

Personal Statement: Charlene Miciano

My mom would bombard with me with the question, “Why?” constantly probing me with the word no matter how unreasonable it was to ask. Her unwavering questioning influenced my own inquisitiveness and gifted me with the urge to understand. One day I came to school in second grade without any eyebrows. The night before, I had complained to my mom that my eyebrows were itchy and pulled all the hairs out. My forehead appeared to sag over my eyes, giving me a grouchy expression. This came without explanation, and I learned that the incident was a culmination of the skin disorder I had suffered through my entire life: eczema. These crimson, inflamed, patchy rashes spawned all over my body and were dying to be picked. Even though I did not know why these urges happened and why the rashes occurred, I would examine the root of the hair between my fingertips the flake of the skin, or the plaque-filled rash with scrutiny, searching for a hidden cause that I could not determine.

Even though eczema stems from an unknown cause, I did not accept the fact that there were some things I would never know. Through my mother’s influence, I continued to question the cause of everything around me. I remember pouring chocolate milk into an aquarium to see how the chocolate milk would diffuse, seeing how the saturated waves swirled within the fish tank, spreading out in thin ripples. I wondered why it happened. I remember sprinkling baby powder out my parent’s window and watching the powder scatter in the wind with the same question. The burning question of “Why” consumed me. Luckily, the curiosity-fueled chaos that I had committed as a child has disappeared, but the little scientist that developed in me has remained. I imagine the world as a giant playground, a marble-shaped terrarium waiting to be explored. Because I don’t know why my eczema happens, I am even more motivated to find an answer.

The curiosity that I exuded led me to robotics in middle school. I stumbled in one meeting having seen a demonstration of the robot at a school district parent meeting. I was in awe of its movements. How was it possible to assemble seemingly random pieces of metal and get it to move? How was the robot able to capture small ping pong balls and shoot them into a net from five feet away? I had so many questions in my head that were dying to be answered. I wanted to pick the robot apart and examine in it like I would examine my hair and skin. The movement and the mechanics of the robot were hypnotizing. So I attended a competition as a guest, curious to see what these robots had to offer. I remember the moment I watched a match, seeing robots the size of large dogs, zoom around the floor. The setting seemed exactly like a major league basketball game, but instead of humans passing around the ball, there were robots. I gawked at the amazing creations that came in various shapes and sizes. Some looked like metallic catapults that vaulted several basketballs into a hoop at a time. Others resembled cannons and would accurately shoot a ball while moving at high speed. There was even a robot shaped like a cube, with a hole in the center designed to shoot out a basketball.

Having been in awe at the competition, my friends and I started a team at our high school. None of us had any idea how to build a robot, let alone get it to move, but we all wanted to take on this challenge.

Suddenly I was thrown into the technical world that is robotics. I still remember powering on the electronics, afraid that they would short-circuit. I had just connected a circuit that included a digital sidecar, a power distribution board, and a controller, none of which I had known prior to joining. The wires criss-crossed across the robot in a scrambled mess, but the circuit worked when I powered it on. I remember the first time I downloaded LabView, the language I use for programming, without any knowledge of programming and having to learn it from scratch without any guidance.

Sometimes, I would go days without a reason as to why the robot's wheels moved while nobody was driving it, or why the wireless connection between the robot and laptop wasn't working. I had to troubleshoot what was wrong with the injured robot, checking the hardware for signs of physical damage and debugging code in a manic treasure hunt. By the end of each day, my teammates had to physically yank me from of my laptop, as I was so determined to find an answer and did not want to leave. I also remember the times when we worked so late into the night. The front gate of the school was closed, the janitors had left, and the only company we had were the dim school lights. All seemed quiet, but in the robotics room, a team of rookies were hard at work on a custom-made robot that had to be finished in six weeks. Slowly, as the days passed, I started to receive the answers to my questions that I had initially asked in middle school. I learned how the electronics powered the motors. I learned how angles affect how far an object is ejected. Most of these answers we learned firsthand, as we were the founding members of our team.

After all of the team's hard work, I was able to look at our hundred pound, fully wired, aluminum robot and say, "Hey, I gave life to that heap of metal." Compared to other teams in competition, our team was small and inexperienced. Despite those setbacks, we made a lasting impression at our high school, by becoming pioneers of STEM culture. What started out as an interesting idea between friends became an opportunity for students at our school to grow their interest in STEM when they previously didn't have the means to do it.

All in all, all my life I've been searching for answers fueled by my curious background and found an outlet for these questions through my involvement with robotics. My captivation with the minuscule and unknown that is my eczema combined with an interest in programming has led me to pursue bioinformatics. DNA, full of information just waiting to be discovered, has influenced my entire life. From DNA, I could find the answer to my eczema and truly discover the reason "why" at the microscopic level, infinitesimally smaller than the flakes on my skin or the scatter of particles. Pursuing a career in bioinformatics will allow me to learn more about myself and others that have also been affected by eczema. I want to learn the cause of the disease and treat it.

Why do I deserve this scholarship? An awardee of this scholarship is hard working, intelligent, and perhaps a bit stubborn. There were times when I was working on this robot that I didn't think my goal would be achieved, that I wouldn't be able to program a robot within six weeks. I would stare at a screen filled with code and not understand a thing. However, I kept my head up, brushed off my negative thoughts and continued to learn. Every time I achieved something new, I rejoiced. Because of the small achievements I made, I became more determined to continue programming, because I thought, that I was getting closer to an answer.

Now I speak robotics fluently in terms of experimenting with my code and electronics. Robotics has revealed my persistent attempts to repair a problem. It has revealed in me the detective, whose careful eye found the clues to solve this complex mystery. This was the answer that I looked for in my eczema, and it was also the answer that I looked for in my work.