My first memory of the ocean was with my Grandpa Armando. He took me to his beach house in Ventura, California, and I remember being amazed at how rich he was for having a beach house. Now that I'm older, however, I've come to realize it was an old one-bedroom house that he could barely afford and was a good 20 minute walk from the beach. But to him, it was worth it, as diving was his favorite thing to do in Mexico before he came to the US. On our beach trip, he carried me into the water even though I was hesitant. He dunked my head underwater without warning, like a baptism I wasn't ready for but ended up appreciating as I grew older. Despite my annoyance for being dunked without permission, he urged me to grab a snorkel and go for a swim. I reluctantly got back in the water, and I couldn't believe how clear the ocean floor looked with goggles. The water was dark and vast and frightening, but also amazing. I felt like I could hold my breath and stare at the swimming guppies forever. From that day forward, I fell in love with the ocean.

With my love for the ocean and building things with my hands, I always aspired to become either a marine biologist or an engineer. I constantly felt torn, feeling like I had to choose one discipline over the other. I ended up focusing on engineering when I enrolled at Harvey Mudd since the program was more broad and hands-on. When I declared my major as engineering at Harvey Mudd, I felt like I was leaving my passion for marine life and biology behind, which is what encouraged me to apply for the Monterey Bay Ocean Science REU Program; CSUMB REU is multidisciplinary–focusing on environmental sciences, biological studies, ocean engineering, and mechanics, which is the type of research I strongly desire to be a part of. I would love to research how ROVs and AUVs can be programmed to examine the ocean's health and protect marine life. If I were a part of this research, I'd be indulging in my curiosities about biological sciences, and I'd be able to see how engineering practices can be used to repair the environment and Earth's ecosystems.

I am currently a second-year in my spring semester at Harvey Mudd College, where I am majoring in engineering with an environmental emphasis. I am also concentrating in anthropology since it's important to be able to understand the sociocultural backgrounds of others. Furthermore, I aspire to get a master's degree. I'm not entirely sure what subject I would like to study for my master's, but hope to combine my interests of energy, environmental, mechanical, and biosystems engineering. Being a part of this research would be an amazing opportunity for me to expand my knowledge in the interdisciplinary fields of engineering, and I would be able to see how different experts can work together to accomplish the same goal, despite working in entirely different fields.

I have displayed great talents in technical applications, such as Python, MatLab, and Excel. I am currently developing my skills in AutoCad and SolidWorks due to the research I am

participating in with Professor Leah Mendelson, referred to as the Flow Imaging Lab at Mudd, where my job is to design a new load cell for our experiment and use particle image velocimetry for image processing. Many of my engineering classes require group projects. When I work in a team, I am respectful and patient with my classmates, and ensure that everyone in our group has had a chance to communicate their ideas and ask questions. In my engineering design and manufacturing course, ENGR004, our group project was to build a prototype of an optics cart for a client. Building this prototype made me develop proficient outside-the-box thinking. In this course I also had to build a hammer and an ocarina, so I am familiar with machines (i.e. lathes, mills, heat treating, etc.), wood shop, 3D printing, laser printing, and laser jet water cutting. I've also had the great opportunity of building remotely-operated vehicles and autonomous underwater vehicles in my engineering lab courses. I've never worked with ocean instrumentation, but would love to learn.

I will dedicate myself to anything I put my mind to. During my first two semesters of college, which was entirely online, I worked 25-30 hour weeks at McDonald's so that I could financially prepare for my remaining years in college. I am also a devoted collegiate athlete in cross country and track and field for the Claremont-Mudd-Scripps running program. During the online school year, I trained everyday by myself despite not being able to compete due to COVID, which shows my drive and dedication to the things I'm passionate about. This drive is also evident in my academic ability and work ethic. I am enrolled in two extra classes for the Spring 2022 semester–an environmental analysis class and comparative physiology class–despite the heavy workload of my engineering courses. I chose to do this because I am dedicated to learning these disciplines. Furthemore, I have maintained a cumulative GPA of 3.290 despite having ADHD, graduating from a high school in an indigent community that lacked many academic resources (especially in STEM), and having to complete my first year of college online.

These days, the climate crisis is becoming a more urgent issue to repair, and the ocean is suffering as collateral damage. As someone who can't remember a time they weren't amazed by the vastness and diversity of the ocean, it's essential to me to apply my engineering knowledge to protect it. Overall, I want to learn how to apply my engineering degree to serve humanity, help the ocean's ecosystem, and support sustainability. I truly feel that participating in Ocean Science Research at Monterey Bay will teach me how to do so, and I look forward to potentially being a part of the Monterey Bay REU program.