Early Computing's Long, Strange Trip

Jaron Lanier


Does history matter? No one would think of reading Shakespeare without learning enough of the historical context to understand the Bard’s words. But does the history of science and technology matter in a similar way? Does knowing the first thing about the exotic megalomaniac Nikola Tesla make any difference at all to a young engineer plugging a computer into an alternating-current outlet (one of Tesla's inventions that we take for granted today)? After all, the AC outlet will work whether Tesla is remembered or not.

Let's focus the question more narrowly: Does the history of computers as we experience them—the history of the user-interface design, for instance—matter? I say yes. Like Shakespearean English, the computer is a tool that must be understood in depth to be deeply useful, and the richer the information about context, the richer the understanding.

It is nothing short of bizarre, then, that it has taken so long for a book to appear that chronicles the early cultural history of the personal computer. John Markoff’s *What the Dormouse Said* (the title is taken from the lyrics of the Jefferson Airplane song "White Rabbit") tells the story of the important period when the personal computer and the Internet as we know them came into being. He also describes how a new culture of drugs, sex and rock and roll was created at the same time as the computers, sometimes in the same rooms, by some of the same people. Some readers may be shocked by the degree to which the design of modern computing was a central component of the 1960s counterculture in Northern California.

This is news that might interest young engineering students, for reasons much more important than titillation. The computer and the Internet are cultural as well as technical artifacts, and they are still changing. We can now see for the first time the relation between the aspirations of young idealistic designers and the actual experiences of people using these tools on a massive scale in a world newly rich with information. The story thus far is more inspirational than not, but it is filled with drama and lingering uncertainties.

Markoff's book covers the years 1960 to 1975 and the area south of San Francisco around Stanford University that would later come to be known as Silicon Valley. I arrived in Palo Alto in 1980, after the period described in the book, but got to know most of the people Markoff depicts. I can report that if anything, he underplays the degree to which they behaved in ways that would today be considered outrageous and radical, and what I saw was said to have been mild compared with what had come before.

The book captures what can only be called the funkiness of the time and place. I well remember the boomerang-shaped Stanford Artificial Intelligence Laboratory, hidden in the hills, at once a futuristic science-fiction vision and a dangerous, dilapidated mess that would be considered unfit for human use in the current climate of liability litigation. Masses of wires blossomed out of the rear ends of hot, giant early computers, looking rather like the hair on the heads of the engineers building them. The ragged, broken walls and ceilings were softened by the hippie décor and the fragrance of marijuana and candles, which created a warm ambience. And yes, there were drugs and naked people in the rooms where some of the code that now drives your e-mail around the globe was first set down. The people who conceived of critical aspects of modern computing moved in the same
social circles as the musicians who became the Grateful Dead and the people who invented drug "tripping" and New Age spirituality.

Markoff tells the deliciously scandalous true history of computing in the '60s and also considers how that legacy matters. His principal focus is on one of the enduring ideological conflicts that first appeared then: the struggle between open and proprietary software. He presents a marvelous chronicle of the first open-source project, which was also the first video game: "Spacewar." He also describes some of the early attempts to supplant the open-community method with a proprietary regime, particularly those of a kid named Bill Gates.

Markoff has laid down a reliable record and begun the process of interpreting it, but much remains to be done. Many of the software layers we still use without thinking, like the air we breathe, are remarkably open, and this reflects the cultural context in which they were invented. For instance, when I arrived in the Valley in 1980, it was still considered somehow uncool not to live semicommunally. The ideal of communal living eventually came to be tempered (and was nearly destroyed) by the reality of interpersonal conflicts, which tore apart one group household after another in the 1980s. The architecture of e-mail as we know it was made up during the communal period; had the protocols been defined just a little later, a more realistic or even fatalistic model of human nature might have held sway. The early crafters of the idea of e-mail could have made it much harder to falsify a sender's identity, for instance, and we might have been spared some of the deluge of spam and viruses to which we are now subjected.

Markoff's narrative is organized around the stories of a few of the most creative and influential individuals of the time, such as AI pioneer John McCarthy and journalist/philosopher Stewart Brand. The most beautiful and nuanced portrait, however, is of Douglas Engelbart. Engelbart more than anyone else invented the modern user interface, modern networking and modern information management. In 1968 he demonstrated a computer he had been building, one that had rudimentary implementations of a mouse, windows, word processing, databases, network file sharing and so on. This demonstration turned out to be a transformative cultural moment—akin to the Moon landing, even if it wasn't as widely publicized.

There's an almost mythic sadness to some of the stories of the creative minds behind the modern computer. Engelbart wanted to build user interfaces to support virtuosity in users—the sort of virtuosity one would expect from a fine musician. But instead, to his profound disappointment, a compromise took hold in which only the less challenging of his ideas have come into widespread use. He and many of the other pioneers—Alan Kay and Ted Nelson, for example—labor on to this day, building the computer as they feel it should be, even as the world at large has adapted on a massive scale to a computer that to those pioneers is only half-born.

The book also captures an important early conflict between two cultures of computing that seemed compatible on the surface but actually had opposing aims. On the one side was the human-centered design work of Engelbart, based initially at the Stanford Research Institute, and on the other was artificial intelligence culture, centered on the Stanford AI lab. Engelbart once told me a story that illustrates the conflict succinctly. He met Marvin Minsky—one of the founders of the field of AI—and Minsky told him how the AI lab would create intelligent machines. Engelbart replied, "You're going to do all that for the machines? What are you going to do for the people?" This conflict between machine- and human-centered design continues to this day.

What might all this mean to young engineering students? At the very least, this book will probably serve as a hedge against complacency. How can they read these stories without wanting to prove that they can be more vital, revolutionary and inventive than a charming gang of hippies?

**Reviewer Information**

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