



Upcoming Events

- Registration for STLX V closes 13 Oct 2018
- STLX V Practice Round 1, 25-28 Oct; Qual Round 1, 8-11 Nov
- STLX V Practice Round 2, 29 Nov-2 Dec; Qual Round 2, 13-16 Dec

Notable Quote

“As an educator, I am extremely impressed with the authenticity of the problems. They are interesting, challenging, and engaging. Keeping six teens working on one problem for six hours is no easy task!”

Mr Allen Skinner
Team Director
Great Mills High School



StellarXplorers IV National Champions, Great Mills High School “Tahsin Machine,” accept their educational grants of \$3,000 each from the sponsors, Mr Bob Winn of United Launch Alliance and Ms Victoria Stoneking of the USAF STEM Program.

National Champions: All About the Team

David “Buck” Buckwalter

When the Great Mills High School, Maryland, *Tahsin Machine* team made the 2018 StellarXplorers Finals, members of the Program Office were surprised, but gratified. Great Mills and Guam AFJROTC *Islanders* were both first-time competitors, and a potential problem for any competition is making the challenge so difficult that only the “seasoned” teams can hope to compete, making new teams hesitant to compete at all. But when *Tahsin Machine* won it all, beating the scenario designer’s estimate of maximum attainable score, everyone wondered: “How’d this happen?”

We asked the Team Director and competitors what was their secret to success, and their collective responses could have been taken from the pages of a *Harvard Business Review* article on “Building High-Performance Teams.”

While this was the team’s first StellarXplorers competition, this was not the team’s “first rodeo.” The team hails from the St. Mary’s County Public Schools System that hosts a STEM Academy, from fourth to twelfth grades, with tailored curricula and extracurricular activities designed to attract students to education and careers in STEM disciplines. By

fifth grade all the team members were enrolled in the academy, and thus, their STLX victory was seven years in the making. It was through the academy that they all traveled to Space Camp in Huntsville, AL, for STEM-6 and participated in a capstone project for STEM-8 that was not unlike the StellarXplorers challenge (including use of STK). Additionally, the STEM Academy sought out hands-on youth competitions like VEX Robotics, Botball, and AFA’s other STEM flagship program, CyberPatriot. Over those seven years, any group could develop interpersonal resent-

(continued on page 4)

StellarCamp: Houston “Pajama Party”

Bill Yucuis

The StellarXplorers Program has partnered with Space Center Houston to offer StellarCamp, a unique educational opportunity to learn how to teach and inspire students with a space system design challenge during an overnight camp experience. StellarCamp will be at Space Center Hou-

ston on July 27-28, 2018.

StellarXplorers is an Air Force Association (AFA) produced program that inspires and attracts high school students to pursue studies and careers in science, technology, engineering, and mathematics (STEM) through a challenging hands-on

space system design challenge involving all aspects of system development and operation with a spacecraft and payload focus.

StellarCamp participants will work as “teams” to solve an orbit determination scenario *(continued on page 2)*



Recent News from the StellarXplorers Program



Road to the Springs

Tim Brock

In the fall of 2017, 180 teams from 31 states and three overseas Department of Defense schools began the long journey to the National Finals of the Air Force Association's StellarXplorers, the National High School Space Challenge. This was the fourth year of the challenge, once again held in Colorado Springs in conjunction with the Space Foundation's Space Symposium.

To get to the "Springs," the teams had to compete in three practice rounds, two qualification rounds, and quarterfinal and semifinal rounds. During these competition periods, teams had to monitor icefields in Patagonia, track salmon in the North Pacific, select satellite components for a mapping satellite, and plan rocket launches from sites all around the world. The culmination of this long journey was the section of the finalists: Aurora Composite Civil Air Patrol Squadron, Portland, **Oregon**; two teams from Palos Verdes Peninsula High School, Rolling Hills Estates, **California**; Buena Park High School AFJROTC, Buena Park, **California**; San Pedro High School, San Pedro, **California**; two teams from Rangeview High School, Aurora, **Colorado**; James Clemens High School, Madison, **Alabama**; Great Mills High

School, Great Mills, **Maryland**; and John F. Kennedy High School AFJROTC, Tamuning, **Guam**.

During their five-day stay in Colorado, the teams went to the Space Symposium's Exhibit Hall, toured the National Museum of World War II Aviation and visited the Air Force Academy to see firsthand the Academy's FALCONSAT small satellite engineering program. At a pizza party reception, they were warmly greeted by General Jay Raymond, Commander of Air Force Space Command, and Mr. Tory Bruno, President and Chief Executive Officer of United Space Alliance (ULA). Mr Bruno presented an engaging and personal story of his experiences growing up and in the space business.

The competition phase of the National Finals required the teams to support the installation of a hotel module on the International Space Station (ISS), give a PowerPoint briefing on how they determined a solution to the ISS requirement, and have each team member complete a ten-question, multiple choice quiz on space systems and their operations. At the end of the tough day and half competition, the winner of the StellarXplorers IV National Finals was

the "Tahsin Machine" from Great Mills, Maryland. The second place team was "Space Y" and the third place team was "Boing," both from Rolling Hills Estates, California. Each member of the first place team received a \$3,000 education credit sponsored by the Air Force STEM Program Office and United Launch Alliance. Each member of the second place team received a \$2,000 credit and the third place team members received a \$1,000 credit.

In addition to recognizing the national award winners, the Air Force Association (AFA) presented at Special Citation to MSgt Larry D. Nix, AFJROTC NCOIC, Leadership Development Requirements Branch from Maxwell AFB, Alabama, for his outstanding support to the StellarXplorers Program

VIPs attending the National Finals Award Banquet attendees included AFA Vice Chairman of the Board for Aerospace Education Dick Bundy; AFA Executive Vice President Denise Hollywood; Col Paul C. Lips, Director of AFJROTC; Ms. Victoria Stoneking, Air Force AF STEM Coordinator; members of AFA's Aerospace Education Council, as well as representatives of StellarXplorers sponsoring companies.

(continued on page 4)

StellarCamp (from page 1)

similar to the StellarXplorers National High School Space Challenge. They will learn to use Systems Toolkit (STK), a professional space systems simulation software used in the Space Challenge. Attendees will also receive access to the virtual textbook, *Understanding Space*. The textbook will provide the academic

background to explain basic Orbital Mechanics and Ground Tracks.

StellarCamp participants sleep overnight at Space Center Houston among historic, flown spacecraft and national treasures. They receive buffet dinner and breakfast, and experience a private Tram Tour of NASA Johnson Space Center, which includes Historic Mission Control,

Space Vehicle Mock-Up Facility, and Rocket Park.

The StellarXplorers Camp-In cost is \$59.95 and limited to 50 educators. Sign up at spacecenter.org/stellarxplorers. If you have any questions, contact the StellarXplorers staff at stellarxplorers@afa.org.

Registration for the new season now open!



Summer 2018

Good Things Happen to Good People

David "Buck" Buckwalter

The name Sareta Gladson will be familiar to some StellarXplorers participants, especially finalists. Sareta competed in STLX II in 2016 as a high school junior on the San Pedro High School, California, team. Her team made the finals that year, but did not finish in the top three slots. Interestingly, she cites this "failure" as a major factor in her subsequent success. The next year, San Pedro again made the finals, but with Sareta as Co-Captain, the team became the STLX III Champions, exceeding the top score estimate of the scenario designer. This experience had a major impact on her immediate future.

Following graduation, Sareta enrolled in a five-year program at Syracuse University, New York, leading to a B.S. in Aerospace Engineering and an M.S. in Mechanical and Aeronautical Engineering. Her choice of a STEM field was never in question – her parents are both geologists and her grandfather taught high school physics. The specific disciplines she chose, however, were significantly influenced by her StellarXplorers experience. StellarXplorers taught her that she could design space systems and that she enjoyed this challenge immensely.

While applying to Syracuse, she wrote an essay on the reason she chose aerospace engineering as her discipline. She forwarded a copy to the Program Office, asking if she could mentor other StellarXplorers. The article she wrote was about the personal impact of her StellarXplorers experience, and we immediately published it in our Fall 2017 *StellarNews* newsletter. Even better, we asked if she would like to join the volunteer staff of the program, and she immediately agreed. She was



Sareta Gladson at Syracuse

assigned to the Education and Training section where she assisted and reviewed the quizzes for the competition and produced two videos on what to expect and how to prepare for the finals that were distributed to all STLX IV finalists. Perhaps most importantly, she participated in our bi-weekly telephone conferences where we manage the execution and future of the program; the impact and influence of this younger, former competitor was a significant contribution to the health of the program.

Last April, just before and at the StellarXplorers Finals, Sareta had yet another surprise for the STLX team. She had just learned that she had been awarded a Department of Defense (DoD) Science, Mathematics And Research for Transformation (SMART) Scholarship for Service, a very competitive cash award for undergraduate studies in STEM fields needed by DoD. Her StellarXplorers experience played a significant role in her application process. The scholarship is quite generous, including full tuition for her remaining time at Syracuse plus a \$25,000 annual stipend. Part of the award is four summers

of internships with guaranteed four years employment at the same DoD facility.

Her reason for choosing this scholarship program strikes a very favorable chord in the hearts of the members of the StellarXplorers Program Office. In her application for the scholarship, mentioning a close friend attending the U.S. Naval Academy, Sareta wrote:

I realize the freedoms I enjoy as an American come at a price; if I don't learn and, then in turn, apply what I've learned, I'm not contributing what I could to national security. I have a talent for learning new technology and computer programs. Although I'm not enlisted in the military, I have a duty as an American citizen to contribute to the safety of our troops overseas.

Part of the scholarship process is choosing and interviewing with the DoD facility where the applicant wants to work, and the award is for this specific facility. Sareta explained in her scholarship application:

When I look up on a clear night, I see stars that dare me to meet them. I chose to study aerospace engineering as a result of my participation in the StellarXplorers National High-School Aerospace Challenge. These missions gave me a taste of what it's like to be challenged to find the best answer to a problem that has a multitude of good answers. However, what kept me in
(continued on page 4)

Become a StellarXplorers Sponsor TODAY!



Sareta (from page 3)

aerospace engineering was the experience of failing the first year I competed. Failing reaffirmed my passion for designing satellites.

Sareta will intern and work for the Space and Missiles System Center (SMC) at the LA Air Force Base in El Segundo, California. She will complete her initial college career with two things most college graduates do

not have: little debt and a job! We in the program office fervently hope that she will also have the time to continue as a member of our volunteer staff, inspiring future Saretas to join her quest. From the entire program office: CONGRATULATIONS, SARETA! Good things really do happen to good people.

Road to Springs (from page 2)

To cap off the evening, the Colorado Springs area received three inches of snow that evening. Many team members, including the entire team from Guam, experienced the frozen "white stuff" for the first time. All-in-all, a wonderful time was had by all and many teams are determined to return for StellarXplorers V.



National Champs (from page 1)

ments or cliques - for *Tahsin Machine* their experiences and interactions created an unbeatable StellarXplorers team! Among their lessons learned were the following:

Team Cohesion (it is all about the team). All the team members referred to each other as best friends; a couple of them used the term "family." It is clear that the foundation of their cohesion is mutual respect and willingness to support each other, plus recognition that they all brought slightly different individual strengths to the group. They organized themselves along the lines of those talents and would set aside individual desires for the good of the team. Their team name even reflects that shared value. When the team was forming, seven students wanted to participate. Because StellarXplorers teams have a maximum of six participants, one student, Tahsin Rahman volunteered to step aside. The team chose *Tahsin Machine* as a tribute to that example of selflessness.

Eye on the Prize The team focused on success of the team and doing whatever was necessary. One member admitted that none of them ini-

tially expected to make the finals, let alone win the whole competition. After their first qualification round they found they were very competitive with the more experienced teams, and that served as additional motivation for peak performance. They resolved to use all their resources, acquiring skills as needed, and learning from each of the practice and competition rounds. Their Team Director was their engineering mentor, and they received a half-day refresher on STK from the individual who had assisted them in their eighth grade project, but the bulk of their knowledge was self-taught. One competitor said he learned: "There is nothing I cannot accomplish alone and ... nothing we cannot accomplish together." Their Team Director praised their "grit and determination" and "incredible resolve."

Leadership and Followership None of the competitors used either of these terms in their responses. They referred to things like interpersonal and organizational skills they acquired. It is telling that among the most valuable experiences they cited was meeting and interacting with the other teams (including participating in the first-ever snowball fight that the San Pedro, CA, and Guam teams



New! StellarXplorers Patch

Have you ever wanted to display StellarXplorers in some way before? Well now you can. StellarXplorers now has official, limited edition, embroidered patches in stock for \$5 a patch. If you want to show off your love for StellarXplorers and display it proudly, please check out the patch at www.stellarxplorers.org/registration. Questions? Contact Alex Edgar, 703-247-5800, x4899 or at aedgar@afa.org. Buy your patch today, before supplies run out!

ever saw). Whether they realized it or not, *Tahsin Machine* developed leadership and followership skills that will serve them well the rest of their lives.

But it's not only about the team The *Tahsin Machine* Team Director, Allen Skinner, is an impressive person in his own right. A Science Teacher at Great Mills, counselor of the Engineering Club, and Department Chairperson for STEM, Mr. Skinner is a model of that grit, determination, and incredible resolve that he attributes to the team. None of these extracurricular competitions can succeed without dedicated educators like Mr. Skinner, and we in the StellarXplorers Program Office are grateful that he brought his talents and his incredible team to the program this year.

The story of the StellarXplorers IV Champion should serve as an incentive to other first-time teams to join the fun. But, one closing thought - don't expect StellarXplorers V to be easy. The *Tahsin Machine* competitors were all juniors, and we expect that if you want to meet them in person, your StellarXplorers team will have to make the finals in Colorado in April 2019!

Recent News from the StellarXplorers Program

Air Force Association
1501 Lee Highway
Arlington, VA 22209

Contact StellarXplorers at:
Phone: 703.247.5800 ext 4899
Fax: 703.247.5853
E-mail: stellarxplorers@afa.org

The Force Behind the Force



The Air Force Association (AFA) is a 501(c)(3) non-profit, independent, professional military and aerospace education association promoting public understanding of aerospace power and the pivotal role it plays in the security of the nation. AFA publishes Air Force Magazine, conducts national symposia, and disseminates information through outreach programs.

To this end we:

EDUCATE the public on the critical need for unmatched aerospace power and a technically superior workforce to ensure U.S. national security.

ADVOCATE for aerospace power and STEM education.

SUPPORT the total Air Force family, & promote aerospace education

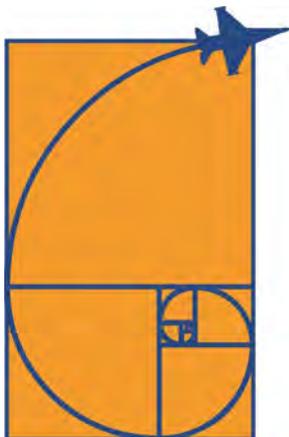
Visit **STELLARXPLORERS** at:

www.stellarxplorers.org



STELLARXPLORERS APPRECIATES THE SUPPORT OF ITS INDISPENSABLE SPONSORS

INTERSTELLAR



**AIR FORCE
STEM**

STELLARPLATINUM



EDUCATIONAL ALLIANCE



SPACE FOUNDATION

STELLARGOLD



STELLARSILVER

