

21ST

CENTURY TECH

CHAPTER
36

How Multimedia Will Work

This is a good time to discuss *The Matrix*. If you haven't seen it, you should. It's a damn good movie despite Keanu Reeves, a movie star who's managed to turn rigor mortis into an acting style. If you haven't seen it, here's the set-up: While humans go about their normal, end-of-20th century business, what they don't know is that everything they're experiencing is a computer-induced hallucination. Machines and humans once fought for dominance and the humans lost. But because the machines still need them about for some reason or other, they continue "growing" humans, keeping them connected to wires in liquid-filled tanks. The wires feed in neurological impulses that stimulate the brain in the same way it would be stimulated if it were getting the impulses normally from the eyes, ears, tongue, and other senses. The humans are even wired to interact with other humans, or the hallucinations of other humans. The world is going about its life normally, as best anyone can see. Only it isn't.

Which brings us to metaphysics. Philosophers and physicists have long tried to figure out what reality is, really. How is that we're able to

perceive the world? How do we know that what we think is out there is really there? The answer is, we don't. If we're both looking at a red wagon, I don't know that you are registering in your mind the same sensation I know as redness. I don't even know, really, that you're standing next to me looking at the same red wagon. Or that there's even a wagon to look at. All I know about the world are what my senses have told me. My body is capable of turning sound and light waves, pressure, smells, and tastes into impulses that trigger certain cells in my brain. But the same cells are triggered if I'm having a dream. Who hasn't waken up from a particularly vivid dream with the feeling that it really happened? It's understandable. My brain only knows that certain parts of it are being stimulated, it doesn't know what's causing the stimulation. Doctors doing mad scientist experiments on the brain of fully awake people know they can poke one place on the brain with a little electric probe and the subject will report hearing Mozart. Poke it somewhere else and the subject will smell his grandmother's cinnamon rolls. The patient is not remembering Mozart and cinnamon rolls; he is sensing them.

If all we know is really what our brains decide we know, it raises tremendous questions about whether there's a there there, whether the world exists. But for all practical purposes, it seems to work OK if we just accept the reality our brains keep insisting on. We don't bump into walls because the brain fails to register them. And wherever that growling sensation my brain says is in my stomach is really coming from, the sensation goes away if I eat one of grandma's cinnamon rolls—or do whatever clever construct the brain has created so that I believe I'm biting down into a hot roll. There are some people for whom reality doesn't work. They hear voices—not imagine, but *hear*—voices telling them they're ugly. A person with depression looks on the same world that a normal person does, but sees something entirely different, a world that in some way is threatening, overpowering. If these people change the balance of certain chemicals in their bodies, the voices and the depression would go away. Look, they weren't real, no matter how real they seemed. They were just the wrong molecules floating about in your body.

Fretting about whether reality is real, for the most part, is a waste of time. If somehow it's not real, if it exists only in my mind, I still have to go along with it. It's the only reality I've got. Or the only one I did have until computerized multimedia came along. We're now surrounded by hardware and software devoted to recreating physical sensations. The coming generation of 3D visual technology will have the ability to depict individual blades of grass blowing their separate ways in the breeze. Already sound

engineers know how to make the sound coming out of only two speakers sound as if it's behind or above us or bouncing off a brick wall. Force feedback—a great improvement in gaming with joysticks and steering wheels, has already gone to ridiculous extremes—cushions that fit in your chair or low-frequency speakers built into a chair that shake and rumble your body in virtual imitation of an exploding alien pod. A shaking chair's a gimmick, the kind that's often not as convincing as, say, words. Radio and books, neither high tech, are nevertheless high virtual reality. Both mediums are closer to the cyberpunk probe than the best 3D goggles and shuddering chairs. They use symbols in the form of words, themselves simply abstract concepts that exist only in our mind, to evoke events, people, places, sights, and sounds that can, for the moment, become our mind's reality.

Devices to create virtual reality are likely to get good enough to give words a run for their money. They will be able to create more subtle sensations, such as the touch and pressure sense impressions we get from picking up a penny. There are virtual reality gloves that translate the movements of your wrist and finger so that you can pick up a virtual penny onscreen. But we don't have anything yet that gives us the sensation of picking up a penny. We'll get there. It's easy to envision a glove, or for that matter, a complete body suit, covered everywhere with minuscule bulbs that swell when air is pumped into them or piezo-electric plates that bend in response to minute electrical signals. Either would give your body the sensations of pressure and touch.

Maybe we don't really need all the electromechanical aids to experience virtual reality. Sometime in the next millennium virtual reality may advance to the state where we can get rid of the multimedia video, sound, and touch output. Get rid of the body as a middleman to receive their simulated sensations. Like a character in one of William Gibson's cyberpunk novels or in *The Matrix*, we'll have connectors implanted in our skulls so that we simply plug in a cable to connect to a computer that sends small shots of current to the parts of the brain that will create a world much more convincing than the best sound and video. And if bioimplants can be used by a computer to create a world in one's mind, it's not a stretch to do the reverse—record the sensations someone is getting from the real world and record them in form that lets them be played back to someone else as if the recorded sensations were their own. Rather than tell you about my vacation or show you photos and videos. I could give you a floppy that contains a file to let you view the Grand Canyon exactly as I experienced it.

Someone will figure out a way to do that because that's just how we are. If someone discovers that such-and-such is possible in theory, sooner or later someone's going to do it, if just for the hell of it. But I'm not at all sure we need, or want, totally convincing virtual reality. A few years ago, two young nephews of mine were playing their first bout of Doom. After a bit we heard honest screams of fright coming from the computer room.

They had been looking at a computer monitor, but what they had seen was, for a moment, something just as real as anything around them. We've all experienced equally convincing virtual reality watching movies or TV. We are willing to suspend our disbelief and go along, pretending what we're experiencing is real. We become much more aware of the virtuality onscreen than the reality about us. We make a mental bargain with ourselves to act as if something onscreen or over the phone is real, when it isn't. When I hear your voice over the phone, I'm not actually hearing your voice. I'm hearing a reproduction of it, and not a very good one at that. If we're talking over a video phone, then I'm willing to accept that this face on my screen, despite its lack of smoothness and detail, is a honest representation of you. But it might not be. In some future time, it could be a face generated by 3D animation, which is in turn controlled by artificial intelligence software designed to take my place on days I'm not up to facing the world. But think of it: How less real is the generated face than the live face onscreen. Both are made up of certain glowing pixels on my screen. It's my brain, not the quality of the display, that makes me accept those pixels as representations of some sort of reality.

It may be that although virtual reality techniques will improve, we don't want too much reality in our virtual world. In fact, virtual reality in cyberpunk novels often seems like more trouble than real reality. I recall one book in which our hero, brain-plugged to a computer, senses that he's soaring among giant buildings that represent particular collections of stored information. He seems to spend a lot of time moving through virtual reality to get to the location of the data he's seeking and then searching through information presented virtually as paper in file drawer folders. It would be a lot easier to click a mouse and open a couple of computer file folders. And consider whether you want total virtual reality. Do you want to feel the cold of a virtual set in Antarctica? Or, if you're watching the scene in *The Third Man* set in the sewers of Vienna, do you really want Smell-O-Vision?

