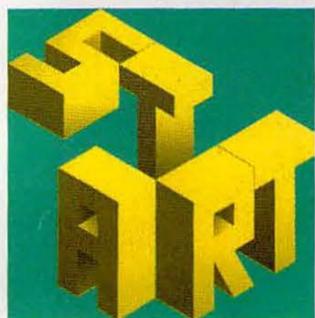# CLIVE THOMPSON
The Emotional Gadget

Our devices will be even more useful once they know what we're feeling.

BEVERLY WOOLF is a computer scientist who studies "intelligent tutoring"—artificial-intelligence teaching software that automatically adapts its lesson to how quickly a student is learning. These programs work pretty well: Children using an autotutor for math progress much faster than those who get just a regular textbook or are stuck in a crowded classroom with no one-on-one instruction. ¶ There's one snag, though: Autotutors can't tell when a student is bored or frustrated. A regular teacher can spot this instantly and intervene. So Woolf decided to tackle the problem by designing a computer that senses *emotion*. ¶ She outfitted computers with expression detectors that followed where the students were looking. She installed sensors in the chairs to detect posture and gave the kids wristbands that measured galvanic skin response. If the tutoring software identified that the pupils were checking out, it would offer encouragement or shift to a different or easier problem, just as a human teacher might do. ¶ It worked. The software was 80 percent accurate in sensing the students' moods—and toward the end of a 15-minute lesson, users were three times more engaged and focused than kids who had been working on regular, unmodified computers. ¶ "If a student is in trouble emotionally or is frustrated, they're not going to learn," Woolf says. "So if we're going to have good, intelligent tutors, they need to perceive this." ¶ Smart idea. And why stop there? I think that all of our software and hardware would work better if it understood our moods. We need an emo revolution in high tech. ¶ Right now, computers behave like daft, maladroit butlers—eager to help but always screwing things up because they have no emotional common sense. This is particularly noticeable in the way software interrupts you: You've finally managed to concentrate on a problem, you're in the zone, when *ding* goes the email alert.

Eric Horvitz, a research scientist at Microsoft, has spent years developing clever AI to prevent this irritation. By observing everything from your calendar to the ambient noise in your office, it figures out if it's a good moment to interrupt you. If you're busy, the software will postpone alerts and new email until it decides you're taking a break. Currently, Horvitz's technique powers a 3-D virtual assistant (no, it's not Clippy) posted outside his office that lets visitors know whether he's free.

Emotion-sensing software can save you time; it could also save your life. Clifford Nass, a Stanford University expert in human-machine interaction, has created a vehicle that analyzes driving patterns to recognize when its driver is getting road rage. Angry drivers get tunnel vision, so the car could compensate by drawing extra attention to potential collision risks coming from the left and right.

Projects like this are still in the lab. But they might not be for long, because today's gadgets—particularly smartphones—are crammed with tech that's ripe for emotion detection: motion sensors that know when you're running frantically or sitting quietly, GPS that can tell whether you're at work or in a bar.

Granted, the right way to respond to moods is not always clear. (Hell, this confuses most humans.) But if we can get it right, I predict we'll soon see a fascinating new crop of devices: MP3 players that adapt a playlist to your mood, phones that hold off on text messages if you're in a particularly intense face-to-face conversation. Our computers have been robots too long; it's time they softened up. Ⓦ

EMAIL *clive@clivethompson.net*.

ILLUSTRATION BY Timothy Goodman