

Meet Raymond Wang: The World's Top Young Scientist

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1) Why do you love science?

Science and engineering allows anyone with a good idea to have a go at tackling some of the toughest problems facing us today. It allows us to gain a better understanding of our world, and it affords us the opportunity to use that understanding to create meaningful solutions to improve people's lives. I think it is this particular aspect of science that has particularly inspired my research over the years.

Science for me has always been about addressing real world issues. My journey with science and engineering first got off to a real start when I got myself involved with finding solutions to the energy crisis. After listening to the sound of rain falling on the roof of my house one evening, I was inspired to create my first innovation of the Weather Harvester; essentially, I made a piezoelectric roof that could harness the impact energy of precipitation and the kinetic energy of the wind to generate electricity for the home. Later on, I created a dynamically supportive smart knee brace for patients with knee conditions, after seeing the trouble that some of my family members had when climbing stairs. About a year ago, I addressed the issue of urban sanitation by inventing a self-cleaning outdoor garbage bin. And of course, as I continue to develop my existing innovations, this year, I've focused on improving airflow in aircraft cabins for the billions of people that travel in airplanes annually.

For me however, the best part about science is not the final product; it's the incredible journey along the way. I feel that whenever I'm doing research, something new and interesting pops up every day. This year for example, whether it is learning about fluid dynamics, playing around with numerical methods to partial differential equations for my simulations, or finally coming up with a functional physical prototype of my aircraft cabin, I was constantly kept on my toes with exciting surprises. And of course, at the end of it all, nothing beats the opportunity to share my work with the world at science fairs!

2) Do you have any science memories from when you were really young?

I do! When I was very, very young, I remember spending hours trying to build things, using LEGO, that I mimicked what saw in real life. In fact, that's one of the ways that I became interested in the field of aviation, which my project focuses on this year. I actually have a picture of one of a plane that I built in primary school, which is, miraculously, still lying around in the house!

3) What's one really cool fact about you?

Well, I actually do a bunch of other things outside of science, including with music; I love playing the piano, and I am actually a clarinetist in our National Youth Band.

One particularly interesting fact about me, though, actually has its roots in science fair. I currently lead a federally registered non-profit called Sustainable Youth Canada, which strives to get youth from across the nation involved in taking action for environmental and energy sustainability. The organization was actually founded when I got together with a couple of CWSF alumni friends that I met in Toronto & PEI, who are all Directors on our Board. After about a year of operations, we now have chapters across the country, including in Toronto, Ottawa, Vancouver, and more. Do check us out!

4) If you had one message for the young scientists of today, what would you say?

I think I can speak for everyone when I say that there are often many obstacles that come along in the way of doing any kind of research. With our generation however, there are so many resources available to us, allowing us to, say, instantly reach out to industry experts across the world, or instantly browse through thousands of scientific journals in online databases, that it's possible to overcome even the roughest roadblocks.

So, for everyone out there, I'd say, if you have a brilliant idea, go and run with it! Don't stop just because you might think there are challenges ahead. As long as you are determined to push onwards and keep innovating, anything is possible!

5) What does the science fair mean to you?

Science fairs have changed my life. Ever since I attended my first CWSF in 2011, the sheer magnitude and excitement of meeting so many other people who have a similar passion to change the world absolutely blew my mind. It's not every day that you get to meet people your age, hailing from across the nation, who are pushing the boundaries of engineering and medicine through science; I think it is this particular aspect of being able exchange ideas, both with people my age and with expert judges, that makes science fairs so valuable.

What quite a few people have trouble understanding at first glance is that there are many aspects to science fair than what initially meets the eye. Absolutely, undertaking any project involves following the scientific method and sound engineering principles. Beyond that however, there are many takeaways from the experience that I would never have discovered through the traditional school classroom alone, whether that be conducting proper literature reviews, effectively communicating project ideas, or fostering lasting friendships with amazing people from across the globe. When it comes to science fairs, I can think of no other initiative in this country that offers the same kind of eye opening experience.

I am truly grateful for organizations like Youth Science Canada and the BC Science Fair Foundation, for making science fairs possible for me all these years. It was an honor being a part of Team Canada for ISEF this year, and words cannot describe how amazing the entire experience was. Our tight-knit Canadian team, with just a handful of finalists, were able to place in 2 of the 3 top positions in the entire world, and make a sweep of over \$200,000 in awards, truly speaking to the extremely high caliber of youth science in Canada. This very fact, and the unparalleled opportunities that science fairs can bring about, are the reasons why it is so absolutely vital that we continue to support science fairs, both here in Canada and across the world.



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