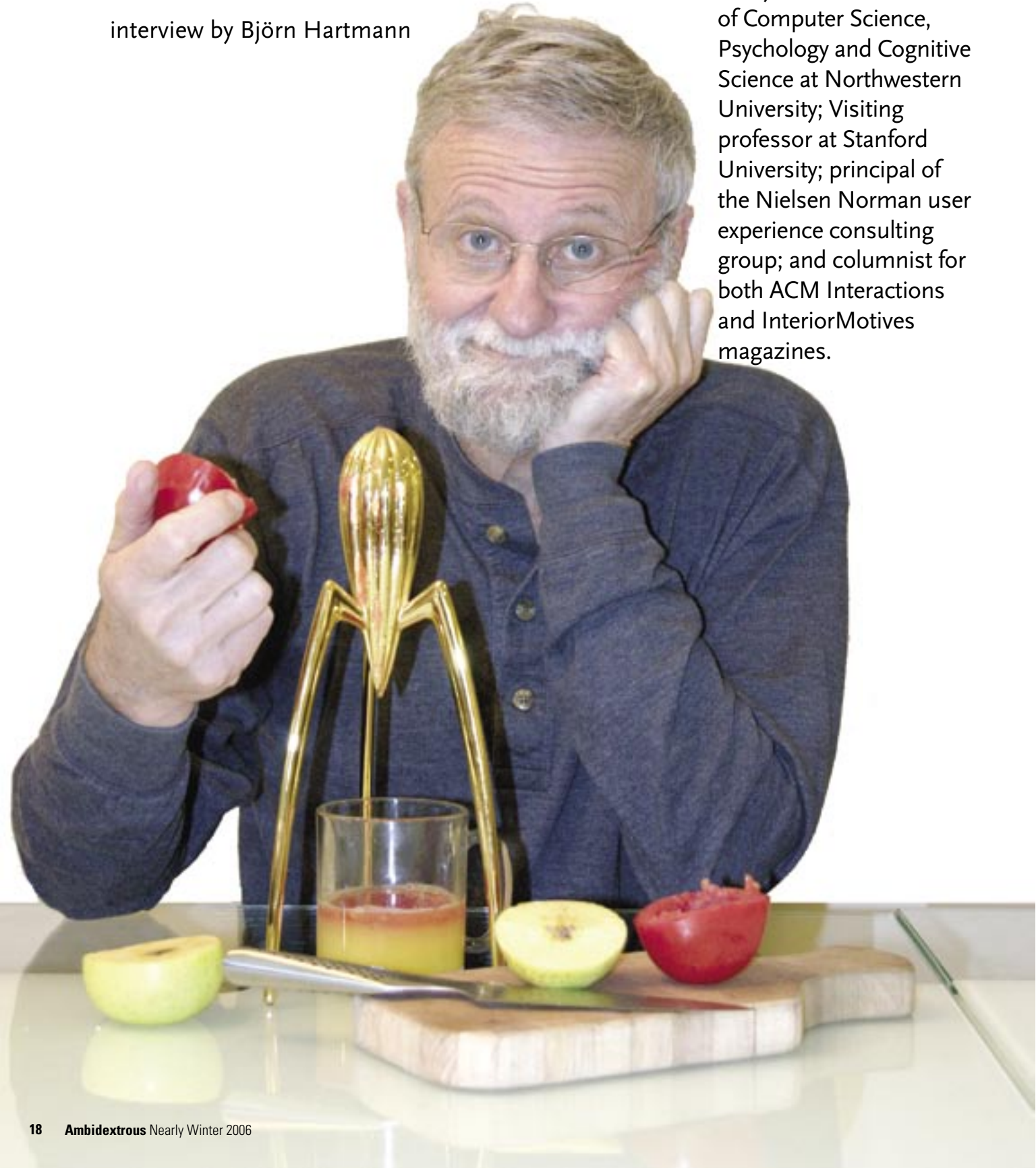


Don Norman

interview by Björn Hartmann

Don Norman wears many hats – Professor of Computer Science, Psychology and Cognitive Science at Northwestern University; Visiting professor at Stanford University; principal of the Nielsen Norman user experience consulting group; and columnist for both ACM Interactions and InteriorMotives magazines.



Is there a central theme to what you are working on these days?

I'm only really interested in working on intellectual challenges where I can make a unique difference because I can bring a different point of view or bring together things people haven't thought about. I want to forge ahead. I want to think hard about how we should approach these problems. That's why my current interest in the design issues of the 21st century: smart, intelligent devices in the automobile and home.

One of my standard approaches to a problem is to take the fundamental, unexamined axioms and reverse them. I was just interviewed about the dangers of interruption and distraction. My take is that we have evolved to be interruptible and distractible. I think of it not as distraction, but as attention to change. The problem isn't that we are continually interrupted, but rather that the technology of interruptions has far too much overhead. The overhead is often far more onerous than the content. So let's make the interruptions have more content – make it easier to resume afterwards.

Where is the intellectual frontier in home technology?

The frontier is in the use of automation. I discovered some old literature on autonomous agents—how do you instruct them, how do you trust them? Autonomous agents are now a hot topic again in artificial intelligence. And it is happening in the home. One of my old students, Michael Mozer has automated his home with a neural network. He has pointed out that it's sometimes very disconcerting when the home misreads him. Also, Mike may be working late some night and say "Oh, my house is expecting me," and feel somehow compelled to get home to his automated house, which is an interesting response.

How far should we take this analogy with human behavior, projecting personality onto technology?

Let us think about what a personality trait is. A personality trait describes the way people behave in a given situation. So we are automatically designing personalities into our machines, even if we don't

realize it. As soon as we design anything that behaves in a particular way, it has a personality, even if we never thought about it that way. What is the personality of a machine? Is your car a relaxed car? Or is it very tense? The same with my kitchen—how does it respond to my actions?

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So personality is inescapable. We cannot but give personality to the things we create.

Yes, exactly. Don't forget that we are very good at interpreting the actions of animate objects and we anthropomorphize what we see—we assign personality and emotion to devices even if they don't have them.

If you think of the emotional system in humans as the information processing system that makes value judgments, well, then a machine should have that too if it's autonomous. Now, these emotions don't have to be at all like human ones, but if the machine is to interact with humans, there have to be some commonalities. We display our emotions with our body. And over the many years of evolutions we've evolved in our use of body signs such as facial expressions, signs of muscle tenseness or relaxation, posture, and signs of approach or avoidance as a communicative device—so facial expressions are a rich communication device. There is no reason for machines to have similar facial expressions or body expressions, except that these might help communicate with people. So if my vacuum cleaner is having trouble, why not communicate that by something akin to facial expressions?

Where do you see the difference between having a robot enact emotions in physical space versus seeing a simulation of the robot or a virtual person on a computer screen?

I think physicality offers a tremendous amount to us. I think what happened during the computer revolution—and this was true of the design world as well – is

that people got carried away by virtuality. People were thinking that a computer could do everything we want it to; that a screen could display everything we need; that we wouldn't need physical knobs and sliders and buttons anymore; we would just draw them on the screen and people

would touch them. But it's not the same thing. You cannot touch these without looking. You miss all the powerful haptic and proprioceptive cues. That direction of design was a serious mistake.

Do you feel we are swinging back towards realizing the importance of the physical? Is the emphasis on virtuality waning?

I think it is part of the normal pendulum swing that we are more physical now. But there are now six billion people on the earth and while we are swinging back – while the community I interact with is swinging back—there are ever more new people joining the field completely unaware of the history. They are starting over and they are all going to repeat all the errors. Fields rarely think of looking at other fields; the aviation industry refused to learn from the nuclear power industry; the automobile industry doesn't look at the aviation industry; the home automation industry doesn't look at the others.

If people asked me: 'Are things better designed now or worse?' My answer is yes. Better and worse. Even though we've made great progress, new people are building new things that are worse than ever before. I believe that there's a new era of design happening that is about intelligent devices. So I think it's time to examine the way we interact with the autonomous agents, what happens when they fail, how we instruct them, and how we trust them. 🖐️