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TEEN SCIENCE SENSATIONS FROM VIRGINIA AND GEORGIA TAKE REGIONAL TITLE IN PRESTIGIOUS SIEMENS COMPETITION IN MATH, SCIENCE & TECHNOLOGY

Research on Computer Science and Mathematics Honored in Nation's Premier Science Research Competition for High School Students at Georgia Institute of Technology

Caelan Garrett of McLean, Virginia, Wins Top Individual Prize; Sitan Chen of Suwanee, Georgia, and Tianqi Wu of Lilburn, Georgia, Win Top Team Prize

ATLANTA, GEORGIA, November 13, 2010 —Cutting edge research on image processing and recognition and on parallel computation earned top honors tonight for Caelan Garrett and the team of Sitan Chen and Tianqi Wu in the Region Six Finals of the 2010-11 Siemens Competition in Math, Science & Technology, the nation's premier science research competition for high school students.

The Siemens Competition, a signature program of the Siemens Foundation, is administered by the College Board. Tonight's winners will receive thousands of dollars in scholarships and be invited to compete at the National Finals in Washington, DC, December 3–6, 2010, where the winners of six regional competitions will vie for the $100,000 Grand Prize and national acclaim for extraordinary scientific achievement at the high school level.

"Each year, the Siemens Foundation invites America's high school students to make their mark in the world of science," said Jeniffer Harper-Taylor, President of the Siemens Foundation. "We commend these students on rising to the challenge and pushing the envelope of scientific thought."

The students presented their research this weekend to a panel of judges from the Georgia Institute of Technology, host of the Region Six Finals, Georgia State University and Emory University.

The Winning Individual

Caelan Garrett, a senior at Thomas Jefferson High School for Science and Technology in Alexandria, Virginia, won the individual category and a $3,000 college scholarship for his computer science project, *An Image Processing System for Enhancing Perceptual Visibility of Imagery,* which attempts to improve on simulations of human optical processing.

Mr. Garrett developed and implemented a novel adaptation of the Retinex algorithm, an equation that allows computers to model how the human eye and brain processes images. He adapted the algorithm to a new system that can enhance images obstructed by smoke, fog, shadows and haze. His research could potentially be used to increase air and marine transportation safety through improved visibility, improve the range of night vision goggles, and enhance commercial imagery.

"Mr. Garrett developed an exceptionally novel approach to the problem. The new algorithm no longer suffers from some of the limitations of the original, allowing for improved contrast and recognition when objects are obscured by either high or low intensity backgrounds," said Dr. Philip J. Santangelo, Assistant Professor of Biomedical Engineering, Georgia Institute of Technology. "His work could have a wide range of applications, from underwater imaging to the transportation industry, where high speed processing could assist in accident avoidance."

Mr. Garrett developed a passion for computer science during his freshman year and became interested in robotics after experimenting with Lego Mindstorms at a US Naval Academy summer program. As captain of the varsity Botball Robotics team, Mr. Garrett led his team to victory for two consecutive years. He is co-director of two a cappella groups and has performed in a number of musicals. Mr. Garrett aspires to become a computer science researcher and work with artificial intelligence and cognitive robotics. His mentor on the project was Dr. Mark A. Livingston of the US Naval Research Laboratory.

The Winning Team

Sitan Chen, a junior at Northview High School in Johns Creek, Georgia, and Tianqi Wu, a senior at Parkview High School in Lilburn, Georgia, won the team category and will share a $6,000 scholarship for their mathematics project, *Cellular Automata to More Efficiently Compute the Collatz Map.* The project looked at the Collatz conjecture, a famous unsolved mathematical problem first proposed in 1937. Mr. Chen and Mr. Wu used a parallel computing approach to simulate the conjecture's mathematical processes. Their mentor was Guanghua Chen, Harland Clarke Senior Software Engineer.

"Mr. Chen and Mr. Wu showed a high level of creativity and of mathematical and computational understanding in attacking the problem," said Dr. Eva K. Lee, Professor, Industrial and Systems Engineering, Georgia Institute of Technology. "They developed an elegant and simple approach via cellular automata to improve the computational time needed to verify the conjecture. Their work is an important step towards rapid parallel computation and can have a broad range of applications, including medicine, finance, energy, and climate analysis."

Mr. Chen is an accomplished pianist and violinist who has performed twice at Carnegie Hall. He enjoys fencing and volunteering at his local library and has won awards at the Georgia Science and Engineering Fair and the FBLA State and National Leadership Conferences. He plans to study mathematics, aerospace engineering and music in college and aspires to become a university professor.

Mr. Wu is president of his school's math team and ranks first in his class of 575 students. He was born in Shanghai, China, where he lived for 14 years before coming to the United States. He is a member of Mu Alpha Seta and enjoys Choi Kwang Do martial arts, discussing philosophy, and reading fantasy fiction. He plans to major in mathematics and would like to become a research mathematician.

Regional Finalists

The remaining regional finalists each received a $1,000 scholarship. Regional Finalists in the individual category were:

- JooHee Choi, Langley High School, McLean, Virginia
- Sanjeet Das, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia
- Sophie Janaskie, North Broward Preparatory School, Coconut Creek, Florida
- Srikar Reddy, Lake Highland Preparatory School, Orlando, Florida

Team Regional Finalists were:

- Arjun Bhattacharya and Karthikeyan Ardhanareeswaran, William G. Enloe High School, Raleigh, North Carolina
- Carlos del-Castillo-Negrete, Scotty Chung and Yajit Jain, Oak Ridge High School, Oak Ridge, Tennessee
- Eric Huang, Illinois Mathematics and Science Academy, Aurora, Illinois, and Jamie Chen, North Carolina School of Science and Mathematics, Durham, North Carolina
- Mathilda Lloyd and Yiwei Li, Oak Ridge High School, Oak Ridge, Tennessee

The Siemens Competition

The Siemens Competition was launched in 1998 to recognize America's best and brightest math and science students. Every fall, America turns its eye to the brilliant young scientists competing in the Siemens Competition. 2,033 students registered to enter the Competition this year for a record number of 1,372 projects submitted. 312 students were named semifinalists and 94 were named regional finalists, representing 36 states. Entries are judged at the regional level by esteemed scientists at six leading research universities which host the regional competitions: California Institute of Technology, Carnegie Mellon University, Georgia Institute of Technology, Massachusetts Institute of Technology, University of Notre Dame and The University of Texas at Austin.

Follow the Siemens Foundation on Twitter (www.twitter.com/sfoundation) and Facebook (www.facebook.com/SiemensFoundation) for updates throughout the 2010-11 Siemens Competition. Then visit www.siemens-foundation.org at 9:30am EST on December 6 for a live webcast of the National Finalist Awards Presentation.

The Siemens Foundation

The Siemens Foundation provides more than $7 million annually in support of educational initiatives in the areas of science, technology, engineering and mathematics (STEM) in the United States. Its signature programs include the Siemens Competition in Math, Science & Technology, Siemens Awards for Advanced Placement, and The Siemens We Can Change the World Challenge, which encourages K-12 students to develop innovative green solutions for environmental issues. By supporting outstanding students today, and recognizing the teachers and schools that inspire their excellence, the Foundation helps nurture tomorrow's scientists and engineers. The Foundation's mission is based on the culture of innovation, research and educational support that is the hallmark of Siemens' U.S. companies and its parent company, Siemens AG. For more information, visit www.siemens-foundation.org.

The College Board

The College Board is a mission-driven not-for-profit organization that connects students to college success and opportunity. Founded in 1900, the College Board was created to expand access to higher education. Today, the membership association is made up of more than 5,700 of the nation's leading educational institutions and is dedicated to promoting excellence and equity in education. Each year, the College Board helps more than seven million students prepare for a successful transition to college through programs and services in college readiness and college success – including the SAT® and the Advanced Placement Program®. The organization also serves the education community through research and advocacy on behalf of students, educators, and schools.

B-roll and photos of winners available on request.

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