

Julie Min Zou

"Why I want to be a professional engineer"

As a child, I had this great fear that everything worth inventing had already been created. It would be a dull world to grow up in if there was nothing left to discover. Perhaps it was the cartoons, but the cheesy notion that I can single-handedly save the world still lingers from my primary school days. There was always an urgency to look for a problem and find the solution. To a certain extent, I have always been heading down the path of engineering.

A flip through the headlines today reveal signs of climate catastrophe, diminishing resources and human tragedy resulting from malfunctioning equipment. These are the avoidable issues that we cannot afford to ignore. It seems my childhood fear was completely unfounded. There is so much more that can be done. In effect, I can do my part in saving the world. This is where engineering comes in. From the international space station to the ballpoint pen, practically any part of anything manmade can be attributed to an engineer. Opportunities for improvement are everywhere; we just need the right sort of people and the technology to achieve, it.

Admittedly, engineering was not always the most obvious career choice. For a long time I thought my artistic flair would lead me into the creative industry. Design held the appeal of a stimulating work environment combined with a chance to have fun. However, it is not enough to simply enjoy a job. I want to challenge everything and to be challenged. Not necessarily in a puzzle-solving number crunching way, but in a real world situation with a hands-on approach. An ideal job would have to provide me with a real sense of purpose. I want to be driven in what I choose to do. What sets engineering apart from other professions is how it tackles a problem at its source. Unlike scientists who explore the principles of nature, it is up to the engineer to translate these principles into tools and resources. Engineering will give me the chance to analyse complex problems. The ever-changing field of technology means there will always be more to learn, more to discover. This is a career that will not only be interesting but will allow me to make a tangible difference to the world.

Fortunately I've inherited some abilities to help me along the way. Art, science and especially mathematics are my major strengths. From primary school onwards I've entered in every competition or activity even remotely related to mathematics. In this final year of high school, I applied for and gained the position of Maths Prefect. There was even a national top score for the ICAS mathematics competition, rounding off a decade of involvement. I've always appreciated maths for its logic and science for its explanation of how the world operates. While science and mathematics are the backbone to engineering, without imagination there can be no innovation. Art is important in this respect. In high school I was introduced to the subject of graphics and design, an integration of creativity and practicality. It provided a chance to flex the brain and produce some wildly radical ideas. With engineering I am able to utilise my skills to maximum effect. No doubt I will enjoy myself as well!

At a careers seminar a few years ago, an engineer put forward this question: "what branch of engineering saves the most lives?" Out of naivety (and suspecting that this was a trick question) I answered 'a food technologist'. Half an hour later I walked out enlightened and clutching many pamphlets detailing the work of a civil engineer. It turns out the technology we depend on the most are the aspects we do not ordinarily notice. Sewage works,

electrical mains, roads and building infrastructure are what keeps a modern city ticking. Further investigation revealed that there is a growing need for environmental engineers. At the time I was sceptical at the prospect studying something that involved a paper on solid waste disposal. However, the idea of managing pollution and balancing our need for sustainable energy with environmental impact had taken root. I used to joke with friends that whenever I flick through the 'New Scientist' magazine I would look for the headline: 'It's Okay Folks, We Fixed Global Warming'. Now my goal is to contribute to finding a way to stabilise the state of our world. We cannot depend solely on the efforts of others.

The possibilities offered by a career in environmental engineering are both exciting and daunting. With the mounting awareness of the deterioration of our planet, there is no shortage of work to be done. Most of these projects will be completely unprecedented and will have to be handled with ingenuity. This recovery process is one that I look forward to being a part of. It is a chance to cooperate with nations around the world in order to find a global solution. In the coming years it is crucial for New Zealand to maintain its clean, green landscape. Currently New Zealand is known for its innovative agricultural methods but now it's time to take it one step further. Reliable and renewable sources of energy and more efficient modes of transport are all within our grasp. These are the causes I want to contribute towards. All it takes are a few dedicated engineers.

"Engineering is a great profession. There is the satisfaction of watching a figment of the imagination emerge through the aid of science to a plan on paper. Then it moves to realisation in stone or metal or energy. Then it brings homes to men or women. Then it elevates the standard of living and adds to the comforts of life. This is the engineer's high privilege." - Herbert Hoover

This is what attracted me to a career in engineering: the privilege of visualizing solutions and the satisfaction of seeing them emerge into reality. I want to become a professional engineer because I am interested in finding the solutions. The task of realisation is not an easy one, but I believe with passion, motivation and plain hard work, I will get there.

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