Department of Chemical and Materials Engineering presents

INTERVIEW WITH AN ENGINEER*

- Issue 2 -

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*This interview is not an verbatim transcription.

Tell us about yourself – how did you get to where you are today?
I always intended to be a practicing engineer, but once I tried research, it pulled me in. This passion has really driven my career and I've simply followed opportunities that aligned with it. I certainly didn't set out to be a professor. I did my Bachelor and PhD degrees in electrical engineering, but my postdoc focused on mathematics and mechanics. I think this dual background has been particularly helpful in allowing me to approach problems from two different yet complementary perspectives.

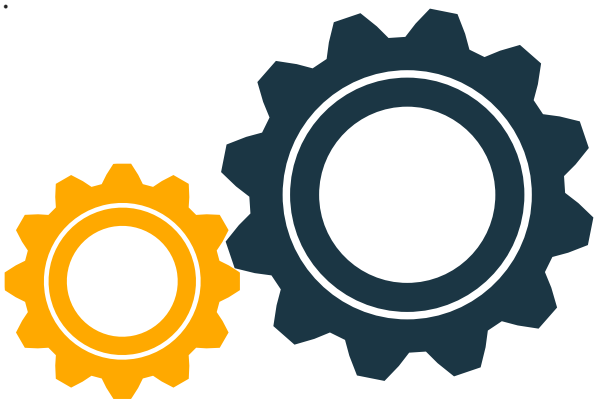
Why or how is your area of research and discovery important for ordinary citizens?
I'm a Professor of Applied Mathematics and a Chief Investigator in the Australian Research Council Centre of Excellence in Exciton Science where we are studying solar energy. I also work in a host of other areas, such as exploring the use of nanoscale mechanical devices for environmental sensing applications (for example), and more fundamental scientific questions. I feel fortunate to have the opportunity to do something I'm passionate about that can advance new knowledge and technology.

Do you have an analogy or layperson's way of describing your work?
Someone can do an experiment in a lab and using maths I am able to understand how it works without being in the same room. It's really like magic! A scientist may look at a measurement curve and ask, "why does this happen", while an engineer will ask, "how can we use it?". Maths is the glue between the answers to these questions. So, I use maths to understand the world around us and see how we can use that new understanding.

What do you hope to achieve?
I hope that with my dual background, I can contribute to research that's useful while advancing fundamental knowledge. Actually, some of my work has found its way to commercial products in a widely used instrument called the Atomic Force Microscope. More generally, as an educator I feel privileged in being able to shape the next generation of scientists and engineers.

What is exciting about your work?
Interacting with students and the thrill of solving a puzzle. Experimentation (whether in your mind, on paper, or in the lab) is key to discovery, learning and the development of new ideas. It might take 2-3 years to solve a hard problem, but once I find a solution it's a special experience – certainly worth the effort.

Is there any advice or wisdom you can impart on our students?
I always tell my students to do what interests them and follow good opportunities (which always arise!). Capitalize on your strengths and what you're passionate about. This will help make you a success. The international aspect is especially important. Meeting and working with other people around the world help us develop as engineers. Collaboration is key.



by Amy Chow