

CHASSIS PLANS LEADERSHIP IN ENGINEERING SCHOLARSHIP 2014 ESSAY

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August, 2014

Prompt: As an Engineer, what do you see as the most socially important project you might have an opportunity to work on?

I believe that engineering is very unique in its ability to not only have the potential to do good on a social scale, but to also have a wide-reaching scope that can touch so many people's lives. This is one of the reasons that I chose to major in engineering, and as I progress further along in my college education, I am able to see more and more how engineering can make an impact and how fortunate I am to have the opportunity to work in this field. Automobile safety is something I am very interested in, and as an engineer in training, I strive to one day be able to ease the safety concerns of others, as well as the severity and frequency of accidents. Working on projects in this area would be very fulfilling, not only because of the potential positive benefits to society, but also because this topic is so important to me on a personal level.

Thirty-two years ago my grandmother was hit by a car and severely injured her back. She was walking in a parking lot as a pedestrian and was suddenly hit by a driver who quickly accelerated backwards out of a parking space and did not notice that my grandmother was there. At the impact, my grandmother was thrown several meters back and broke several bones. The doctors told my grandmother that she was very lucky to have survived. Sadly, the accident has negatively impacted the quality of her life. She is still living with the pain of the injury today, and it severely limits her mobility on a day to day basis. While we are lucky simply to have her, I realize now as an engineering student that with some of the developing automotive technology that we have today, the accident she experienced could have been less serious or even prevented entirely, and my grandmother could likely be living pain-free. If the car would have alerted its driver of my grandmother's presence, or even stopped itself, the outcome certainly would have been less severe.

I know that far too many people have had accidents even worse than my grandmother's, and while large strides have been made in improving transportation safety, I believe that there is still so much that we can do. Through innovative sensor design, as well as improvements in protection for drivers and passengers in multi-vehicle accidents, I think that we can reduce the staggering amounts of car injuries and losses that sadly still exist. Because cars are such an integrated part of today's society, it makes a lot of sense to invest in research and development of technologies that would make cars and other vehicles safer to operate and less of a threat to drivers, passengers, and pedestrians.

As a mechanical engineering student, I am very excited at the prospect of being able to work on projects involving automobile safety. I believe that safety is very multidisciplinary and is a global concern, and that as a mechanical engineer I will have the opportunity to collaborate with other kinds of engineers from all over the globe to participate in efforts and research to improve safety. I would find it so fulfilling to be able to take part in the engineering of technology that could save the lives of more people than I could ever even meet. I believe that I am on the right track to be qualified to work on such important technologies by making the most of my education, working the hardest that I can in school and by actively seeking out opportunities to obtain hands-on experience in the engineering field.

Currently, I am participating in a 10-week full-time summer internship at UCSD's Scripps Institution of Oceanography, and while I am not working directly with cars and car safety, I am learning a lot about the design and building of sensors, some of the key components of safety design. Through the internship I hope to learn more about sensors, as I will be building one to be deployed on a research vessel. I have discovered that many sensors that I am working on have had the same design for several decades now, and presume that with further research, these and others that are used in cars might be able to be improved in accuracy, size, or scope.

I have also had the opportunity to work with UCSD's Engineers for Exploration, assisting with the development of motion detecting cameras, and have discovered how engineering tools can have applications in many fields. With Engineers for Exploration I have been able to work on the design of an "Intelligent Camera Trap," which is designed to record footage when its motion detector is triggered. Through these projects I have learned a lot about mechanics, use of materials, and designing in order to optimize space and power. While the primary application of the Intelligent Camera Trap is to record footage of endangered animals, the technology involved could definitely have applications in the field of automobile safety. Technology like this could have saved my grandmother from her accident, and I am very fortunate to be exposed to and participate in projects such as this one during my first year of college.

Perhaps by making use of technology not traditionally thought of to be a part of automobile safety, we can indeed find applications that, out of their traditional contexts, could help save lives. Technologies from robotics, aircraft, electronics, and even biomimicry may have undiscovered and significant contributions to automobile safety. Additionally, I believe that there will be great improvements in vehicle design, both in structure and composition. These two aspects of automobile design have not yet experienced the dramatic kind of transformation that other, more "high tech" aspects of vehicular safety have, and I believe that there is still untapped potential in making cars more resistant to collisions and other accidents by way of their design, and the materials that they are made up of. These changes could combine with inventive ways of incorporating detection and prediction/prevention of accidents into the workings of cars, and will have the possibility to save so many lives. Combined with increased autonomy in vehicle operation, I believe that these developments will help people stay safer around the world. For me, it would be incredibly fulfilling to be able to contribute to these advancements as an engineer.