Why are female engineers needed?

I am extremely privileged to have parents who fostered an immense curiosity and thirst for knowledge in me. They encouraged me to pursue my passion, whatever that may be and I was interested in science and mathematics from a very young age. I was always fascinated by flight and even though my parents were not in any related field, they encouraged this passion by taking me to airshows and flight museums. My passion grew from this as I learnt more about space vehicles and started learning more about engineering.

What inspired you to become an engineer?

My field is aerospace engineering with a specialisation in aerothermodynamics – specifically hypersonic flows. These are extremely high energy flows where coupled aerodynamic effects and chemical reactions become important, such as the flow experienced by space vehicles re-entering the Earth or a Martian atmosphere.

What is your research area?

In particular my research is on transpiration cooling as a potential reusable thermal protection system for space vehicles at extremely high velocities. Currently I am working on commissioning the Oxford T8 Stalker Tunnel in a new reflected shock tube mode. The T8 Stalker Tunnel will become the highest speed wind tunnel in Europe and my experimental campaign will primarily run in T8.

Have you experienced any gender-related challenges?

Yes – almost every woman in science I know has. There have been people along the way who have doubted my ability without knowing anything about me and this can be very discouraging when you first start out. However, there are also people out there that have been extremely supportive and inspiring. It is important to pay attention to those “cheerleaders” in life who want the best for you, and not put too much stock in the negative. It also helps to remember my own self worth and the hard work that has gotten me to this point. I find it helpful to remember that the subject of engineering doesn’t discriminate – only people do. So if this is a subject you are passionate about you should pursue it regardless of other people’s opinions.

What attributes and skills do you bring to your role?

The most helpful key attributes for me have been persistence and resilience. As an engineer you are always faced with problems to solve, but there are always solutions and having the persistence to keep chasing up those solutions even when it is challenging is extremely important. Having the resilience to keep motivated to do so is also very important.

What is the best thing about your job?

Getting to work in a field where new discoveries are constantly being made and being able to contribute to work that could potentially be used on space vehicles that may one day put humans on Mars! I am surrounded by some of the best minds in engineering and have access to the best facilities that are only available in a few places in the world and I feel extremely privileged to be doing this job.

What did you get started in engineering?

I began my studies with a BSc. Aeronautical Engineering at the University of the Witwatersrand, South Africa. I then received a Fulbright Scholarship and completed my MSc. Aerospace Engineering at the Georgia Institute of Technology in the USA. Since my field of research is high speed flows I very much wanted to work in experimental hypersonics. I applied to the Hypersonics Group at Oxford for my DPhil.

What do you do today?

I have two! One is receiving a Fulbright scholarship to the Georgia Institute of Technology and the other is being accepted into Oxford to do my DPhil in a topic that I’ve always wanted to work on.

What has been your highest achievement to date?

Other achievements that I am proud of include a Graduate Research Assistantship to work on a NASA sponsored X-plane project at Georgia Tech and receiving the American Society of Mechanical Engineers Rice-Cullimore Scholarship, as well as the Royal Aeronautical Society University prize during my undergraduate degree.

What’s your top tip for girls considering engineering?

My number one tip would be don’t give up! It can be challenging at times but young women have everything that they need to go into this field. Work hard and be resilient, pay attention to the wonderful positive people in your life – a lot of times the best inspiration can be from other women in science and they are a great support network.

Why should young women choose engineering?

Engineering is a wonderful and fulfilling career path – you get to solve real world problems and make an impact on the world around you! It is a very exciting and interesting field with many opportunities to do meaningful work. Women bring a great energy and different perspective to any working environment and the world needs more female engineers so I would definitely encourage young women to go into this field if they have an interest init.

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