ACM and CSTA Announce Cutler-Bell Prize Student Winners

New York, NY, March 15, 2018 – The Association for Computing Machinery (ACM) and Computer Science Teachers Association (CSTA) today announced the winners of the Cutler-Bell Prize in High School Computing. Five high school students were selected from among a pool of graduating high school seniors throughout the US who applied for the award by submitting a project or 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 in the fall 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 7-10, 2018 in Omaha, Nebraska.

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

Sreya Guha, Castilleja School - Palo Alto, CA
Sreya Guha's "Related Fact Checks" service was built to combat fake news by connecting information written in articles to the related fact(s) on fact checking websites. The tool does not label articles as either fact or fiction, since many articles contain both; but instead, it provides relevant fact checks related to an article being read. A browser extension allows the service to be accessible to a wide audience with the hopes of slowing the tide of fake news. Facing the challenge of the abundance of fake news, Guha realized through her research that most fake news stories tend to stick to a small number of themes (anti-vaccine, anti-climate change etc.). Even in the absence of a fact check for a particular claim, giving the reader a fact check within the same theme can help them critically understand the story they are reading.

Amir Helmy, Eastside High School - Gainesville, FL
Amir Helmy developed the Seizario app, "a mobile application designed to aid epileptic patients, their families and caregivers in managing their daily lives effectively, using smartphones. Seizario aims to offer two main features; automatic detection of several emergency scenarios, and easy and immediate communication of critical information to family members and caregivers." Using an accelerometer-based classification algorithm, Seizario detects seizures and harmful falls. When detected, warning and alert messages are triggered and sent to pre-identified recipients with time, location, and activity. The app also records detailed log entries that can be used by caregivers and medical professionals for analysis and treatment improvement. By using smartphone technology, the potential for reaching more of the population vulnerable to seizures and falls is increased and the offers improved self-management and reduced response times.

Amy Jin, The Harker School - San Jose, CA
Amy Jin is using computer vision to evaluate surgical skill and "provide individualized feedback and training to surgeons." This computer vision "coach" analyzes surgical performance through tool movements and usage patterns to reflect surgical skill and technique. By feeding surgical videos through her computational pipeline Jin has automated surgical skill assessment, focusing on efficiency, motion economy, and bimanual dexterity as areas of examination, in order to provide surgeons with information on how to improve their surgical technique and performance. Assessment results were validated by a team of surgeons. This work sets the stage for "building a context-aware system" to provide surgeons with targeted feedback and training to improve their surgical performance.

Benjamin Spector & Michael Truell, Horace Mann School - Bronx, NY
Submitting as a team, Benjamin Spector and Michael Truell created Halite, an online programming competition. Halite is now in its second iteration and is one of the largest limited-time programming competitions with more than 5,500 users over the course of the two competition runs. Starting with the goal of producing an open-source platform and game where "anyone could easily program a bot, but would also have the depth to support and interest experienced programmers," Spector and Truell set ambitious requirements for the system, game, and competition desiring a visually appealing, secure, scalable, beginner-friendly, but difficult to solve, multi-faceted competition that would allow the user to write code in any language, test and visualize their bots locally, and once uploaded, would play against other bots in real time and the user would receive performance feedback in real time. Halite has successfully allowed thousands of users, mostly university and high school students some of whom have never programmed before, the opportunity to learn new skills ranging from programming languages to machine learning. The collaborative environment encouraged by Halite, and its creators, has had a tangible impact on computer science education through gamification.

"We are proud to support an effort which encourages high school computer science students to develop projects that will advance society," said Cutler and Bell. " We hope that, whatever careers these students ultimately pursue, they will consider the ways in which technology can have a positive impact on the wider world. Beyond challenging the students to stretch their skills and imaginations, developing their own projects gives students confidence."

"I always enjoy reading about the Cutler-Bell Prize-winning projects and the surprising technologies the students have envisioned to solve a problem in society or business," says ACM

President Vicki L. Hanson. "ACM has long championed the idea that integrating computer science education throughout the K-12 curriculum fosters computational thinking—or a new way of seeing the world. The Cutler-Bell Prize-winning projects are excellent examples of computational thinking in action. ACM thanks Gordon Bell and David Cutler, our partners at the CSTA, and the computer science teachers who have guided and inspired this year's Cutler-Bell Prize recipients."

"I am so impressed by the winning student projects, and the many other high quality submissions we received this year. The winning projects are examples of the novel solutions to real world problems that students create when they have access to a high quality computer science education," said Jake Baskin, Executive Director of the Computer Science Teachers Association. "I can't wait to see the explosion in new ideas as the number of K-12 students learning computer science continues to increase."

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

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 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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