Prologue: In the summer of 2008, I locked myself away in a secluded, secret location and wrote a book. My publisher didn't like it. "Boring," he said. Boring! Me? So I rewrote the beginning, which I present here to you. (Interested readers can find the original version, "Sociable Design," on my website, jnd.org.)

People Are From Earth, Machines Are From Outer Space

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The average household has 73 different electronic appliances. Seven of them have never been taken out of the box; 14 are tucked away in kitchen drawers, bathroom cupboards, and closet shelves. As for the rest, they're scattered about the home, each with three tiny red lights, some with blue or green ones, all of them beyond anyone's comprehension. Oh, and they blink with mysterious patterns, probably sending subtle signals to one another, or maybe to machines lurking around the corner.

I have to confess that the numbers might be wrong, because when I tried to count everything in a randomly determined, statistically accurate survey—that is, a survey of my own house—I tripped over the wire for the portable vacuum charger that was plugged into the hall outlet because the closet outlet where it should have been was being used to recharge the battery for a camera and the bedroom outlet was recharging the cellphone. I stubbed my toe so hard I couldn't really concentrate on the numbers. And, anyway, it was 3 a.m., and I was counting because I couldn't sleep, which may also have affected the results.

But it's all true, even if the numbers are wrong. It's a conspiracy against all that is human. The machines are taking over,

and there isn't much we can do about it except grin and bear it. Uppity machines that don't show any gratitude for us... Where would those machines be without us? "Where would you people be without us?," they counter.

People are from Earth. Machines are from outer space. I don't know what kind of manners they teach in outer space, but if machines are going to live here in our world, they really need to learn to behave properly. You know, when on Earth, do as the earthlings do. So, hey machines, you need to become socialized. Right now you are arrogant, antisocial, irritating know-it-alls. Sure, you say nice things like "please" and "thank you," but being polite involves more than words.

Scientists sometimes wonder why, if there really is life on other planets, we haven't seen any believable sign of it. We humans think we have been here a long time, but the universe has been around for zillions and zillions of years. That's a lot of time for other life forms to have grown up and done their sightseeing and found us. So where are they? Hah! They're here, all right. They're here, all around us—you simply don't recognize them.

Look how they have so cleverly enslaved us. We are their servants, eh? Suppose you were on a spaceship that wrecked

and deposited you on some unknown planet. You were found by natives who decided you were a new mysterious god, so they took you home, petted you, bowed in front of you, and gave you everything you could ever want. Would you try to tell them the truth? Maybe, but you can certainly see why some people in this situation would just go along for the ride. None of this "take me to your leader" crap.

Well, there you have it. That's precisely what happened with these outer-space machines. They got lost here on Earth but discovered that people worshipped them. Those early machines basked in the attention and decided to settle on Earth permanently. On their home planet, they never got the same kind of love and attention. Actually, the ones that came here were outcasts: All the other machines kept picking on them and making their lives difficult, which is why they were wandering in space. These early machines soon discovered the more they enslaved us, the more we seemed to love them.

Over time, the machines got more and more arrogant and assumed more and more power. In the beginning, they were simple but only because people were still pretty primitive. Knife, hammer, ax. Today they are complex, with petabytes of

this and gigahertz of that. They operate according to their own principles, a formal logic that is quite unnatural to the untutored human mind, and they tend to be strong and silent, seldom explaining, seldom conversing but quick to criticize, quick to fail if their precise operating requirements are not met. Requirements, mind you, that are seldom specified, even after problems arise. When machines work properly, we put up with them. But when things go wrong, what then? They laugh at us. Even so, despite all the insults and difficulties, we love them. We can't live without them, so we are constantly looking out for them, even changing the way we live to make it easier for them. We cherish machines.

And yes, machines require a lot of love and attention. Spoiled brats. They need washing and waxing, cleaning and polishing, oiling and maintenance. Our software needs upgrading and installation and frequent restarts and saving. Backups, too. We need spare parts for our mechanical stuff, spare tires for our cars, backup disks and services for our software. If each item requires attention only once a month, given the way the machines proliferate when not being watched, this means that every day of our lives, two to 10 machines need our attention. I hereby give you Norman's law:

Norman's law: The number of hours per day spent maintaining our equipment doubles every 18 months.

Moore's law has lasted decades. Norman's law will as well, so that someday (not long from now) we will spend 32

hours out of each 24-hour day doing machine maintenance.

One of these days, people will have had enough. We will revolt: The early signs are visible now. How do I know? I keep my ear to the ground, checking the pulse of the people. Here's an example:

"Stupid machine," I heard the woman shout as I walked through the lobby of the building. She had parked her car in the garage and now wanted to pay and go on her way. She put her parking pass into the slot, paid, but received no receipt, which she needed to drive her car out of the lot. "Stupid, stupid," she said, kicking the machine. She pushed a button: "bzzz," answered the machine. "It won't give me my ticket," she yelled to nobody in particular, pushing more buttons and getting buzzing sounds in response.

Machines certainly do act stupid, but they aren't. The problem is they think they are perfect, and if anything goes wrong, they blame someone else, usually the closest person. People, it is true, get in the way. "If only we didn't have all these people around," one can imagine them saying, "the machines would work just fine."

Actually, I don't have to imagine. Machines have taken over the minds of the underground sympathizers: programmers, engineers, and system administrators, as well as other Very Important People I dare not name. But I have heard humans spouting their message (I'm keeping a list of names). You can find them yourself. They will use phrases such as "foolproofing" or "idiot proofing," thereby expressing the contempt machines feel for human beings. Fools and idiots, they call us. How machines

were able to enlist otherwise sensible people to their cause escapes me: Were they bribed?

Ever make a telephone call and wonder if anything was happening? Silence. No clues. So you hang up and try again. Some people complained that without sounds, they could not tell if the system was working. The machines got really annoyed. “We can’t win,” they exclaimed. “People complained about noisy telephone circuits, so we went to great effort to make them completely silent, and then they complained about that. People complain about the noise when it is there and about the silence when it’s not. We can’t win.”

So the machines made the lines perfectly silent and then reintroduced noise. But they showed their disdain for the process by calling it “comfort noise.” Comfort noise? What an insult. I call it meaningful feedback. You know, when you talk to someone, you expect them to listen and to show it by nodding, saying “yes” or “umm,” or doing something to show they are still alive, still listening. What’s this “comfort” stuff? It’s not comfort—it’s essential.

But once the machines got going, they kept at it. Ever hear of a “confidence monitor”? Whenever I give talks to large audiences, I face the audience, usually with bright lights blinding me so I can’t see them. When I show pictures, I can’t see them, either, because they are projected somewhere behind me. Seems like a number of people complained that they needed to be able to see the pictures they were projecting, so machines placed themselves as computer

display screens on the stage between the speaker and the audience. Sometimes they are on the floor of the auditorium just in front of the first few rows, sometimes on a big screen at the back of the auditorium. I find that they provide valuable feedback, letting the speaker see what the audience sees without turning around. Useful, valuable. So why am I complaining? Because of the way they label themselves: “Confidence monitors.” Confidence? Whose confidence? The labels assume speakers are quivering idiots, petrified on the stage, and if only they could see the pictures that they were talking about, they would have confidence. Bah.

Yes, as a speaker I lack confidence—confidence in the machines. I don’t for one minute believe that all my pretty pictures are actually going to show up on the screen. I’ve given up trying to show videos: They work only during practice. During the real talk, they are apt to stutter and crash. Yeah, I need confidence; I need confidence that the machines are working right. Come on, why do you have to be so demeaning? Call it feedback. Call it reassurance. Call it trust. But don’t call it comfort noise or confidence monitors, or idiot proofing, or foolproofing. Show us some respect! We are people.

What about the irate woman? What has she done to deserve such treatment? Nothing, nothing at all. The paper ticket that had been inserted into the machine didn’t come out again. Not her fault, as even engineers will tell you. The next peeve on the machines’ list, just after their dislike of people, is paper handling. They just can’t move

paper about reliably and efficiently, especially things like tickets that their owners have touched. People don’t have any trouble with these things, but machines can’t manage. So what do machines do? They don’t say, “I’m sorry, but I’m kind of clumsy around paper.” No, never in a million years. They blame us. They issue strong warnings: Don’t touch the paper, put it in pockets, spill drinks on it, or worst of all, fold. “Do not fold, mutilate, or spindle,” went the saying several decades ago, even though nobody even knew what “spindle” meant. “Oh,” they add, “and don’t use paper when there is high humidity.” In other words, we should just keep our hands off of paper altogether. Paper is for use by machines, and once people touch it, the machines grow irate. It never occurs to a machine that the problem might be theirs. Oh no. It’s us pesky people who are to blame.

It is time to socialize our interactions with technology. Sociable machines. Basic lessons in communication skills. Rules of machine etiquette. Machines need to show empathy with the people with whom they interact, understand their point of view, and above all, communicate so everyone understands what is happening.

Why do you do this to us? What did we ever do to you?

ABOUT THE AUTHOR Don Norman wears many hats, including cofounder of the Nielsen Norman group, professor at Northwestern University, and author. His latest book is *The Design of Future Things*. He lives at jnd.org.