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Jiffy Lube Scholarship Essay

Always being intrigued by how things worked, I spent much of my childhood taking apart, fixing and building everything from broken appliances to a hand-made mini trebuchet. It was in high school, however, when my passion for engineering truly grew as I was exposed to a plethora of new fields within STEM. In the summer of 2022, I was accepted to the Apprenticeships in Science and Engineering internship program through Saturday Academy. During the summer, I worked under the mentorship of an electrical engineering professor at Portland State University to design and build a portable wind turbine. Throughout this internship I became proficient in a variety of hands-on engineering skills including designing 3D printed parts, printed circuit boards and the construction of several wind turbine configurations.

Eager to continue my exploration of engineering, I kept in touch with my PSU internship professor and was asked to return to her lab the following summer to collaborate with a graduate student on his thesis research. Starting in June of 2023, we worked on designing, building, and testing a power converter that was capable of buck-boost and DC to AC operations, while implementing soft switching methods to reduce electromagnetic interference and improve efficiency. In preparation for this position, I spent the preceding weeks falling down a rabbit hole, trying to wrap my head around the physics behind power converters, switching devices, and the field of electromagnetic compatibility. While delving deep into these puzzling concepts, every grain of understanding came with an even greater awareness of what I did not yet comprehend. Despite this, I embraced the opportunity to teach myself how to learn and problem solve in real-world situations. Apart from helping test and construct the power converter, my main responsibility was designing the carrier board. In the process, I created schematic sheets, component footprints, and the board layout. Working with the graduate student gave me insight into what teamwork looks like in research, as we collaborated with a variety of professionals with specialized knowledge to navigate the many technical complexities of our research. This

environment spurred my curiosity, as complex problems brought diverse minds together. Though learning and applying the concepts was far from easy, I always felt pulled towards the challenge, getting in over my head with everything from space vector modulation to gallium nitride switching devices and loving every part of it. Most importantly, this internship sparked my interest to pursue electrical engineering, changing how I view myself and my future in STEM.

Not only does electrical engineering combine my interest for STEM and problem solving, it is also increasingly relevant as humanity works towards creating a sustainable future. With a degree in electrical engineering, I will be able to work towards making a more efficient grid system that can harness the variable power output of renewables to consistently meet energy demands. This ultimately is what makes me most excited about electrical engineering, as it intertwines my love of engineering with the possibility to make positive impacts for our world.