. Also, I have a ten-foot snapping metallic pincer that I'm controlling with low level thought via my brain stem.

I think we've all got a very robo-tastic future ahead of us.

Alexandria, VA.: The first wave of AI researchers seemed to wildly underestimate the difficulty of creating "thinking machines." I wonder if the current crop of AI researchers are making the opposite error and vastly overestimating the difficulty. After all, a brain is but a few pounds of meat containing a large but finite number of neurons. Surely at some none-too-distant point in the future, Moore's Law will catch up to the brain in terms of processing power.

Daniel H. Wilson: What you say about the brain is true, but I think it only highlights how difficult it will be to reproduce human functionality. I mean, I could understand how complicated we all are if we each had an underground cave filled with brains making our decisions for us. But we don't -- instead we each have a massively efficient, massively parallel computer lodged in the tiny space between our eyes.

I think futurists have caused a real problem by relating processing power to the capabilities of artificial intelligence.

Simply put -- it doesn't matter how fast your computer is if you haven't got any programs written for it!

So, I wouldn't expect Moore's law to solve all of our problems (although faster computers do allow human researchers to be more lazy with the efficiency of their theories and code.)

Upstate NY: Daniel/Dr. Wilson,

One thing that puzzles me is that the fear of robots seems always to be along the lines of "well, they'll be more and more like us and, they'll want to annihilate us, blah, blah, blah". For one, it seems awfully egocentric of us. Why do robots, and aliens, for that matter, have to be like us? Is this just the limits of human imagination, or inherent narcissism?

Or - is it because the only "known" enemy to humans are basically humans?

Daniel H. Wilson: Robots look like us because that's how we're building them.

Robots are very complex, autonomous tools (they make their own decisions). You know how hard it is to program a VCR? A robot is like a VCR on crack.

The best/only way to interact with such a complicated artifact is to do it the way we interact with other intelligent entities -- language, gestures, facial expressions, and so on.

That's a huge reason why robots are built to look like us!

Adams Morgan, D.C.: Robots don't scare me. But Ninjas are downright terrifying. I mean they are always flipping out and pulling off sweet --no make that TOTALLY sweet --moves. Can anyone stop their real ultimate power?

Daniel H. Wilson: I have one word for you pal, SHINOBI.

SHINOBI was a robotic cyborg ninja who could flip out and pull totally sweet ninja moves to the left AND to the right. How could any regular ninja stop that real ULTIMATE power?

And by totally sweet I mean fricking awesome!!!

Burke, Va.: Who in the government will be responsible for creating this uprising? DARPA?

washingtonpost.com: [Stanford Wins Pentagon Robot Race](#) (October 10, 2005)

Video: [Team ENSCO Preparations](#)

Video: [MITRE Meteorites Prepare](#)

Daniel H. Wilson: Awww.. don't hate on the Defense Advanced Research Projects Agency (DARPA). And for that matter, don't get upset by the National Security Agency (NSA) or the Department of Defense (DoD).

All of those places fund research into robotics, but just because the funding comes from there doesn't mean it's necessarily bad.

That's because most of the research they fund is very nascent, and not capable of being used to crush defenseless human armies abroad.

Someday that will change, but for now let's not diss robotics researchers for using DARPA money to teach robots how to play soccer, or have pillow fights or whatever...

Falls Church, Va.: How do I know you are not a robot?

Daniel H. Wilson: You'll have to buy the book from amazon, read it, and then decide. snap!

Chevy Chase, Md.: It's all well and good to be prepared for a robot attack, but after reading Scooter Libby's novel, "The Apprentice," I'm

convinced a more pressing threat to humanity is bear rape. Could any of your robot-fighting tactics be applied to a Libbyesque bear encounter?

Daniel H. Wilson: Yes, bear rape is a very real threat to the American people. In my personal opinion, Scooter Libby is one the most important, leading bear-rape visionaries of this fine country.

We have been discussing robot bears during this session, and I would be remiss if I failed to mention that robot-bear-rape could be on the horizon.

Sadly, I forgot to include this chapter in my book. If you are mounted by a robotic bear, try to slip on an anti-static bracelet and tie it to a metal bedpost.

Stay strong.

South Carolina: Did you read Max Brooks' The Zombie Survival Guide: Complete Protection from the Living Dead? I think both of these books are necessary to prepare for Armageddon, in zombie or robot form.

Daniel H. Wilson: Yes, I have read the Zombie Survival Guide and I have three things to say.

- 1) I love that book.
- 2) You can't get a PhD in Zombies.
- 3) I love that book.

Washington, D.C.: Just a comment: This is the best online chat in the 130-some year history of the Washington Post.

Daniel H. Wilson: I can tell that you've got what it takes to survive, sir!

Unfortunately, my hour is now up and so I must bid you all adieu!

Don't let the robots intimidate you and stay strong!

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