Teenage Girl Explores Algae-Powered Biofuel, Wins Intel Science Talent Search

The Associated Press

WASHINGTON, D.C.--(BUSINESS WIRE)--Mar 12, 2013--Innovation, from improving robot navigation to advancing treatment for breast cancer, is thriving today in the nation's capital. Honoring high school seniors with exceptional promise in math and science, Intel Corporation and Society for Science & the Public (SSP) recognized the winners of what is considered the nation's most elite and demanding high school research competition, the Intel Science Talent Search.

Sara Volz, 17, of Colorado Springs, Colo., won the top award of $100,000 from the Intel Foundation for her research of algae biofuels. Algae produces oil that can be converted into a sustainable, renewable fuel; however, the fuel can be costly. Sara used artificial selection to establish populations of algae cells with high oil content, which are essential for an economically feasible biofuel. Sara, who built a home lab under her loft bed, sleeps on the same light cycle as her algae.

Second-place honors and $75,000 went to Jonah Kallenbach, 17, of Ambler, Pa., whose bioinformatics study breaks new ground in predicting protein binding for drug therapy. Jonah solved an open problem first posed several years ago, and his work suggests a new path to drug design by targeting a protein's disordered regions. His research may open doors to treatment for diseases, such as breast cancer, ovarian cancer and tuberculosis.

Third-place honors and $50,000 went to Adam Bowman, 17, of Brentwood, Tenn., who successfully designed and built a compact and inexpensive, low-energy, pulsed plasma device. Typical plasma sources are large, complicated and expensive. Using his inexpensive technology, Adam believes plasma research can now be conducted in small-scale operations and even high school labs.

"The Intel Science Talent Search is an opportunity to reshape the dialogue around our nation's youth," said Wendy Hawkins, executive director of the Intel Foundation. "We believe it's crucial to U.S. innovation to bring greater attention to math and science achievement, encourage more youth to embrace these fields, and demonstrate the impact these subjects have on our country's future success." Other top honors from the competition include: Fourth Place: Hannah Larson of Eugene, Ore., received a $40,000 award for her research of an abstract mathematical structure that's important in many areas of theoretical physics and computer science.

Fifth Place: Peter Kraft of Munster, Ind., received a $30,000 award for his synthesis of 10 new coordination polymers, which are massive molecules with complex network structures that have applications in gas purification and the storage of hydrogen in fuel cells.

Sixth Place: Kensen Shi of College Station, Texas, received a $25,000 award for his development of a computer algorithm that makes it easier for a robot to avoid colliding with obstacles in its path.

Seventh Place: Samuel Zbarsky of Rockville, Md., received a $25,000 award for his math research that could improve the efficiency of 3-D computer networks.

Eighth Place: Brittany Wenger of Sarasota, Fla., received a $20,000 award for her development of an artificial neural network to help diagnose breast cancer using data from fine needle biopsy samples.

Ninth Place: Akshay Padmanabha of Collierville, Tenn., received a $20,000 award for his development of an algorithm that detects oncoming epileptic seizures.

Tenth Place: Sahana Vasudevan of Palo Alto, Calif. received a $20,000 award for her math research that proved a new, generalized way to minimize an important function of arithmetic.

In total, the Intel Foundation awarded $1.25 million for the Intel Science Talent Search 2013. When Intel assumed the title sponsorship 15 years ago, it increased the annual awards by more than $1 million.

This year's finalists hail from 20 states and represent 40 schools. Of the 1,712 high school seniors who entered the Intel Science Talent Search 2013, 300 were announced as semifinalists in January. Of those, 40 were chosen as finalists and invited to Washington, D.C. to compete for the top 10 awards. These finalists join the ranks of other notable Science Talent Search alumni who, over the past 72 years, have gone on to win seven Nobel Prizes, two Fields Medals, five National Medals of Science, 11 MacArthur Foundation Fellowships and even an Academy Award for Best Actress.

Society for Science & the Public, a nonprofit membership organization dedicated to public engagement in scientific research and education, has owned and administered the Science Talent Search since its inception in 1942.

“Society for Science & the Public is proud to join Intel in congratulating Sara Volz for her scientific accomplishments,” said Elizabeth Marincola, president of Society for Science & the Public. “Sara’s work demonstrates how a young person who is fascinated by science, which she has been since a kindergarten science fair, can work with few sophisticated resources and have real impact on society. Sarah’s research on a novel method to help make algae biofuel economically feasible has the potential to make a serious impact on a critical global challenge. Sara and the rest of the Intel Science Talent Search 2013 finalists serve as an inspiration for young researchers who are drawn to science. Their hard work and innovation will create solutions to the problems of tomorrow.” To learn more about Society for Science & the Public, visit www.societyforscience.org, and follow the organization on Facebook and Twitter.

Because Intel views education as the foundation for innovation, Intel and the Intel Foundation have invested more than $1 billion over the past decade, and Intel employees have donated close to 3 million hours toward improving education in more than 60 countries.

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