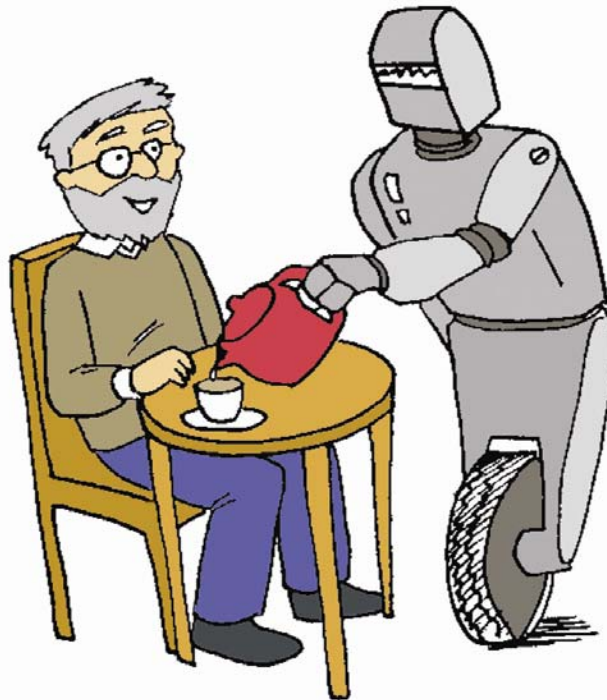


Cautious Cars and Cantankerous Kitchens: Where future technologies may fail

Dr. Don Norman
EECS

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Automated devices have long created problems in industrial applications: but now they are entering the home and auto. Cautious cars? We already have them. Cantankerous kitchens? Not yet, but they are coming. Our products are getting more intelligent and more demanding. Not only do they tell us what routes to take when we drive, but also how to drive. In fact, if they don't like our driving, they can take control of the braking and acceleration and they have started to take control of the steering. In the home they will suggest and perhaps mandate our activities. In the stores they will suggest and cajole.

Alas, these well-intended devices fail the test of proper social interaction, sometimes amusingly, but possibly tragically. Technologists are working hard to overcome the problems, to make the devices into "team players" or cooperative, collaborative assistants. But we cannot have a dialog with machines: there is no shared understanding, no common ground. Instead of dialog, we have two monologues: we command our machines; they command us. Two monologues do not make a dialog.

I believe the problems of interaction with today's so-called intelligent machines and people are fundamental. The goals, intentions, and awareness of the environment differ. Moreover, the machines are not really intelligent: the intelligence resides in the heads of the designers who try to imagine every conceivable situation and devise sensible responses. But these pre-determined analyses cannot know about the state of the environment, they cannot deal with the unexpected, and they often conflict with the person's view, goals, and responses. The real issue is that machines and people lack common ground.

Don Norman is cofounder of the Nielsen Norman Group, Professor at Northwestern University, and former VP of Apple Computer. He studies automobile safety at Northwestern's newly formed Segal Design Institute, which he co-directs. He was the founding chair of the department of cognitive science at the University of California, San Diego, a founder of the Cognitive Science society, where he served as Chair and editor of its journal. He serves on many advisory boards, including Chicago's Institute of Design, the Department of Industrial Design for the Korean Advanced Institute of Science and technology, and Encyclopedia Britannica. He has received the Franklin V. Taylor Award for outstanding contribution to the field of Applied Experimental and Engineering Psychology and the Benjamin Franklin medal in Computer and Cognitive Science. He has honorary degrees from the University of Padova (Italy) and the Technical University Delft (the Netherlands) and is the author of "The Design of Everyday Things" and "Emotional Design." This talk is based upon his newest book, "The Design of Future Things," to be published in October. He lives in Palo Alto in Summer and Winter, Evanston in Fall and spring, but always at www.jnd.org.