CADSTI-NE Newsletter, October 2016

Caribbean Diaspora for Science, Technology, and Innovation

New England

Promoting Science and Technology for Caribbean Youth

The Caribbean Diaspora for Science, Technology and Innovation - New England (CADSTI-NE) is a non-profit 501 (c) (3) organization focused on promoting science and technology for Caribbean youth.

Our overall mission is to assist in diversifying the economies of the Caribbean by harnessing science and technology for economic development, and in doing so help raise the region's standard of living. CADSTI-NE's major projects are to:

(1) organize and sponsor internships for Caribbean students at biotech and high technology companies in the U.S. and the Caribbean, and

(2) support the Student Program for Innovation, Science and Engineering (SPISE), an intensive four-week enrichment residential summer program for gifted Caribbean high school students.

These projects are made possible through generous donations from organizations and individuals.

Successful Student Internship Program, 2016

In 2016, CADSTI-NE facilitated 5 summer internships for students from the Caribbean. These internships ranged from Harris (BH) Paints in Jamaica to Genesis Engineering Solutions in the Washington D.C. area, and also included the Foursquare Rum Distillery in Barbados, and the STARS program at the University of California - San Diego.

Student probes future of paint

Melissa Douglas is a freshman at Howard University majoring in engineering. Eager to start a STEM career, she began her internship in the research labs of Harris (BH) Paints, in Jamaica, the day after her high school graduation. She learned about different aspects of paint manufacturing including the rigor that is needed to ensure a consistent product with high quality. BH Paints is researching new starting materials for paints and Melissa participated by making paint from scratch using novel raw materials.

Melissa Douglas testing paints at Harris Paints, Jamaica

Foursquare Rum Distillery hosts intern

Quilee Simeon, who plans to continue his education in biochemistry or bioengineering, interned at Foursquare Rum Factory in Barbados. He received first-hand experience in multiple aspects of the rum manufacturing process, which imparted to him "values of independence and accountability". For example, he conducted quality assurance tests on water and production samples, and participated in assembly line work. By the end of his internship, he had learned about fermenters and distillation, record-keeping, and automation, and had a good understanding of the overall manufacturing process.

Aerospace company hosts Caribbean student

Jodi Porter, who aspires to become an electrical or chemical engineer, is currently a student at St. Vincent Community College. She interned at Genesis Engineering solutions, based near Washington D.C. She was a member of the 'Single Person Spacecraft' (SPS) team, for a NASA project. Jodi learned and applied CAD to this project, contributing to the development of drawings for the display cart of the SPS and building boxes for placement in the simulator. Her experience at Genesis included a final presentation on the boxes for the simulator and the rationale for their placement in the simulator.

Jodi Porter , far right, with colleagues at Genesis Engineering Solutions, Washington, DC.

Star students attend STARS program at UC San Diego

Josh Henry and Joel Beazer were the two students selected by the STARS program at the University of California - San Diego (UCSD). In this program, students work closely with a faculty member and graduate students, conducting research in the lab. In addition, the students receive guidance on the graduate school application process and information about graduate school fellowship applications such as the National Science Foundation (NSF) and Ford Fellowships.

STARS 2016 participants at UCSD

Josh Henry is in his second year at the University of the West Indies - St. Augustine, in Trinidad, majoring in engineering. While at the UCSD STARS program, he learned how to use specialized computer-assisted design (CAD) software for application to building a Braille display. His experience also included 3D printing and assembling the parts into the display, and importantly, exposed him to the challenges of creating novel devices, combining mechanical and electrical engineering. Josh states that this experience has been a great learning experience into how research is done, and has given him exposure to new career paths following his PhD.

Joel Beazer, is a junior at Harvard University with a double major in physics and chemistry. Joel's project at the UCSD STARS program was in biomedical research aimed at understanding the molecular mechanisms of a heparin sulfate mimetic. In particular, Joel participated in cell culture experiments designed to investigate the drug's impact on differentiation of progenitor cells into several specific cell types, and learned cell culture techniques as well as biochemical methods. Joel reports that this first exposure to academic research was positive and he is looking forward to doing additional research projects.

Student Program for Innovation in Science and Engineering (SPISE)

Nurturing the next generation of science and technology Caribbean leaders

The 5th annual SPISE was held in Barbados over the summer of 2016. This year, ***19 students from Barbados, Dominica, Guyana, Jamaica, Martinique, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago were selected from 48 applicants.***

The 4-week program is offered by the Caribbean Science Foundation (CSF) at UWI – Cave Hill, Barbados. The students are challenged with university-level classes that include calculus, physics, biochemistry, entrepreneurship, Caribbean unity and Mandarin, and hands-on projects in computer programming, under-water robotics and renewable energy/electronics. Team work and effective time management are emphasized.

During the final event, the student's new skills were showcased:

- **Computer programming** projects required the students to learn and use Python to create video games.
- **Robotics**; each student team built a basic model of an underwater robot, and then used innovation to add movable arms of their own design to collect balls in a water-filled tank.
- **Renewable energy** project consisted of wind turbines built by student teams, each turbine having its own unique blade design. The teams competed against each other as the audience viewed how different blade designs affected the ability of the turbines to generate electricity.
- **Entrepreneurship** presentations comprised unique technology-based business plans that students pitched to the audience. Several members of the audience served as judges and selected the winning business plan.

Students also participate in career seminars which give the students more awareness of science-related jobs and careers. Workshops coach the students on how to optimize their chances of admission with financial aid to the world's top universities.

SPISE graduates are attending the world's top universities, including MIT, Stanford, Harvard, Columbia, University College London, University of North Carolina, Florida Institute of Technology, Trent University, University of Edinburgh, and UWI.

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The CSF is an independent, non-profit, non-governmental organization with headquarters in Barbados and representatives in several other Caribbean countries. Key partners in the SPISE are the UWI - Cave Hill campus, the CXC, the **Caribbean Diaspora for Science, Technology and Innovation (CADSTI)**, and Sagicor. Please visit http://caribbeanscience.org/projects/spise.php for more information about the SPISE.