The Hacker Perspective

by Mevyc

In 1981, my father brought home a computer he had purchased. He was a systems analyst working for NCR at the time and I was just a little kid living in a working class suburb of Toronto. I remember helping him unpack this strange beige colored block-like device, as well as a small monitor and a printer. As I think back on it, my mind’s eye is telling me that it filled the desk we had placed it on in the spare bedroom. My father looked at me proudly and said “Learn this. This is the future.” It was weird to me at that time. No one else I knew in my life had such a device. I had no idea at that time how profound of an event was unfolding. Looking back now, I’m proud of my old man for having gotten it right - about the computer being the future, I mean.

Needless to say, I went to work immediately on this new toy. There was no GUI, only MS-DOS that stared back at you with a blinking green cursor at the command prompt. I imagined that it was alive like Hal in 2001: A Space Odyssey or like R2D2. The computer used big floppy disks, the likes of which are now mercifully extinct.

We had several disks worth of games to explore. I played my first computer game on it which employed the keyboard to make a crude figure jump over a barrier. It was supposed to be mimicking an Olympic event. There were other scenarios to play through which were just as enjoyable. There were other games, of course, which are rudimentary compared to what is out there now. When we weren’t in the arcade at the local mall or studying in the library, we were in the spare bedroom playing computer games. I know I’m dating myself by admitting this, but I remember a time when going to the library was a commonplace thing to do. It was the only way to actually learn new things.

Luckily for me, the games did not hold my interest for very long. The computer I owned could also make very rudimentary synthesizer-like sounds that I found fascinating. It led to a lifelong love of music that sustains me to this day.

Aside from gaming and music, solid academic work was done as well. In a time of typewritten papers and homework, I was a rock star, submitting my words fresh from my printer and computer. My teachers were impressed. The high school had a “computer science” lab, which of course I had to be a part of. It consisted of a half dozen computers, reams of printing paper, and one enthusiastic middle-aged teacher to oversee it. Participating in this, I met a wide variety of people who opened my eyes further. The computer at that time brought together somewhat disparate characters who might not have otherwise even spoken to each other when passing in the hallway. If you remember high school, then you know that this is a big deal. We learned real basic stuff - at least it seemed that way to me now. I mean things like Pascal, Basic, and Unix. It was a time before the Internet and long before the World Wide Web.

We never thought of ourselves as hackers, perhaps because our school at that time did not impose any real meaningful limits or restrictions with what we could do in “computer science” lab. It was an exceptionally naïve time, as I recall. No passwords to break. We had to invent our hacks and, by doing so, actually ended up learning how the machine worked. Knowing the coding part certainly was a big help. Learning the code was enjoyable to me. It was like a sheet of music. I could see what it would do and it seemed like magic that the computer would execute my commands. There was power in that and I could feel it.

I will not bore you with the details of what was learned in this crucial period. It consisted mostly of learning solid coding techniques and how to get underneath the operating system. Home computers were in their infancy and we weren’t connected to anything, so all we could do was hack the machine itself and modify it. Hit a bunch of random keys during boot up and
see what happens. Take the battery out and put it back in. See what happens. Insert anything that would fit into the computer in any way and see what happens. Unsophisticated by today’s standards perhaps, but it worked for me. But the home computer and the world were rapidly changing.

Then onto university it was. Despite my father’s best advice and consternation, I chose not to pursue computer science any further. It became my hobby at this point and still is. I quickly learned about Usenet and newsgroups. This was a time of free information and no real surveillance beyond the use of passwords and plastic ID badges; I helped myself to it without a care in the world. This is the period of my life where I came across my first issue of 2600.

I briefly lived in the dorms and met a clever fellow who was also into playing live music. He knew nothing about computers, nor did he want to know. He was a good guitarist though. He showed me how to turn an ordinary handheld transistor radio into a very unique sounding amplifier. It required a bit of engineering and there was a little soldering involved, and you could overload the signal and man was it cool. It was the first real "hack" I had seen and I was hooked. Every radio sounded different. I don’t believe I have seen objects in the same way since. Now my brain also thinks about what other purpose I could subvert it to. When I’m driving down the road and listening to music, my brain automatically tries to figure the key and chord changes. Similarly, when I engage technology, my brain tries to figure out the underpinnings of it. As a scientist, it seems totally natural.

Again, it was a time of lax security such as we will never see again. I discovered that the first four digits of your extension on campus was also your default password for the university’s Internet. It took some new professors weeks to figure that out. Meanwhile, we took advantage of this and navigated the landscape as privately as we could. I learned TCP/IP and file transfer protocol on the side while working towards a chemistry degree. I audited - perhaps haunted - more accurate - numerous computer-related classes which would fill a knowledge gap. They thought I was crazy. I kept my coding skills up by writing small projects in C that would help me analyze the data I was gathering when in wet labs. That ability to this day feels like a secret weapon.

I have in my pocket that no one knows about: knowledge combined with skill that I can whip out when needed in some other aspect of my life. To me, that is the essence of a hacker. It allows me insight into the inner workings of much of our hi-tech gadgetry. But more importantly, it leads to an unexpected enhancement of my otherwise routine daily life, which has nothing to do with hacking. I must point out that, despite how “cool” hacking may seem to some now, most people were simply bored with computers at that time due to the lack of a real GUI and the Web as we now know it. It was right around the corner though.

The web was in its infancy when I started graduate school, working towards a PhD in biophysics. We surfed it with the help of the early era (now prehistoric) navigators. The Usenet type stuff was still particularly useful for me as a nascent scientist in training, as I tried my best to ward off unforeseen failures in the lab. At one point, dangerously low in funds, my project stalled due to the lack of a proper interface card that would allow my oscilloscope to communicate with my lab computer. I was trying to measure the rate of a chemical reaction that lasted only about a second or two. We couldn’t buy a card, as that would have meant upgrading the scope as well. I was in Detroit at that time (my father was now working for Chrysler), which is a place that can really beat you down when you’re weak, or any other time too. But I had my secret weapon. I was able to connect the oscilloscope to this old computer and, through some coding and soldering, I accessed the relevant ports involved and dumped the raw data into a file for later analysis. I guess looking back, I had created my first hack and “app.”

I helped other graduate students bootstrap similar solutions for their projects.

Then the Web arrived more or less in full force. The days of walking around and not knowing things were over. Or so it felt to me. It always struck me that people don’t really value knowledge or information. My years in Detroit are filled with memories of old buildings, amplifiers, dusty old labs fit for Dr. Frankenstein, and microphones, along with spending free time trying to figure out which was the best software to use to create C/C++ projects. This was also the time when we were able to email each other with relative ease. I distinctly remember that it made my world seem smaller.
in the sense that my Canadian friends were at my fingertips. There was a real sense in the air that things were becoming global. It was clear at that point that landlines would become extinct or, at the very least, rare.

I left Detroit with a newly minted PhD and enrolled in medical school in the American Southwest. Napster had recently been released and I spent hours downloading music when I wasn’t being tortured into being a more compassionate physician by a well meaning faculty of experts. A deep conviction in my beliefs and my old Les Paul got me through those difficult years. Napster revealed to me the power of coding, in the sense that now it was possible to actually come up with a discreet application and disseminate it nationally very quickly. The reaction Napster garnered from the music industry and resulting litigation was also indicative of things to come. We lived in a time where one man, working alone, could create something that could quickly change the lives of millions of people. During my cardiology rotation, I actually got my hands on some pacemakers and got to help put some in and interrogate them. Remember Dick Cheney being worried about his pacemaker being hacked and asking doctors to disable remote access? Let us just say he had good reason to be cautious.

You may think that as a physician I would have little to gain from viewing the world from a hacker’s perspective. You would be wrong. When I was young, few people probably envisioned the role that personal computers and the Internet would eventually play. It seemed farfetched at the time. That time is now here. Consider the fact that there are new medical training fellowships called “clinical informatics” that are being offered to healthcare providers. There are talks of full-fledged medical residencies focused on bioinformatics. Electronic medical records are ubiquitous now in private practice and hospitals. As a result, the medical field has a veritable treasure trove of medical data on millions of people, which is potentially worth billions of dollars to drug companies. Malware and hostile hacks are now commonplace threats to your medical privacy - not just your credit.

The circuitous route I took to get here allows me a deeper insight into the nature of our evolving cybermedicine than the traditional route can afford. This is what a hacker’s perspective can bring to the table. This is what hacking means to me. Plus it helps you get around the onerous blocking software that your employer thinks is making you more productive and focused. No one should have to wait till they get home to check hockey scores.

This knowledge, skill, or insight is even more precious now than I could have ever imagined back then. Learning similar skills today is likely more difficult compared to the ease with which we did it 30 years ago. Employers, commercial entities, and governments perpetrate mass surveillance wholesale. Any technology that resists such intrusions, or any skill which may be used to fight it, is made suspect and predictably linked to criminal activity of various kinds to further stigmatize it. I know people personally who are afraid to download and set up Tor for fear of some kind of reprisal. Is it paranoia? Is it common sense? I don’t know anymore.

I counsel my young patients and try to light a spark in them and encourage them to stay healthy and sharp and become lifelong learners. I try to remind people not to focus too much on the technical objects in our life, but to also figure out what makes people tick. Nurturing a pattern of self-inquiry will ultimately also reveal the deep-rooted psychological motivations of yourself and other people. If you constantly question and seek to understand the true nature of what is motivating you, it will lead to more appropriate actions. This is the beginning of understanding effective social engineering techniques and is as important as the technical aspects involved in a good hack.

As I enter the soft middle-aged phase of my life, I plan on sharing my thirst for knowledge with anyone who listens. I will continue to jam, investigate more things, help stamp out disease in my corner of the world, and prepare to be amused by our future creations. But I am a hacker and I will always be peering at the underbelly of it all, wondering what other use I can put these skills to. Soon it seems likely there will be brain-controlled prostheses and brain-machine interfaces that will transform our world again in a profound manner. Oh, and those of you who were worried about GMOs, please educate yourself about CRISPR/Cas9 technology and get ready. Imagine the hacks we’re going to see!

Mevyc was last spotted near the Mojave Desert. His preferred method of communication is via smoke signals, though he has occasionally responded to emails sent to mevycfla@gmail.com.