



# ORBITER NEWS

News, announcements, and more.

## Recognizing Excellence: The 2024 Corporate Awards

June 27, 2024



The Aerospace Corporation celebrated the outstanding contributions of its people at the 2024 Corporate Awards Ceremony on Thursday, June 27, recognizing impactful accomplishments that have strengthened both the corporation and the nation’s space enterprise.

The hybrid celebration, hosted by Steve Isakowitz, Aerospace President and CEO, and Tanya Pemberton, Executive Vice President, was held in person in El Segundo with Aerospace employees around the country attending virtually.

“There are so many things Aerospace does that are truly outstanding and worthy of awards,” said Isakowitz.

“I want to thank the nominators who take the time to identify individuals and groups in areas of excellence. To those who were not recognized, I also want to thank you on behalf of the corporation for the amazing work you do.”

For the second year, Aerospace aligned its awards to its corporate strategy of Enterprise Mission Success, Technical Excellence, Operational Excellence and People Excellence, in addition to Growth in Our Value, Innovation and Shaping the Future. SPOT Awards and Employee Resource Group award winners were also celebrated.

“Today’s awards recipients represent the best of what Aerospace is capable of and speak to our significant impact across programs, across missions and across customers,” said Pemberton. “Our success is rooted in our core values, including our enduring commitment to integrity and objectivity. Our vision – to be the nation’s trusted partner, solving the hardest problems for the preeminent space enterprise – inspires and motivates our efforts each and every day.”

The ceremony concluded with the awarding of Aerospace’s highest honors: the President’s Distinguished Achievement Award, the President’s Lifetime Achievement Award, and the Trustees’ Distinguished Achievement Award.

## Operational Excellence Award

The Operational Excellence Award went to the **Job Framework Team** who designed a project to modernize Aerospace’s approach to compensation and align it with external labor market trends while also navigating the process of developing and gathering stakeholder support for an initiative that gives us agility and speed and positions us for the future. In addition to ensuring that Aerospace pays its people equitably and competitively, the implementation of the Job Framework project will further position the company for successful operations by improving Aerospace’s ability to identify internal expertise and provide transparency to current work allocation, budgeting and workforce planning while fostering career pathing and retention.



Aerospace President and CEO Steve Isakowitz and Executive Vice President Tanya Pemberton presented the Operational Excellence Award to the Job Framework Team.

**Team Members:** Amanda Sullivan, Janet Salcido, David Roberts, Deborah Grassl, Stephanie Collins, Kristin St. Peter, Raina Maldonado, Sandy Yonemoto, Sabrina Steele, Conor Shine, Michele Graner, Jonathan Wedhof, Aaron Burton, Tara Walters and Anna Tokarska

## Growth in Our Value Award



The Strategic Foresight Team received the Growth in Our Value Award.

The Growth in Our Value Award was presented to the **Strategic Foresight Team** for demonstrating exceptional leadership and excellence in developing a world-class strategic foresight capability, leading to the creation of a nationally recognized department whose methodologies have advanced critical mission support areas of innovation, systems engineering, net assessment and grand strategy. The team has leveraged this new Aerospace competency to advance and strengthen the nation’s leadership in space, national security and beyond, contributing to significant growth in Aerospace’s value to its customers and to the nation.

**Team Members:** Kara Cunzeman, Paul Frakes, Sarah Georgin, Paul Popejoy, Catrina Melograna and Zachery Tyson Brown

## Innovation Award

The Innovation Award was presented to the **Satellite and Upper Stage Reentry Risk Team** who developed a new method of assessing risks to aircraft and people from reentering objects from space including upper stages, capsules and end-of-life satellites. While prior risk assessments have relied primarily on the modeling of reentering spacecraft design and materials, the team worked in cooperation with the FAA, NASA, NOAA and DOD to obtain and assess real-world air traffic and weather radar data that tracked recent reentries of upper stages, satellites and capsules, to develop novel methods of assessing the quantity, mass and ballistic coefficient of materials reaching the U.S. National Airspace System (NAS). The team's analysis was provided to the FAA, NOAA, FCC and other government agencies to support development of policies, technologies and methodologies to improve USG safety standards for future commercial, civil and DOD operations.



The Satellite and Upper Stage Reentry Risk Team received the Innovation Award.

**Team Members:** William Ailor, Michael Weaver, Kent Rolf Bohman, David Pietrowski and Christopher Woods.

## Shaping the Future Award



Michele Carroll received the Shaping the Future Award.

The Shaping the Future Award went to **Michelle Carroll** who provided thought leadership to senior customer officials within the IC and DoD during a multi-year effort reorganizing the policy oversight, governance, and the program security constructs for a vital national security space capability. Her support to the authorship of the Memorandum of Agreement (MOA) signed by the Director of National Intelligence and the Secretary of Defense set the construct used to negotiate agreements between these two organizations in areas where there were often divergent priorities. Additionally, she was a strong ambassador for this effort. She took initiatives to coordinate through the Aerospace backplane, and with government leaders on both sides

of the agreement, which enabled both organizations to sign an MOA governing this joint capability.

## People Excellence Award – Corporate Citizenship and Community Outreach

The People Excellence Award for Corporate Citizenship and Community Outreach went to the **Vandenberg Outreach Team**, whose members serve as educators and hosts to internal and external visitors to Vandenberg Space Force Base, ensuring that these visitors have a memorable experience and an increased understanding and appreciation for the effort needed to execute successful launches. In addition to educating visitors about launches, space, and the importance of Aerospace's mission, the team members serve as STEM ambassadors to engage, educate and inspire the workforce of the future.



The Vandenberg Outreach Team received the People Excellence Award for Corporate Citizenship and Community Outreach.

**Team Members:** Dorretta Bradshaw, Tom Brand, Joe Brezovic, Lydia Castillo, Patrick Collins, Ray Diepenbrock, Rich Gerardi, Shirley Gillim, Kim Goodwater, Eric Herbert, Mark Irwin, Bill Kaida, Sam Kelman, Jennifer Manda, Jim Marnocha, Kim McKendry, Rich Spoonmaker, Charles Signorelli, Rob Vesely, Laura Wilson and John Wood

## People Excellence Award – Leadership and Mentorship



The Aerospace Lambda Alliance (ALA) Leadership received the People Excellence Award for Leadership and Mentorship.

The People Excellence Award for Leadership and Mentorship was presented to the **Aerospace Lambda Alliance (ALA) Leadership** for demonstrating exceptional dedication to diversity, equity and inclusion by advancing the visibility, engagement and recognition of LGBTQ+ community members internal and external to Aerospace. Through their support of various community events and campaigns, the team significantly increased membership in ALA and their visibility across Aerospace, including among executive leadership. By highlighting the corporation's commitment to diversity and committing to and supporting the LGBTQ+ community, ALA Leadership has greatly contributed to fostering a welcoming environment at Aerospace.

**Team Members:** Kelly Collett and Angela Triplett

## People Excellence Award – Diversity, Equity and Inclusion

The People Excellence Award for Diversity, Equity and Inclusion went to the **Black Engineers Network (BEN) Historically Black Colleges and Universities (HBCU) Aerospace Champions** for building and sustaining relationships with students, faculty and administrators at HBCUs, leading to internships and full-time positions for students and graduates and a strong return on investment for Aerospace. The team has engaged with dozens of subject matter experts across Aerospace to provide technical support and mentoring to students and continues to work with universities to create a foundation for recruitment of underrepresented minorities pursuing advanced degrees, showing a commitment to increasing diversity, equity and inclusion at Aerospace and beyond.



The BEN HBCU Aerospace Champions received the People Excellence Award for Diversity, Equity, and Inclusion.

**Team Members:** James E. Gidney, Jr., Bernard Jefferson, Carl Billingsley, Dr. James "Jay" Northern, Josh Kittle, Angela Couture and Chelsea Johnson

## Technical Excellence Award



Chris Velador received the Technical Excellence Award.

The Technical Excellence Award went to **Chris Velador**, whose technical expertise was essential to lowering the risk of use of polymer tantalum capacitors, a space industry component not fully suited for the space environment, and for spearheading guidance on their use for a major acquisition program and to the benefit of the space enterprise.

Leveraging his prior experience in the space parts industry, Mr. Velador dove deep into the technical aspects of the component, researching construction and manufacturing processes and the mechanisms of the component's behavior before leading efforts to develop a program path to outline its low-risk use. These actions provided the technical

knowledge and communication channels needed to assess and guide design decisions for multiple programs across the space enterprise.

## Enterprise Mission Success Award

The Enterprise Mission Success Award went to the **Enterprise Indications and Warning for Space Team** for playing a critical role in the creation of a new and rstof-its-kind indications and warnings system that protects and defends U.S. high-value space assets across the National Security Space enterprise. The team's technical depth, agile software acquisition know-how, innovation, and willingness to reach across organizational boundaries and commit to high-accountability roles gave Aerospace the ability to successfully advocate for and lead risk-reduction activities, drive needed improvements into the contractor baseline, and retire enterprise risks. The dedicated efforts of the team also contributed to the system's successful deployment and stable operation.



The Enterprise Indications and Warning for Space Team received the Enterprise Mission Success Award.

**Team Members:** Thomas Eden, Brian Bradford, Lauren Perry and Thomas Sullivan

## Program Recognition Award



The Delta IV Launch Team received the Program Recognition Award.

The Program Recognition Award went to the **Delta IV Launch Team** for providing technical support and mission assurance to the Delta IV launch program starting from its development in the 1990s, through the launch and flight of 45 missions over the course of three decades, resulting in 100% mission success. With the assistance of the Delta program office and the Engineering and Technology Group backplane, the team's technical contributions in the form of design improvements, analysis and testing helped shape the Delta IV launch program and ensure its success. In addition, the team has provided unmatched technical expertise and objective analysis to the country's space and

national security programs, helping to secure the United States' leading role in space while safeguarding those here at home.

The award was accepted on the Team's behalf by Craig Larson.

## Employee Resource Group Awards

Aerospace's Employee Resource Groups (ERGs) play an essential part of the culture of Aerospace, enriching and enhancing the employee experience to create a welcoming environment, while providing meaningful opportunities for professional growth, mentorship and service to others that benefit their members, their communities and our company as a whole.

Individuals who were honored throughout the past year by the ERGs were recognized during the Corporate Awards ceremony for their professional and personal achievements, and for exemplifying the highest values and ideals of these groups.

The inaugural Aerospace Latino Members Association Spirit of Excellence Award recognized **Delilah Nuñez**.

The Aerospace Asian Pacific American Association's Dr. Alexander C. Liang Pacific Achievement Award went to **Stacy Shimizu, Tony Tang, Xinyu Wang and Sandy Yonemoto**.

The Aerospace Black Caucus's Robert H. Herndon Black Image Award went to **Briana Davis, Journalia Clowers, Paul Deaderick and Yvette Harris**.

The Aerospace Women's Committee Women of the Year Award was presented to **Lynda Chrisco, Angela Couture, Elena Viscarra and Wendy Chiado**.

## President's Distinguished Achievement Awards

The first President's Distinguished Achievement Award went to the **X-37B Mission 7 Team** for their critical technical support spanning seven years to enable a trailblazing mission using a reusable, uncrewed space plane. After proving the feasibility of the mission – which involves experimenting with new orbits – the Aerospace team helped further refine the concept of operations to ensure it was both safe and responsible, working closely with the contractor team to inform the implementation for flight.

In accomplishing the mission, the Aerospace team played a vital integration role across multiple government entities, developing lasting relationships that will continue to pay dividends into the future.

**Team Members:** Jonathan Aziz, Ryan Handzo, Joshua Kirby, George Pollock and Christopher Ranieri.



The X-37B Mission 7 Team received the President's Distinguished Achievement Award.



The Moonlighter Hack-A-Sat Team received the second President's Distinguished Achievement Award.

The second President's Distinguished Achievement Award went to the **Moonlighter Hack-A-Sat Team** for developing and fielding a one-of-a-kind satellite cyber testbed for a high-visibility international competition. In partnership with Space Systems Command and the Air Force Research Laboratory, the Aerospace team developed a small satellite for this purpose, leveraging Aerospace's extensive track record with cubesats and growing expertise in cybersecurity – a blend of capabilities Aerospace was uniquely suited to provide.

During a live competition streamed on YouTube, the Moonlighter satellite served as the first-ever in-space platform for a Capture-the-Flag exercise, operating seamlessly throughout the competition as

hackers pointed the vehicle to take pictures, exploited the GPS receiver, and executed attacks on the CPU.

At a time when cybersecurity of space systems is more important than ever, Moonlighter and Hack-A-Sat provided valuable public engagement with the cybersecurity community and created lessons learned that will inform future cyber testing and operator training. It also showcased Aerospace's technical excellence on an international stage and furthered its reputation as cyber experts.

**Team Members:** William Chavez, Nicholas Cohen, Rudd Johnson, Garret Kinum, Aaron Myrick, Darren Rowen and Sher Shah

The President's Lifetime Achievement Award went to **Ric Agardy**, whose invaluable contributions to the success of Aerospace and our nation's space enterprise include shaping the whole of military satellite communications – or MILSATCOM – through his technical expertise and forward-looking perspective over the course of his 35-year career at Aerospace.

Agardy was recognized for his contributions to shaping future space capabilities, starting with early roles defining and managing space shuttle experiments. He has also defined new space architectures, including advanced satellite communications architectures and the future vision for strategic and tactical satellite communications. In addition, he has charted the development of new technologies and standards for satellite communications and led the integration of enterprise approaches to space resilience.

Agardy was also recognized for the tremendous impact of the systems he helped design, the technologies he helped advance and his advocacy on behalf of the warfighter.



Ric Agardy received the President's Lifetime Achievement Award.

## Trustees' Distinguished Achievement Award



The Victus Nox Team received the Trustee's Distinguished Achievement Award.

This year's Trustees' Distinguished Achievement Award was presented by Board of Trustees member General Paul Selva.

The Trustees' Distinguished Achievement Award went to the **Victus Nox Team**, who contributed to a first-of-its-kind achievement that set a new standard for how quickly a national security payload can be built, launched, and complete an on-orbit mission objective.

In just over 14 months, the Victus Nox program went from inception to space operations, spanning concept development, contract award, development and space vehicle integration. This culminated in a series of phases – 60-hours for launch activation, 24-hours to launch, and 48-hours to on-orbit initialization, all initiated at a moment's notice.

The team was recognized for demonstrating the type of creative thinking and problem solving this era of space demands – partnering with commercial launch providers, advancing new approaches to acquisitions, and finding ways to streamline processes through foresight and coordination across stakeholders.

The team was also recognized for demonstrating Aerospace's unparalleled ability to build teams drawing experts from across disciplines that are greater than the sum of their parts to achieve incredible feats, making a powerful statement about our nation's ability to rapidly respond to high-priority on-orbit needs in a contested environment.

**Team Members:** Will Colwell, Greg Fruth, Matt Kanter, Blake Rogers and Yelena Savranskaya

Isakowitz concluded the ceremony commending all award winners and thanking employees for another year delivering on Aerospace's mission.



“Today’s winners clearly demonstrate the type of reinvention and bold thinking we will need to succeed as a company,” said Isakowitz. “I hope that after hearing about all this amazing work taking place across Aerospace, that you are as confident and excited as I am about the bright future ahead of us.”

## Press Release: Former Vice Chief of Space Operations Elected to Aerospace’s Board of Trustees

June 20, 2024



CHANTILLY, Va., June 20, 2024 – The Aerospace Corporation (Aerospace) elected U.S. Space Force General (Ret.) David D. “DT” Thompson to its Board of Trustees on June 20, 2024.

Gen. Thompson’s 38-year military career culminated in his role as the Vice Chief of Space Operations (VCSO), the second-highest position in the U.S. Space Force, and also included key leadership roles at U.S. Strategic Command and Air Force Space Command.

“Gen. Thompson has been a leading voice for many years on the urgent nature of the threats we face in space, the important role commercial capabilities can play in support of our mission, and the need for greater integration across the space enterprise,” said [Steve Isakowitz](#), Aerospace president and chief executive officer. “I’m thrilled to welcome Gen. Thompson to our board. His extensive leadership, breadth and depth of expertise in military space operations, policy and strategy will be invaluable as we further Aerospace’s role as the nation’s trusted partner.”

“Gen. Thompson played a foundational leadership role in establishing the U.S. Space Force, and he’ll bring an invaluable perspective on how Aerospace can best support this critical partner,” said [Paul Selva](#), chair of the Board of Trustees. “His wealth of experience across national security space will bring new and expanded strategic insights to the Aerospace board.” Prior to his retirement from active duty in February 2024, Gen. Thompson was responsible for assisting the Chief of Space Operations in organizing, training and equipping space forces in the United States and coordinating space-related activities for the U.S. Space Force and Department of the Air Force.

Gen. Thompson was commissioned in 1985 as a graduate of the U.S. Air Force Academy. He is a career space officer with assignments in operations, acquisition, research and development and academia. Gen. Thompson has commanded operational space units at the squadron, group, and wing levels; he is also an Olmsted Scholar, graduate of the Senior Acquisition Course and Level III-Certified Program Manager.

Aerospace's Board of Trustees members have a myriad of backgrounds, representing academic and scientific institutions and public, government, and national security interests. These diverse points of view allow the board members to collectively provide better guidance and oversight of the corporation's activities.

## Press Release: Aerospace Announces National Stem Scholarship Winners Across Two Programs

June 17, 2024

CHANTILLY, Va., June 14, 2024 – The Aerospace Corporation (Aerospace) has selected two outstanding high school student leaders from the Los Angeles area for the 2024 Dr. Wanda M. Austin Scholarship and two exceptional high school students nationwide for the Future STEM Leaders Scholarship. These two programs underscore Aerospace's strong commitment to nurturing the space industry's next generation of engineers and scientists.

### **Dr. Wanda M. Austin STEM Scholarship**



Angel Santana, left, and Haley Duncan, right, are the recipients of the 2024 Dr. Wanda M. Austin STEM Scholarship.

Haley Duncan from El Segundo, Calif., and Angel Santana from Inglewood, Calif., are Aerospace's first co-recipients of the Dr. Wanda M. Austin Scholarship. Duncan and Santana will receive mentoring, an Aerospace internship, and an annual \$5,000 scholarship for up to four years. The Dr. Wanda M. Austin Scholarship program was created in 2016 to offer funding and internships to support high achieving student leaders from underrepresented areas.

Duncan, a recent graduate from Da Vinci Science (DVS) High School, will begin her studies in engineering at Harvey Mudd College this fall. Since 2020, Duncan has been a student leader for Team 4201: The Vitruvian Bots and in DVS's National Society of Black Engineers. During her internship at Aerospace, Duncan will work in the Systems Engineering Division.

Santana, 2024 Valedictorian of Lennox Academy, will attend Stanford University this fall to study mechanical engineering. At Lennox, Santana was Associated Student Body vice president, cofounder of STEM Fair and the Robotics Club, and the captain of the academy's varsity soccer team. Santana will intern in the Vehicle Systems Division at Aerospace this summer.

"At this exciting time in space, there is immense opportunity for the next generation of engineers and scientists to lead the way forward as we shape the future and develop innovative ways to use space to benefit our society," said [Steve Isakowitz](#), Aerospace president and CEO. "We are delighted to recognize Haley and Angel's impressive academic success through the Dr. Wanda M. Austin Scholarship. Haley, Angel, and our Future of STEM Leaders recipients all have bright futures ahead of them, and Aerospace is proud to support them as they continue their academic journeys."

## Future STEM Leaders Scholarship



The 2024 Future STEM Leaders Scholarship recipients, from left to right: Zadie Boyd, Genesis DeHann, Tanya Sanchez-Dominguez, Zachary Roberts, and Graciela Rodriguez.

Five high school students from Aerospace locations across the nation have been awarded the Future STEM Leaders scholarship. Future STEM Leaders are matched with an Aerospace mentor to help them navigate college and the workforce and will receive a one-time \$5,000 scholarship toward a four-year college or university.

The aim of the Future STEM Leaders Scholarship program is to provide incoming first-generation college students with opportunities at Aerospace's national locations. Awardees are chosen based on their leadership, community participation, and pursuit of an undergraduate STEM degree.

**Zadie Boyd** is a rising senior at New Century Technology High School in Huntsville, Ala. She plans to pursue a degree in biomedical engineering with a focus on additive manufacturing and a minor in marketing.

**Genesis DeHann** is a rising senior at Mitchell High School in Colorado Springs, Colo. She enjoys math, choir, and theater and hopes to one day become a teacher.

**Tanya Sanchez-Dominguez** is a rising senior at DaVinci Academy in Ogden, Utah. She plans to pursue a chemistry degree in fall 2025.

**Zachary Roberts** is a rising senior at Alexandria City High School in Alexandria, Va. He volunteers at his local animal shelter and regularly participates in robotics competitions and Model UN simulations. He plans to pursue a mechanical engineering degree, with a concentration in aerospace engineering.

**Graciela Rodriguez** is a graduating senior from VISU Cleveland High School in Albuquerque, N.M. She is a member of the Storming STEM team, Science Olympiad, Key Club, speech and debate, and her school orchestra. She will study physics at the Massachusetts Institute of Technology, starting this fall.

#### **ABOUT THE DR. WANDA M. AUSTIN SCHOLARSHIP**

The Dr. Wanda M. Austin STEM Scholarship is an invitation-only scholarship, where recipients receive a paid internship from Aerospace and a combined scholarship of up to \$10,000 per year, renewable for up to four years. Scholarship recipients are required to pursue undergraduate studies in a STEM field at a four-year college and maintain a 3.0 or above grade point average. The Dr. Wanda M. Austin STEM Scholarship was named after Aerospace's former CEO and president for her dedication and support of STEM education.

Visit the [Aerospace STEM Endowment Fund](#) to help provide support and resources to underserved students pursuing academics in STEM.

## **AAPJ Heritage Month: Celebrating a Community of Leaders**

June 13, 2024



During AAPJ Heritage Month employees gathered in El Segundo for the professional development workshop, "Creativity is a Workplace Superpower."

Coming together to celebrate as one while supporting colleagues as they grow throughout their careers plays an integral part in shaping the culture at Aerospace. This year, the Aerospace Asian Pacific American Association (AAPAA) is recognizing the Asian American Pacific Islander (AAPJ) community through a variety of events focusing on this year's theme "Advancing Leaders Through Innovation."

Since 1992, communities across America have been coming together to celebrate the AAPI community during AAPI Heritage Month. May was selected to commemorate the arrival of the first Japanese immigrants to the United States on May 7, 1843, and the completion of the transcontinental railroad on May 10, 1869, which was largely constructed by Chinese immigrants. The month serves as a time to celebrate the communities of today while also recognizing the contributions of those who came before.

## Leading Together

On May 15, AAPAA hosted the “Leading Through Innovation” panel, moderated by Tammy Choy, Vice President and Chief Information Officer of Aerospace and Aerospace Diversity Action Committee Executive Sponsor. The featured panelists included Donna Avila, Security and Safety Principal Director of Security and Environmental Health and Safety, Joanna Cardema, Associate Director of the Physical Sciences Laboratories, Lake Singh, Principal Director of the Systems Engineering Division and Christina Tan, Assistant General Manager of the Space Systems Architect Division, all of whom spoke about how they have grown as leaders throughout their careers.

“Being able to learn from the background and experience of others is a beautiful thing to be proud of,” said Joyce Lew, National President of AAPAA. “To appreciate and be accepting of everyone sends a powerful message. I think Aerospace does a great job at accepting all cultures and it really helps people keep an open mind.”

On May 23, employees in Chantilly and El Segundo gathered at local restaurants for a networking lunch. Employees had the opportunity to meet new colleagues, celebrate their community and enjoy a delicious meal together.



Employees in El Segundo enjoyed gathering together for Mongolian BBQ.

“One thing I love about AAPAA is getting to meet so many new people I wouldn’t have the opportunity to interact with on the day-to-day,” said Lew. “I’ve met so many lifetime friends and supporters.”

## Collaborating Across Communities

On May 30, AAPAA teamed up with Aerospace Black Caucus, Aerospace Lambda Alliance, Aerospace Military Veterans and Aerospace Totally Adaptable Group to host a professional development workshop, “Creativity is a Workplace Superpower,” led by speaker Van Lai-DuMone. The event included discussions on how to communicate more effectively and a variety of hands-on activities for the more than 150 people attending both online and in person in El Segundo.

“I really appreciate how ERGs bring us together,” said Lois Yu, National Vice President of AAPAA. “Whether it be in-person or online, it means a lot that so many people are gathering together to celebrate AAPI cultures as a community.”

In order to provide broader support of the AAPI community, AAPAA hosted a giving campaign with Aerospace Cares. Throughout May, they more than doubled their fundraising goal, generously donating



Attendees flexed their creativity when building ducks out of Legos without instructions.

over \$2000 to the Go For Broke National Education Center, Maui Strong Fund, Japanese American National Museum and National Queer Asian Pacific Islander Alliance.

## Strength in Community, Confidence in Self

On June 11, AAPAA hosted a Fireside Chat with Bharat Amin, Member of the Board of Trustees at Aerospace and retired Executive Vice President and Chief Information Officer at Huntington Ingalls Industries. Throughout the conversation, hosted by Tammy Choy, Amin spoke about the importance of having passions both inside and outside of work and the significance of taking risks.



Tammy Choy (left) and Bharat Amin (right) also discussed his passion for serving his country throughout his career in defense.

“Courage [to take risks] doesn’t come automatically,” said Amin. “You have to challenge yourself, challenge your thinking and you have to ask why.”

During the AAPI Heritage Month culminating event, which took place in El Segundo with many joining in virtually from locations nationwide, Amin spoke about the power of being open to learning from others and prioritizing happiness in one’s life. He also emphasized the importance of embracing who he is and his own unique experience and abilities.

“When I came to this country I always wanted to fit into the culture and I would say, ‘How can I be like Paul or Glenn,’ because I was not brought up here,” said Amin. “Until I realized that you were born to stand out as who you are, so be yourself.”

# Students' Passion for STEM Shines During Herndon Memorial Science Competition

June 11, 2024



Pictured: Student participants and Aerospace volunteers at the RHHMSC in Chantilly.

A key part of Aerospace's culture is to nurture the brightest minds of tomorrow to shape the future of space. Throughout the year, Aerospace employees support the next generation of scientists and engineers to actively engage in STEM activities.

In May, hundreds of kids from across the nation participated in the annual Robert H. Herndon Memorial Science Competition (RHHMSC), giving students the opportunity to explore their passions for space. This year's event, which included both an essay competition and student science projects, took place in-person in Chantilly, Va. and El Segundo, Ca., with virtual essay competitions available to students in Alabama and Florida.

"By hosting this event, we are contributing during an impressionable period of their lives," said Dr. Clyde Moseberry, Lead Coordinator of RHHMSC-East in Chantilly. "We are giving them an experience as real-world STEM practitioners that will help sustain, encourage, and for many, accelerate their lifelong interest and pursuit of STEM."

The competition, which is supported by the Aerospace Black Caucus, is named after the late Robert H. Herndon, an Aerospace engineer and manager who served as a mentor for many years during his career and who found his passion for STEM at a young age. This year marked 47 years for the event, which is designed to stimulate interest in STEM amongst underprivileged and minority students and increase diversity across the aerospace industry.

"Robert H. Herndon supported colleagues as a manager and mentor across many programs and helped bridge divides in Aerospace's earliest days of diversity management," said Moseberry. "He was a passionate supporter of early STEM training for kids, having seen the value that STEM served as the center of his professional life."

In Chantilly, middle and high school students spent the day engaging with Aerospace engineers and scientists and explaining their research and projects. The students' curiosity and enthusiasm stood out across a variety of their experiments, including a submersible aerial vehicle, an integrated device for early detection of pronation problems, a versatile portable water purification system and a robot trained to capture garden pests using AI vision recognition. Essays spanned an even broader spectrum, including intelligent traffic control, microbiological agents to remove microplastics, and the evolution of telescopes.



Students enjoyed sharing their research with Aerospace's scientists and engineers and learning from their feedback.

“By supporting the RHHMSC we have a wonderful opportunity to make it clear to STEM students that we value and support what they are doing,” said Moseberry. “It’s important that they get to stand and present their research where we practice some of the world’s leading STEM here at Aerospace.”



Many students gained hands-on experience in engineering through their projects.

In El Segundo, students gathered to participate in the essay and experiment competitions. In addition to showing off their projects, students also had the opportunity to interact with Aerospace employees getting feedback on their research. They also toured various Aerospace facilities, learning more about some of the exciting opportunities in space.

“The goal is to encourage them to try new things and pursue their passions,” said Oliver Ambrosia, Lead Coordinator of RHHMSC-West in El Segundo. “The students light up when the staff interacts with them, and they get to ask their questions. They are motivated by the fact we

care about what they are doing.”

In recent years, the RHHMSC has expanded to include two new locations in Florida and Alabama, led respectively by Terita Norton and Dr. Jay Northern. This year, students at those locations were able to participate via the essay competition and shine a light on the subjects that spark their passion.

“We want to encourage them at an early age to pursue their interests,” said Ambrosia. “Many folks at Aerospace, myself included, became interested in science well before college. In many cases, they were interested from a very young age. Such interest should be encouraged as that passion leads to success.”

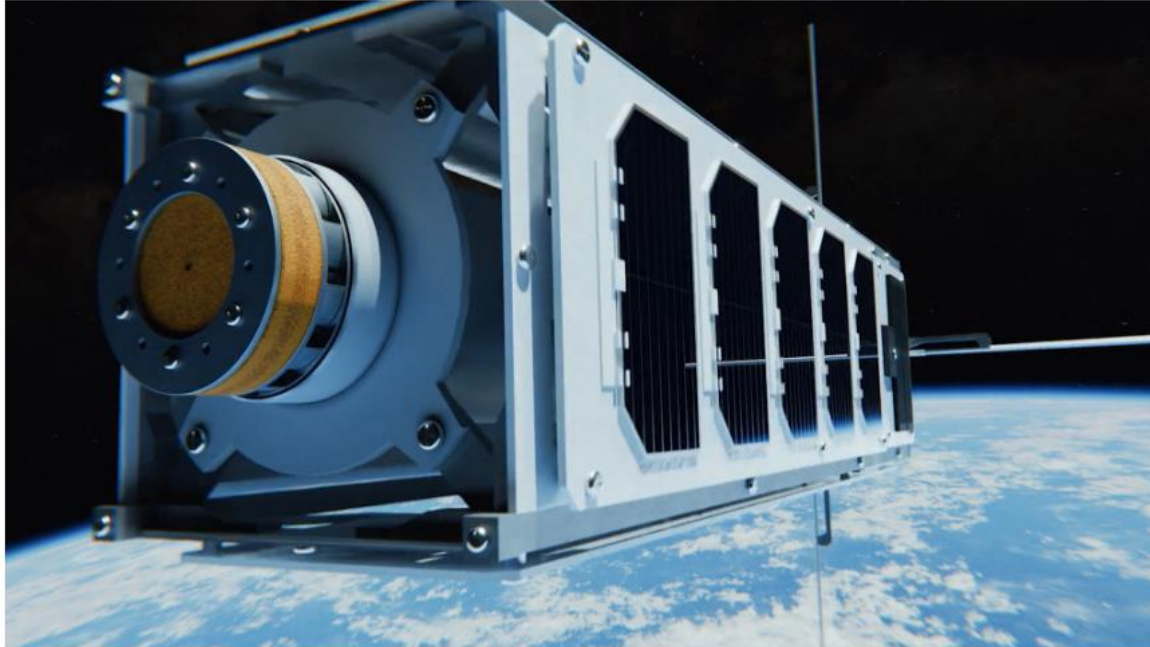


At each location, select students received awards for their projects.



# Aerospace Develops New Capability to Deorbit Small Spacecraft

June 05, 2024



The ongoing space debris problem poses a significant threat for the future of the rapidly growing space industry. The need for innovative solutions to address this challenge has led experts to seek new methods and develop novel technologies that can mitigate further congestion in Low Earth Orbit (LEO). The Aerospace Corporation continues to be at the forefront in advancing concepts, strategies and capabilities that will ensure sustainable access to space for the future. Recently, a team at Aerospace developed a prototype deorbit motor that could enable space operators to safely retire their spacecraft on demand. This is now more essential than ever to space missions given the recent requirements adopted by the Federal Communications Commission (FCC). The new rule requires space operators in LEO to deorbit their satellites within five years—instead of 25 years—of the completion of their mission, making end-of-mission capabilities critical to the space architectures of the future.

“The world is growing more and more dependent on the use of space, however, that use is becoming more stressed and challenged,” said Jerry Fuller, Senior Engineering Specialist at Aerospace. “The risk of a debris collision is greater now than it’s ever been. And at the same time, there are plans to put many more satellites and many more constellations into space. We need to start developing capabilities that will allow space operators to successfully complete their missions without exacerbating the problem.”

Fuller added that Aerospace’s depth of technical expertise and innovation can be leveraged as a more active resource for the global space community in reducing the debris problem.

“Aerospace’s technology leadership should allow it to play a greater role in debris mitigation,” he said. “This rocket motor technology is one of several components that Aerospace has developed toward that end.”

## Meeting the Need for Deorbiting Capabilities

The deorbit motor is designed to be integrated into a spacecraft —such as a CubeSat— using a commercial off-the-shelf (COTS) solid-propellant rocket. What makes it unique is a connected deflector plate and nozzle that creates spin-stabilized axial thrust to enable controlled reentry. As the motor comes up to pressure, the deflector plate acts as an ablative surface and forces gases through various vanes circling the plate, causing the entire satellite to rotate. Once the ablative surface burns away, the motor exhaust exits in the typical fashion, producing the desired deorbit impulse.

“The deorbit motor combines the functions of a spin motor and a thrust motor into a single unit, improving Size, Weight and Power (SWaP) as well as reliability,” Fuller said. “Satellite programs that don’t have the overhead needed for traditional Thrust Vector Control (TVC) can successfully deorbit if they can be oriented in the ram direction (aligned with the direction of flight). In fact, satellites that have lost reaction wheel control might still deorbit, if they still have attitude knowledge and can tumble into the right orientation.”



The deflector plate from the Deorbit Motor forces gases through various vanes circling the plate, causing the entire satellite to rotate.

Most small satellite will have to operate in the lower portions of LEO (about 600 kilometers or below) to rely on drag for deorbit. Above that, there is not enough atmosphere to have much of an effect within five years. In the past, natural deorbit was less of a concern when the time allowance was up to 25 years. But now with the shorter deorbit allowance, satellites that can’t deorbit naturally by drag will require enhancing elements like tethers, chutes and balloons to meet the new regulations. More sophisticated satellites can use electric propulsion to lower their orbit, but this is still a slow process. With the Deorbit Motor, smaller satellites can operate at higher altitudes, where drag alone wouldn’t deorbit them in time. The motor minimizes opportunities for a catastrophic interaction with debris or with other satellites by allowing a quick deorbit. Given the FCC’s new requirements, the deorbit motor could enable space operators to incorporate necessary capabilities to retire their space assets more responsibly once a mission has been completed, while raising the operating altitude well above that where drag could be relied upon.

“The space community is undergoing significant changes in the number and nature of operational satellites and in the diversity of operators and missions,” said Marlon Sorge, Technical Fellow at Aerospace and policy expert for the Center for Orbital and Reentry Debris Studies (CORDS). “These changes are putting a strain on the existing debris mitigation practices. Aerospace is providing our government customers with a quantitative understanding of the new challenges along with possible solutions.”

## Creating Solutions Through Collaboration Across Disciplines

Aerospace's contributions to shaping the understanding of space debris and space traffic management has been quite considerable, starting from the early days of the space era. What may be less known is that Aerospace has also developed and own experiments, advancing technologies that can be useful in debris mitigation and debris removal. In the process of developing the deorbit motor, the cross-discipline team of experts at Aerospace collaborated to explore the possibilities of creating a motor that could lower the orbit of any sized satellite, especially smaller ones with less sophistication. Several different approaches were initially considered, including an arrangement of tractor motors. One approach attempted using a single tractor motor with multiple nozzles changing the shape during the burn to produce spin, followed by thrust. Fuller, along with Senior Project Leader Jeff Lang, collaborated with a breadth of experts across Aerospace, including propulsion, modeling and simulation and control analysis to execute numerous static test experiments and modeling and simulation work. Together, they were able to bring the concept to fruition.

"I come up with these crazy ideas and Jeff is just amazing at making them real," Fuller said.

The breakthrough happened when they arrived at testing the axial motor approach. The team was able to conduct a successful static test, followed by a successful flight test that demonstrated the intended end result: the deorbit motor.

"In a complicated system, it is difficult to get everything to go exactly as planned." said Lang. "In our final flight test, using off the shelf, hobby grade components, everything in our test worked just as planned. It was an exciting way to finish off the project."

## Advancing the Bigger Picture

New innovations like the deorbit motor play a vital part in the broader effort to address the concerns of an increasingly congested space environment. Aerospace's depth of expertise supports a wide breadth of collaborative activities across diverse space stakeholders—from policy, strategy to technical—enabling the development of new and novel approaches to combat the space debris problem. Capabilities like the deorbit motor—and more importantly, the spirit of ingenuity of the people developing them—bring forth much-needed solutions that can advance agility and exibility to how missions are planned and executed.

Future missions will need to implement new capabilities and concepts to improve the sustainability of space architectures and the broader space ecosystem.

"Aerospace has a long history in the analysis and theoretical understanding of space debris and management," said Fuller. "This innovation can contribute more directly to deorbiting small satellites, very quickly after their missions are completed."

*This article has been [published on Aerospace.org](https://www.aerospace.org).*

# June 2024 Obituaries

June 01, 2024

*Sincere sympathy is extended to the families of:*

- **Royland Barnett**, office of technical support, hired March 12, 1962, retired Nov. 1, 2002, died April 12, 2024
- **Peter Cavaretta**, member of technical staff, hired Aug. 31, 1967, retired Nov. 1, 1991, died April 10, 2024
- **Arnold Gillmer**, member of technical staff, hired May 22, 1978, retired March 1, 1987, died Nov. 20, 2023
- **Sidney Lewinter**, member of technical staff, hired April 15, 1977, retired March 1, 1984, died April 19, 2024
- **Kathleen Loftus**, member of administrative staff, hired Oct. 1, 1990, retired Aug. 1, 2013, died Jan. 9, 2024
- **John Lowry III**, member of technical staff, hired Aug. 18, 2008, retired July 1, 2014, died April 7, 2024
- **Donald Mann**, member of technical staff, hired June 21, 1976, retired March 1, 2006, died Feb. 22, 2024
- **Charles Massey**, member of technical staff, hired April 30, 1962, retired Feb 1, 1991, died Feb. 18, 2024
- **Lee Olson**, member of technical staff, hired Aug. 22, 2005, retired Jan. 1, 2013, died April 11, 2024
- **Audreyanne Palyo**, member of administrative staff, hired July 14, 1969, retired June 1, 1998, died April 30, 2024
- **Katherine Saito**, office of technical support, hired Nov. 29, 1976, retired Oct. 1, 1996, died April 14, 2024
- **Jacqueline Schau**, member of administrative staff, hired Oct. 4, 1960, retired Oct. 17, 1998, died April 17, 2024
- **Roger Uehara**, office of technical support, hired Aug. 17, 1970, retired Jan. 1, 2009, died May 2, 2024
- **Louise Vorhaus**, member of administrative staff, hired March 15, 1980, retired Nov. 1, 1991, died March 9, 2024
- **Kenneth Weaver**, member of technical staff, hired March 30, 1981, retired April 1, 2003, died April 23, 2024

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