Tell us about your experiences as a New American. Whether as an immigrant yourself, or as a child of immigrants, how have your experiences as a New American informed and shaped who you are and your accomplishments? Feel free to discuss how individual people (such as family or teachers), institutions, aspects of law, culture, society or American governance made an impact on your life as an immigrant or child of immigrants. The program is interested in understanding the context of your personal, professional, and academic accomplishments.

My family’s values have sparked an interest in sustainability. My mother grew up in an oppressive communist regime in Poland. When she was in high school, she found an outlet in nature. Whenever she got a chance, she would hike alone or with friends from hostel to hostel in the Carpathian Mountains. Therefore, when she was raising my brother and me in America, she took us on camping trips to Sequoia, Kings Canyon, Yosemite, Grand Teton, Yellowstone, Zion, Bryce Canyon, and the Grand Canyon National Parks. Some of my best memories are from these trips. However, these natural wonders are in danger of being destroyed by anthropogenic pollution and climate change.

My dad’s childhood is tied to Silesia, a Polish region known for its coal mining. My grandfather, who was a mining engineer there, was sent by a Polish firm to oversee the building of coal mines in underdeveloped countries, as commissioned by local industrialists. As a byproduct, my dad grew up in India, Pakistan, and Nigeria. Mining coal is dangerous work; days are spent in cramped tunnels where a triggered leak of methane can cause an explosion, igniting the walls of the underground mine. This is an industry that extracts natural resources for the aim of profit while putting the safety of workers at risk.

My immigrant background has made me realize that traditional energy sources are threatening natural beauty and promoting worker exploitation; I have been fortunate to get an education that will enable me to make a difference in the green energy transition.

As a second-generation immigrant, I followed the well-beaten path of pursuing engineering at the STEM powerhouse of Caltech. However, the freshman general chemistry class changed my mind. Learning about how the geometry of electronic orbits affects global chemical properties was fascinating. This prompted me to do a summer internship at Caltech, where I used atomistic simulations, a computational technique that models the behavior of atoms to allow prediction of their composing molecules, to study photocatalysis, which harnesses the power of the sun to speed up chemical reactions.

I was amazed by the power of these atomistic simulations. The next summer, I joined a quantum chemistry research group at Caltech that develops them, this time to study heterogeneous catalysts that enable the sustainable production of artificial fertilizers. Finding this research interesting, I have decided to pursue graduate study in quantum chemistry. However, in the middle of my junior year, I was diagnosed with leukemia and then suffered a stroke, which impaired my motor skills. The presentation of the stroke is such that my gross motor function is impaired, so I use an assistive device to walk; I have a fine motor impairment, so my ability to handwrite or type is slow; and I have spastic dysarthria, so the rate, intonation, and intelligibility of my speech are affected.

In order to perform my research, I need to be able to program effectively. I use GitHub Copilot, which is a black box tool powered by AI to give suggestions as you code. It can be thought of as Microsoft Word’s autocomplete on steroids. I also use ChatGPT in unconventional ways. I have learned to do prompt engineering, where one designs an instruction for interpretation by a generative AI model. The initial idea was just to tell ChatGPT to “act like a proofreader” and fix the misrecognitions in my dictated text (of which there are many due to my speech impairment). However, I went further by also giving ChatGPT an example of my raw dictation with its many misrecognitions and then a clean version of what I had meant to say. For example, I might give ChatGPT an example of my bad dictation recognition: “The quick front dogs jumps over the late dog,” whereas it knows that I had meant to say “The quick brown fox jumps over the lazy dog.” ChatGPT then uses this contextual information to anticipate what typos I might give it in the actual text that I want it to correct. In reality, I use the longer example of the “rainbow passage” for this purpose. I knew of it from speech therapy evaluations, where the therapists use it to determine what needs to be worked on, since it concisely encompasses all common sounds of the English language. Armed with this context, ChatGPT is able to output a more accurate rendition of what I had meant to say. After feeding the piece of text that I want fixed and the aforementioned example into ChatGPT, it spits out a response in seconds for a fraction of a penny. The fact that this cutting-edge technology that I rely on to participate in scientific research originates from Silicon Valley makes me proud to be an American.

The physical disability is not a worry because of the Americans with Disabilities Act. You do not think about these things when you do not need them, but I have found that most doors that I must pass are accessible through an electric press, and I have a pass for priority parking near my destination. I really wanted to do my first flight since the stroke, for a school visit to UC Berkeley, independently. However, I was cautious about this because airports are a place of constant bustle, at which my slower walking speed would not fly (no pun intended). But after this experience, I realized that I have no reason to be concerned. I went to the check-in desk at the airport, told the person that I needed wheelchair assistance, and then was wheeled into my seat on the airplane. I joke to my friends that I get through the TSA faster than anybody in this way because I am allowed to skip the line in my wheelchair.

Because of my identity as a New American, with access to American disability resources enabling me to do scientific research, I am emboldened to pursue a career in sustainability.