

ACM and CSTA Announce Cutler-Bell Prize Student Winners

For Immediate Release

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March 22, 2017 – The winners of the Cutler-Bell Prize in High School Computing were announced today. The Association for Computing Machinery (ACM) and Computer Science Teachers Association (CSTA) announced that three high school students were selected from among a pool of graduating high school seniors throughout the US. Eligible students applied for the award by submitting a project/artifact that engages modern technology and computer science. A panel of judges selected the recipients based on the ingenuity, complexity, relevancy and originality of their projects.

The Cutler-Bell Prize promotes the field of computer science and empowers students to pursue computing challenges beyond the traditional classroom environment. In 2015, David Cutler and Gordon Bell established the award. Cutler is a software engineer, designer, and developer of several operating systems at Digital Equipment Corporation. Bell, an electrical engineer, is researcher emeritus at Microsoft Research.

Each Cutler-Bell Prize winner receives a \$10,000 cash prize. The prize amount is sent to the financial aid office of the institution the student will be attending next year and is then put toward each student's tuition or disbursed. This year's Cutler-Bell Prize recipients will be formally recognized at the Computer Science Teachers Association's annual conference, July 8th-11th, in Baltimore, Maryland.

The winning projects illustrate the diverse applications being developed by the next generation of computer scientists.

Elizabeth Hu, Thomas Jefferson High School for Science and Technology (VA)

A computational model based on real-world data offers potential guidance for both policy and humanitarian aid decisions. Elizabeth developed a geographically explicit agent-based model, written in Java, to study the past and future patterns of refugees for researching past migration models. Traditional migration modeling techniques, including spatial interaction and regression, fail to account for individual differences and decision-making processes.

Avi Swartz, Cherry Creek High School for Computational Biology (CO)

Determining what proteins are present and the quantity of each protein component in biological samples is a key step in analysis to understand normal, as well as diseased, processes. Mass spectrometry is the best approach to effectively analyze large numbers of proteins in complex biological samples. Many mass spectrometry experiments often involve large numbers of proteins (e.g. over 600 proteins in an experiment). When done manually, this process takes around six hours for a small experiment of 25 proteins. Swartz's computer program, the "Automated Peptide Selector" (APS), automates the picking of indicator peptides for any protein in any species. The researcher inputs a list of proteins and selects different weights for the selection criteria to adjust for a specific spectrometer. The researcher also selects information such as the species being studied and which versions of the databases they want to use. The program reduces the required user time to select peptides from six hours for 25 proteins to several minutes.

Aaron Walter, Yorkville High School for Computer Science (IL)

Aaron's new software program Rubric Pro helps teachers recognize students' understanding of curriculum components. It enables both teachers and students to learn, while improving the classroom experience by being accessible. Rubric Pro organizes components of a curriculum into a hierarchical structure. Teachers can then create rubrics to test the knowledge of their class based on the tree of components they have made. Rubric Pro's structure allows you to easily create and analyze data from your curriculum's components.

"It is an honor for us to be a part of this effort to recognize young people who share their visions of how computer science can improve society," said Cutler and Bell. "The high school years can be very formative in helping young people decide on their careers. Although computer science is so interwoven into society and industry, it is still at the early stages of being fully integrated into the high school curriculum. We hope the Cutler-Bell Prize and the imaginative projects of these students will serve as examples of the benefits of expanding computer science education in K-12 settings."

"What is wonderful about the Cutler-Bell Prize is how it encourages a spirit of innovation in young people," says ACM President Vicki L. Hanson. "ACM has long stressed that incorporating computer science education into the K-12 curriculum is about more than learning to write computer code. Computational thinking fosters a way of looking at the world that these students will take with them regardless of the career path they choose. This year's Cutler-Bell Prize recipients are recognized for taking the fundamentals they have learned in the classroom and developing novel approaches to solving pressing real-world challenges. We thank Gordon Bell and David Cutler for sponsoring this award, the CSTA, and, of course, the dedicated computer science teachers who have inspired and guided these students."

"The Cutler-Bell Prize celebrates the power of creativity and innovation among today's high school students when their learning experiences are linked to technology and computer science education," said CSTA Executive Director Dr. Mark R. Nelson. "We appreciate the generosity and foresight of Cutler and Bell for making this award possible. We thank the judges who spent many hours reviewing the submissions received in this year's competition. We are excited to

recognize this second cohort of young recipients.”

For more information about the ACM/CSTA Cutler-Bell Prize in High School Computing, visit <http://awards.acm.org/cutler-bell/> and <http://www.csteachers.org/CutlerBell>.

About Association for Computing Machinery (ACM)

ACM acm.org is the world’s largest educational and scientific computing society, uniting computing educators, researchers and professionals to inspire dialogue, share resources and address the field’s challenges. ACM strengthens the computing profession’s collective voice through strong leadership, promotion of the highest standards, and recognition of technical excellence. ACM supports the professional growth of its members by providing opportunities for lifelong learning, career development, and professional networking.

About Computer Science Teachers Association (CSTA)

CSTA’s csteachers.org mission is to empower, engage and advocate for K-12 computer science teachers worldwide. CSTA is a membership organization which supports and promotes the teaching of computer science and other computing disciplines. The Association for Computing Machinery founded CSTA as part of its commitment to K-12 computer science education.

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