

ME Statement of Purpose

I have always been inspired by the way that real world phenomenon can be illustrated through mechanical engineering principles. Solving meaningful practical problems using theoretical knowledge is exactly what I am interested in and pursue. After several years of studying in this field, I know what I want to do in the future: attend graduate school in the United States, and become a professional in the field of Mechanical Engineering. My desire to utilize and improve my knowledge and skills has led me to pursue an XX degree from XXX University.

My journey in the U.S. began earlier this year, when I became an exchange student at the University of California, Riverside (UCR). Studying at UCR has been very helpful in my transition to future study at graduate school. This semester, I am maintaining full course load, and I have achieved perfect scores in several exams. I have also devoted time to working in Professor Thomas Stahovich's lab on a data-labeling project. After a very short time in this research lab, I have already mastered the skills required for fundamental procedures, such as expanding the database by analyzing and labeling image-based hand-drawn sketches and recording nearly every recognizable part of hundreds of students' handwriting. I also taught myself to use the C# programming language to write Code for retrieving and extracting core data from thousands of text files. I have enjoyed this hands-on experience; by quickly learning

advanced programming skills, I have brought new ideas to technologies which hardly seemed possible a couple of years ago. I gained perspective on the urgent need in engineering for training in computer science, which could improve how we deal with complicated issues.

My past trainings in mathematics and engineering powered me with rich experiences in mechanical engineering. Being majored in Engineering Mechanics at one of the best engineering school at Harbin Institute of Technology (HIT), I went through rigorous trainings both from curriculum, and research opportunities. I struggled at first. Then, I learned from various research opportunities how to expand my knowledge beyond what is in the book. I found that practice can shape theoretical understanding. The growth of my GPA after my second year reflects this learning process.

During an innovative class in my second year, I had an idea about propelling a cylinder with constant force which can work in low-gravity environments. I designed a series of experiments, using my knowledge of engineering and mathematics to theoretically test if the cylinder could work effectively. I overcame many difficulties that every junior researcher may encounter, and successfully built an ideal cylinder with nice properties I wanted to embed. I wrote a research paper about my findings, and submitted it to an English-language journal. I also applied for a patent for my project's originality and value. What I gained from this experience was not just the knowledge I learned from my research investigations, but

also a complete satisfaction of being an independent thinker and problem solver.

In the end of my sophomore year, I got opportunities to participate a national research project on the Design of Underground Mine-used Movable Rescue Capsule. In addition to working on the mechanical analysis of the capsule's structure with a whole picture, I devoted myself more into quantitative analysis to the stress-strain of the capsule's body, optimized the structure's truss system with limited weight, founded the fluid-solid coupling field, and simulated the conditions of squeeze and explosion underground by finite element method using ANSYS. I have enjoyed working independently, as well as collaboratively with a group of excellent researchers and student to overall challenge issues. For instance, to fit for different requirement at the practical level, we revised the door of the capsule many times, and made on the perfection after numbers of trials.

Sometimes solving mechanical engineering problems is not just playing with technology, but also dealing with an effective team operation, which is more attractive to me than simply being a traditional engineer considering technical issues. During my research experiences, there were sometimes missing steps between reality and models. To fill in these gaps and look for answers, I worked as a research intern to a team for a construction project, in which I did practical work related to improving the design of structures. I did a lot of practical works related to improving the

design of structures, which enhance mechanical qualifies by national standards. The experience involved comprehensive work using a synthesis of quantitative and theoretical skills to solve practical problems. But I knew that to become a professional engineer in my field, I need to get in touch with the most advanced technology in the area of mechanical engineering. This desire led to my decision to specialize in Mechanical Engineering through systematic study and rigorous training in graduate school.

My future goal is to work as a professional Engineering Scientist, and I am seeking an excellent M.S. program to achieve this goal. The Department of XXX at XXX interests me because of its reputation of academic excellence, with which I can develop my knowledge of theoretical and practical skills as a graduate student. Considering my strong interest in research, the academics of XXX would be balanced with hands-on research opportunities, giving me the ability to frame complex problems and collaborate widely across organizations. I sincerely hope you will give me the privilege of continuing my studies and moving toward my career goals in Mechanical Engineering at your fine institution.