Growing up, I possessed few material objects. We were recent immigrants to America on a very tight budget. We also moved a lot and with each move, I was forced to bring only the things I couldn’t live without. One object that I consistently had throughout my childhood was a pencil. As a child, I was fascinated by the traces a pencil left as I brushed it against a surface. I couldn’t do that with many other objects. The traces it left were ephemeral. If I rubbed my sweaty fingers on it, the traces would smear and lose its sharpness. I could also erase the traces entirely. I especially liked how the traces would differ in sharpness or shades depending how I held it. If I applied a lot of pressure, the pencil would leave a darker and clearer trace. If I lightly held it, the pencil would leave a faint and almost transparent trace.

Whenever I lost any of my pencils, especially one I had spent innumerable hours with, I would feel a sense of loss. Even though they all had the same basic design and some were even from the same box, I had understood each one separately. Each had a different weight depending on how much of the pencil was left after many sharpening sessions. They could differ in smoothness, in how easy or hard it was to drag it along the surface of the paper. Eventually, however, I would warm up to a new one, though not without some initial suspicion in how we would connect.

The pencil was a vehicle for me to pursue one of my most special childhood hobbies: drawing. Through drawing I explored the images within my mind and what I witnessed around me. In drawing what I saw, I learned about how light changes across an object to illuminate or hide its shape. As I worked hard to replicate what I saw, I learned about the structure of things, the beauty of symmetry, and harmony of proportions. And as I drew my thoughts and sights, I also created more objects to examine. What made one drawing more real than the other? In learning to draw people, I also began to see the nuanced ways people raised or lowered they eyelids or shift their lips. And in examining their
faces, I wondered about their feelings. Could what I draw on paper capture what they felt on the inside?

And as I grew older, I acquired new instruments that also left traces. I acquired pens, but it was nearly impossible to erase. I acquired colored pencils, through which I imbued my monochromatic products with warmth and coolness. And when I started playing with computers in my elementary school, I discovered MacPaint and found the pencil icon. Thrilled, I clicked on it only to find myself not experiencing their pencil as I experienced mine. I could not hold the computer pencil as I would hold my own. Instead I laid my hand on a plastic mouse while holding one mouse button down. The pressure I placed on the mouse did not determine the sharpness or shade the pencil produced. Instead to change such properties, I had to let go of the pencil and select from a series of stroke options and then return to the pencil. It was very awkward to draw. The mouse was difficult to control and I could not draw smooth curves or be as precise as I wanted.

I left that experience with the MacPaint pencil unconvinced and deceived. As I continued to explore the capabilities of a computer however, I eventually found computer programming when I was 16. I found I could control the computer programs as precisely as I wanted as long as I spoke the right language. Programming became especially meaningful for me when I learned how to create art or “draw” using the computer. It was one thing to draw a line, but how about 10,000? I could program 10,000 pencils to not only draw lines but to create shapes, patterns, and textures beyond my own physical capabilities. As I worked on the computer, I constantly referred back to my experiences with pencils. I no longer created strokes by my hand alone. Yet, I could precisely tell the computer how I wanted the strokes to be done. I couldn’t rub the screen to erase my traces, but any errors in my drawing were only errors in my program. I liked how after many uses, my program did not expire as my pencils did. In fact, I could replicate each program to its exact parameters, through copy and paste. And as I created new programs, each one was special in nuanced ways.
Nowadays, the time I spend with computers overwhelm any time I spend with pencils. What has stayed the same though is the kind of fluency I had with my pencils. I still use the computer to create objects to examine my thoughts and the world around me. In particular, I learned how to express my thoughts to a machine that produced art I could not do on my own. In relating my experience with pencils to my new experience with computer programming, I came to see the computer not as a tool of computation but as another vehicle of examination and expression.