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?

As a child of Polish immigrants, I have gained an interest in sustainability. You should not have a dangling sentence as a paragraph. You need to say why. If you make this statement is there something about sustainability practices in Poland or the culture of your family that encourages sustainability? Without such info, this is not a meaningful statement. I have noted below how to get into this.

My family’s values have impacted by interested not just in science, but 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 I 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 enough to get an education which will enable me to make a difference in sustainability in the field of chemistry.

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 in the chemistry department, where I used atomistic simulations, a computational technique that models the behavior of atoms to allow prediction of the properties of the molecules they compose, 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 which 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 is affected.

These last two bits are most important for my academic aspirations as they are the prerequisites for effective scientific communication. In response, I took the initiative to learn dictation to code by voice, which mitigates my fine motor impairment and also happens to be very good speech therapy for me! Because of my speech impairment, the computer doesn’t register everything perfectly, but all of the commands are customizable, so I am able to choose the ones that register well for me. For example, I might just have to say super in order to write supercalifragilisticexpialidocious. Along the way, I have dabbled in prompt engineering, where one designs an instruction for interpretation by a generative AI model. The first step was to create a “no-shot” prompt, where I just told ChatGPT to fix the misrecognitions in my 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. The text I used for this example was the “rainbow passage”, which was used in my various speech therapy evaluations since it concisely encompasses all common sounds of the English language, in order for the therapist to determine what needs to be worked on. The idea of this latter “one-shot” prompt is to give the AI more context, so that it better knows what type of misrecognitions to expect from my raw dictation, and therefore output a more accurate rendition of what I had meant to say. After feeding the piece of text that I want fixed, my instruction, and the aforementioned examples 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 originates from Silicon Valley makes me proud to be an American and allowed me to continue to actively participate in scientific research and communicating that research.

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 largely 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 need 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 on my wheelchair.

Because of my identity as a New American, with a global perspective on environmentalism and access to American disability resources, I am emboldened to pursue a career in sustainability. This sentence comes out of the blue. I think you can cut down on the facts on how you code, etc. in paragraph 7. This degree of detail is not needed and compromises your abilty to get back to your sustainability theme.