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Mechanical and Aerospace Engineering

While completing my undergraduate engineering degree, I have taken every opportunity to expand my knowledgebase both within and without the discipline of engineering. This has allowed me to develop a skillset that affords me the ability to work on diverse teams of students comprised of engineers and non-engineers. Additionally, my studies have provided the technical knowledge necessary to contribute to any project I work on. I am applying to the University of California, San Diego, because I want to apply these skills to innovative work in the energy fields.

Mirroring the importance of this skillset is the ability to work with others from dissimilar backgrounds. After excelling in his heat transfer class, Dr. Miller (a professor of mechanical engineering specializing in heat transfer) invited me to work in his Solar and Combustion Laboratory. Through my work on the NASA-funded flame channel aimed at modeling microgravity flame propagation, I have had real world work experience on a research team populated with students from around the world. This work included a redesign of the flame channel in which I was personally responsible for the fluid dynamic theory as well as the development of a mechanical system to aid in this flow. I found that I was able to work as an individual contributor to the project and also work closely with others to finish the project within given deadlines. Through this position I realized a cyclical quality about design: my knowledge from theoretical study aided in my mechanical design, which, in-turn, required my extensive knowledge of trouble shooting and programming, that, finally, required theoretical knowledge of the design. My view of cyclic design and team work is something that I hope to bring to the University of California, San Diego.

This idea of cyclic design was crystalized after I won the Italian Machine Tool Design award. This award required extensive computer design work with Dr. Impelluso (a mechanical engineering professor specializing in FEA analysis) on the design process in America. The award required a two week trip to Northern Italy where I learned about the Italian Design Process. During this trip, I had the pleasure of applying my cyclic view of design with students from around the world on design problems associated with the courses offered at Milan Polytechnic. Through working with these students, I gained a fundamental understanding of the necessity of working with interdisciplinary students to achieve a truly unique solution to the problem.

My penchant for bringing diverse teams together to solve unique problems was grown through my involvement with campus organizations. Through my leadership within the University Honors Program, I have worked with students with backgrounds from across the University System. This involvement included project planning designed to show students the necessity of working together on engineering and non-engineering issues. This involvement has prepared me to foster work environments that encourage diverse thought processes through the inherent multifariousness present in the group.

Additionally, the ability to work in an adverse environment, with equipment that is not completely familiar, is paramount to a successful engineer. During my undergraduate studies, I worked as a Domain Administrator specializing in server and computer maintenance at San Diego State University. This work made me fluent in a variety of programmatic languages, and taught me the necessity of active problem solving. Because of this work, I am able to approach a complex computational system that I have no working knowledge of and actively work to make it operational.

My undergraduate experience was culminated in being crowned Homecoming King, an honor given to the student on campus who exemplifies dedication to scholarship, leadership, and service. I am applying to the University of California, San Diego, because I want to use all I have learned to contribute meaningfully to the fields of energy research.