



BILL WONG | EMBEDDED/SYSTEMS/SOFTWARE EDITOR bill.wong@penton.com

We All Win At The Intel ISEF Competition

I SPENT THE third week in May like I usually do by taking the grand prize winner of the Mercer Science and Engineering Fair (MSEF) to the Intel International Science and Engineering Fair (ISEF). This year it was in a rather warm Phoenix, Ariz. Jong Ho “David” Lee was our winner with a chemistry project that combined quantum dots with a blue LED to generate white light that has a wider spectrum than the white LEDs you can get now—and most of you thought all white LEDs were alike.

TOP AWARDS AT INTEL ISEF 2013

David was only one of more than 1600 students crammed into the Phoenix Convention Center. I had a chance to interview and shoot some videos of a few projects but barely had time to even scan them all, let alone understand them. I tended to stick close to my area of expertise, so these interviews mostly ran along the engineering and computer science end of things.

The three top winners had projects in fields most of our readers would be familiar with (*see the figure*). The two Intel Foundation Young Scientist winners were Eesha Khare and Henry Lin.

Eesha’s research addressed supercaps. We’ve been using them for a long time, but designers have always had to trade off their charging speed with the energy density of batteries. Her carbon nanotube structures bring up the energy density while retaining the faster charging characteristics.

Henry used “big data” to simulate thousands of clusters of galaxies. This let him address astrophysic features like dark matter and dark energy.

The top winner of the Gordon E. Moore Award was Ionut Budisteanu of Romania. For about \$4000, he developed a self-driving car that used real-time position, 3D radar, and



Eesha Khare (left), Ionut Budisteanu (center), and Henry Lin (right) were the top award winners at the 2013 Intel International Science and Engineering Fair.

multiple cameras to handle collision avoidance and navigation. The low-cost system can detect curbs, roads, and traffic lanes.

GETTING INVOLVED

Attending the fair is always a rewarding and humbling experience. It is also something we need to continue to foster and support.

Each year, one of the panels before the judging starts includes Nobel laureates who answer questions from the students. Their Nobel awards are almost always serendipitous. Usually, they weren’t looking for what they discovered, but they did recognize something new.

Typically, there are more scientists who are creating something new on this panel than engineers or programmers. More engineers and programmers would be a good addition to the panel, though, because there are a number of categories in the competition dedicated to engineering. These speakers would provide a much different perspective.

The number of students was up this year, but that may not continue. I talked with a lot of fair directors, and funding and participation are going down. Many directors are reducing the number of students they will bring to the Intel

ISEF next year, so we will have to wait until then to see how the numbers break.


Even sequestration has hit the Intel ISEF. There was no military participation this year, and the military has always been a big factor on the awards side. Some government departments were represented including the National Oceanic and Atmospheric Administration (NOAA), the National Aeronautics and Space Administration (NASA), and the patent office. There was some change in the companies providing awards, but they tend to be different every year.

We have had some great supporters for MSEF, but things are always tight. We were actually short on judges at our fair.

Of course, that’s why I support these types of competitions. They are almost 100% volunteers, and they do have a major impact on students. One would be hard pressed to find a better rate of return on the time and money involved.

So what can you do? Be a judge. It takes less than a day. Be a volunteer. It takes a little longer, but it is well worth the time. Get your company to donate money and support judges for the fair. There are local fairs across the country and in many parts of the world that need your help and expertise.

I need to mention teachers and mentors as well. These are the people who really do the work with students, providing help and motivation. It is a cooperative effort and not one that should be left to science, technology, engineering, and mathematics (STEM) education alone.

I hope to see you in Los Angeles for the 2014 Intel International Science and Engineering Fair. If you’re near Mercer County in New Jersey, send me an e-mail. We can use your help next March. 

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