

Growing a High-Impact Partnership Through Research, Engagement, and Shared Vision for National Security

A Message to Our Universities

We hope this message finds you well and that you had a successful spring semester. As we transition into the summer, our team is excited to share our reflections on the continued progress, accomplishments, and momentum we have built together through the Securing Top Academic Research & Talent at Historically Black Colleges & Universities (START HBCU) program.

Each of our university partners, Alabama A&M, Florida A&M, Norfolk State, North Carolina A&T State, and Prairie View A&M, continue to strengthen their collaboration with Sandia, and we are grateful for the dedication and commitment demonstrated across our joint efforts. As mentioned in our last newsletter, we will share a combined START HBCU newsletter to highlight achievements across all partner universities in one place. Our goal is to expand awareness of the incredible work happening at each university, foster greater visibility, and open the door to new opportunities for cross-university collaboration. We look forward to building on this strong foundation for the long term. In this 2026 Volume 3 update, we are proud to highlight several achievements from the past summer and fall. The support from our Sandia team, including our Deputy Campus Partnership Managers - Patrice Gregory, Alex Belianinov, Monica Salter-Williams, and Dennisa Thomas - as well as our Deputy and Campus Executives, START HBCU Team, and our esteemed faculty collaborators, plays an essential role in advancing our shared **mission to expand the impact of the START HBCU program.**



Welcoming a New Deputy Campus Executive

This year marks an important leadership transition for the partnership. After serving with distinction, **Sarah Leming** is retiring from Sandia, where she has stepped down from her role as Deputy Campus Executive for Alabama A&M. Her contributions helped establish foundational momentum and strengthened Sandia's engagement with the university.



Sandia Deputy Campus Executive
Gabe Birch

START HBCU proudly welcomes **Gabe Birch** as the new Deputy Campus Executive. A Distinguished Member of the Technical Staff, Gabe brings deep expertise in counter-autonomy, target detection and classification algorithms, and high-consequence physical security systems. He holds B.S., M.S., and Ph.D. degrees in optical sciences from the University of Arizona and has already collaborated closely with AAMU faculty, including Dr.

Kenneth Sartor, on projects ranging from tomographic-based sensing for wide-area monitoring to applying vision language models for zero-shot security data analysis. His leadership promises to further strengthen the partnership's technical collaboration and student engagement.



Sandia **Gabe Birch** & AAMU LDRD faculty and student researchers

Advancing AI Education and Awareness on Campus

Sandia researcher **Warren Davis** visited Alabama A&M to deliver a featured talk in the College of Engineering, Technology & Physical Sciences' Artificial Intelligence Seminar Series. His session, "**Broader AI Challenges in Engineering and STEM Education**", guided students and faculty through the fundamentals of artificial intelligence, key applications underway at Sandia, and emerging capabilities shaping the future of the field.



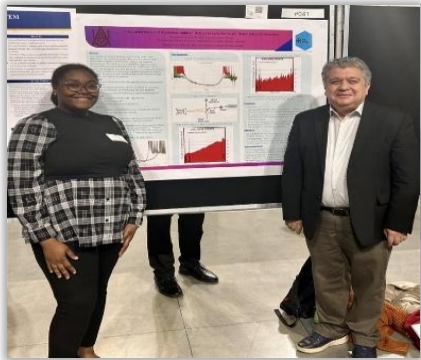
Sandia **Warren Davis** delivering tech talk

Warren also shared insights into Sandia's AI strategy, highlighted mission-relevant case studies, and pointed students to training resources and internship pathways, including [Sandia's virtual & open to the public annual Machine Learning/Deep Learning Workshop](#) occurring August 3-6, 2026. The seminar strengthened attendees' understanding of AI's evolving role in engineering and inspired many to explore how they can contribute to future-focused research.

Showcasing Student Excellence at AAMU's 19th Annual STEM Day

The START HBCU team, including **Anthony Sanders**, **Patrice Gregory**, **Alex Belianinov**, **Breanna Gallegos-Schnedar**, **Natalie Pitcher**, **Sarah Leming**, and **Ed Jimenez**, joined Alabama A&M's 19th Annual STEM Day as guest judges, supporting a showcase of undergraduate and graduate research spanning biology, chemistry, physics, mathematics, engineering, and computer science.

Sandians evaluated student presentations for scientific rigor, clarity, originality, and real-world relevance. Among the presenters was student researcher **Shanice Gray**, who shared her contributions to the joint Sandia-AAMU project "Characterizing Heavy-Ion Induced Defects in Infrared Materials for Space-Based Sensing."



LDRD student researcher, **Shanice Gray**, and faculty PI, **Saltimis Budak**



Sandia START HBCU team & AAMU Leadership and faculty

From AAMU Undergraduate to Full-Time R&D Engineer Through CSR: **Isaiah Thompson**



AAMU alumni and Sandia CSR scholar
Isaiah Thompson

Former START HBCU intern and Alabama A&M alumnus **Isaiah Thompson** reached a major milestone this year through the **Critical Skills Recruiting Program (CSR)**, which provides full funding for a graduate degree while early career staff develop skills in mission-critical disciplines. Isaiah's journey into national security work began with a Mechanical Engineering – Sustainability Studies degree at AAMU and was shaped by early exposure to Sandia and the support of START HBCU programming.

As an intern in Sandia's summer 2025 intern cohort, Isaiah co-authored a research paper and presentation titled "**Bolted Joint Friction Modeling Under Shock**". This work will be featured in the proceedings of the International Modal Analysis Conference 2026, hosted by the Society of Experimental Mechanics, highlighting the high-impact research opportunities available through Sandia internships.

Upon acceptance into CSR, Isaiah will pursue a master's degree in mechanical engineering at Texas A&M University (TAMU), gaining deeper technical specialization while continuing his Sandia work. After graduating from TAMU, he will transition into a full-time role at Sandia. Isaiah's path exemplifies the strength of the START HBCU and CSR models in preparing students for impactful, long-term careers at the national laboratories.

Expanding Impact Through Internal Laboratory Investments

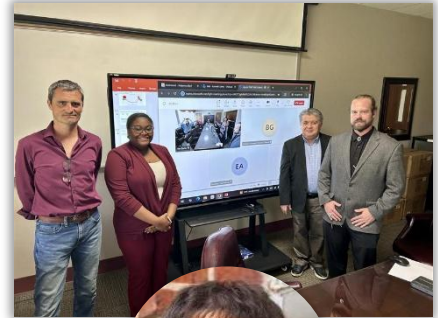
A cornerstone of Sandia's START HBCU partnership with Alabama A&M is the set of jointly developed projects supported through Sandia's Laboratory Directed Research and Development (LDRD) program. Sandia's LDRD Program enables mission-aligned, collaborative research efforts with START HBCU partners, supports faculty advancement, and provides students with opportunities to work on national-security-relevant challenges.

LDRD Project: Advancing Space-Based Sensing Materials

The collaborative project Characterizing Heavy Ion Induced Defects in Infrared Materials for Space Based Sensing continues into its third and final year. Led by Sandia Principal Investigator **Evan Anderson** alongside AAMU faculty Drs. **Satilmis Budak**, **Claudiu Muntele**, and **Jonathan Lassiter**, this effort is focused on understanding how infrared materials, specifically InAs, respond to irradiation by ions such as protons, carbon, silicon, and heavier species.

The team is using SRIM simulations to guide ion bombardment experiments, while Fourier Transform Infrared (FTIR) Spectroscopy is employed to analyze resulting material defects. Student researcher **Shanice Gray** (undergraduate) is deeply embedded in the work, contributing to both experimental design and data interpretation. This year marks a significant step forward in characterizing damage mechanisms that have direct implications for space-based sensing systems.

AAMU faculty **Claudiu Muntele**, student **Shanice Gray**, faculty **Satilmis Budak**, faculty **Jonathon Lassiter**



Sandia **Evan Anderson**

LDRD Project: Building Smarter Neuromorphic Systems Through Materials Innovation

AAMU faculty **Satilmis Budak**, student **Baraka Chimba**, student **Sydney Fleming**, faculty **Zhigang Xiao**



Sandia **Will Chapman**

A newly launched three-year project, Physical Hardware Yielding Smart Integrated Computing Systems (PHYSICS), brings together Sandia PI **William Chapman** with AAMU faculty members Drs. **Zhigang Xiao** and **Satilmis Budak** to push the boundaries of neuromorphic computing. The team is working to utilize nonlinear characteristics, often thought of as non-idealities to mitigate, of analog devices including resistive random access memory (ReRAM) arrays. The team aims to incorporate these behaviors at the device, architecture, circuit, and algorithm levels to improve energy efficiency and decrease design time.

Students **Sydney Fleming** and **Baraka Chimba** are actively participating in cleanroom microfabrication to produce ReRAM devices and wafers, followed by electrical property characterization and wafer scale performance analysis. Their results will feed directly back into the project's core research. Notably, **Baraka Chimba's** fabrication expertise was strongly shaped by his 2024 internship with Sandia's Center for Integrated Nanotechnologies (CINT), where he worked under the mentorship of Sandian **Chloe Doiron**, an example of the powerful talent pipeline growing from this partnership.

LDRD Project: Innovating Thermal Characterization Methods to Strengthen Component Reliability

In the first year of the LDRD project Developing Novel Thermal Qualification Methods for Components through Laser Probe Thermal Characterization, Sandia PI **John Tencer** and AAMU team lead Dr. **Satilmis Budak**, along with faculty collaborators Drs. **Zhigang Xiao**, **Aschalew Kassu**, and **Mebougna Drabo**, are developing advanced techniques that use reflected energy to infer thermal absorption. Their goal is to create highly uniform and repeatable surface treatments, achieved through optimized surface finishes and various spray coatings, that will ultimately enhance thermal measurement accuracy for component qualification.

Undergraduate researchers **Alejandro Rosa** and **LaDarrien McCall** are key contributors. **LaDarrien McCall** will continue building his skills this summer as an intern at Sandia under the direction of **Reza Arghavani** in the Electronic Engineering – Strategic Trade Controls group, further strengthening the research-to-internship pipeline.

AAMU faculty **Mebougna Drabo**, student **Alejandro Rosa**, student **LaDarrien McCall**, faculty **Aschalew Kassu**



Sandia **John Tencer**

LDRD Project: Advancing Arctic Domain Awareness Through Machine Learning and Distributed Sensing

A new two-year project, *Machine Learning-Based Classifiers for Arctic Domain Awareness Using Distributed Acoustic Sensing Data*, marks a significant expansion of AAMU's research portfolio in support of national security. Led by Sandia PIs **Michael G. Baker** and **Thomas Luckie** with AAMU team lead Dr. **Kenneth Sartor** and faculty collaborators Drs. **Kaveh Heidary** and **Phil Bording**, the team is working to develop a high-spatial-resolution, low-cost acoustic sensing system capable of identifying and localizing non-impulsive seismoacoustic signals in near real time.

AAMU faculty **Kenneth Sartor**, student **Jeffrey Dulaney**, student **Mya Magwood**, faculty **Kaveh Heidary**



Sandia **Michael G Baker**

Sandia **Thomas Luckie**

The research focuses on developing machine-learning classifiers using Distributed Acoustic Sensing (DAS) data to identify signals linked to watercraft, hovercraft traffic, sea-ice dynamics, ocean activity, and earthquakes. AAMU researchers are leveraging datasets provided by Sandia to create benchmark detectors, enhance mission-relevant understanding of Arctic marine activity, classify signals, characterize DAS catalogs, and analyze prediction uncertainty across classified events. This work carries significant potential for applications including seismic and geophysical monitoring, pipeline and infrastructure surveillance, railway safety, and broader area monitoring.

Senior undergraduate researchers **Jeffrey Dulaney**, a former 2025 Sandia summer intern, and **Myah Magwood** are leading the student contributions. **Magwood** will expand her experience this summer through an internship with Sandia's Physical Security Systems Engineering department, working on autonomous systems R&D with Sandian **JP Nelms**.

AAMU Expands Research Infrastructure and Academic Capacity

Alabama A&M is rapidly strengthening its research footprint in ways that align closely with Sandia's mission. New initiatives include plans for a cleanroom facility, a newly launched minor in Data Science, and increased Alabama A&M engagement in the NSF-funded [HBCU CHIPS Network](#). The Alabama A&M contributions are being co-directed by faculty collaborators Drs. **Satilmis Budak** and **Zhigang Xiao** to advance thermoelectric materials and next-generation cooling technologies. Additionally, Alabama A&M Board of Trustees approval for its new Center for Nuclear Science and Engineering under the leadership of faculty collaborator Dr. **Mebougna Drabo**. These developments open exciting new avenues for deeper collaboration.



Forging New Pathways Through the DREA²M Mission Campaign

A major driver of Sandia’s engagement with Florida A&M this year has been the DREA²M Mission Campaign “Digitally Realized and Enabled Agile Advanced Manufacturing” a new Investment Area within the Laboratory Directed Research and Development (LDRD) program. DREA²M aims to accelerate the realization of mission-critical products by modernizing and transforming advanced manufacturing capabilities across the laboratory.

As part of this effort, DREA²M, under the direction of manager **Mohan Karulkar** and business development specialist **Viviana Bauldry**, has begun building a strategic relationship with Florida A&M that spans research, proposal development, and student workforce initiatives. This partnership is opening new doors for shared innovation in advanced manufacturing science and national-security-aligned engineering research.

DREA²M Engagement: Supporting a FAMU Capstone Team through Hands-On Advanced Manufacturing

*FAMU Capstone Students: **Sunshine McDonald, Joshua Davey, Christian Kennedy, Nicolas Rossi***



*Sandia sponsor **Mohan Karulkar***

*Sandia Mentor **Elliot Fowler***

*Sandia Mentor **Robert Craig (FAMU Alumni)***

Sandia’s DREA²M supported a Florida A&M senior capstone titled “**Additive Manufacturing of Stainless Steel: Addressing Supply Chain Challenges.**” The project centered on a clear technical goal: evaluating the feasibility of Wire DED additive manufacturing to produce near net shape 316 stainless steel parts that meet mechanical requirements while reducing lead times and supply chain constraints compared to traditional forging and casting.

The student team, mechanical engineering student **Joshua Davey** and industrial engineering students **Sunshine McDonald, Nicholas Rossi, and Christian Kennedy**, applied this goal to a real Sandia relevant use case. They developed a plan to assess both Wire DED and traditionally sourced materials for fabrication of a UUR battery housing, producing test artifacts for material characterization, conducting a technoeconomic analysis, and performing extensive literature and market research to understand cost and manufacturability tradeoffs. Sandia mentor **Elliott Fowler** provided support, with additional mentorship from FAMU alumnus **Robert Craig**, reinforcing the strong and growing Sandia-FAMU talent pipeline.

DREA²M Engagement: Campus Visits Spark Deeper Research Alignment

Through increased engagement stemming from DREA²M collaboration, Dr. **Chad Zeng** of FAMU visited Sandia to tour the advanced manufacturing laboratories and discuss joint research opportunities. This visit prompted a reciprocal trip by Sandia **James Youchinson** to Florida A&M, where he met with faculty and university leadership and toured facilities in advanced manufacturing, technical embroidery, and transportation research. While on campus, he also served as a judge for FAMU’s senior design project presentations, creating yet another touchpoint between Sandia mentors and rising engineering talent.



*FAMU **Chad Zeng** and Sandia **James Youchinson** at Sandia.*



Sandia and history visitors at FAMU facility tours

Supporting Academic Development Through PhD Committee Support: Akil Dyson

Deputy Campus Partnership Manager **Alex Belianinov** has deepened Sandia's academic engagement with Florida A&M University through his service on the PhD committee of **Akil Dyson** in the Department of Industrial & Manufacturing Engineering. In this role, Alex provides ongoing technical guidance and helps align his work with national laboratory research directions.



FAMU Akil Dyson

Akil's research focuses on two mission relevant areas: advancing the interfacial reliability and performance of printed nanoparticle inks for structural and functional electronics—where he studies how ink chemistry influences mechanical and electronic behavior in hybrid 3D printed systems and developing advanced manufacturing approaches for liquid metal alloy ion source prototyping, aimed at reducing repeatability errors in fabricating novel ion sources for focused ion beam platforms. Alex's involvement creates a strong bridge between Akil's doctoral research and Sandia's scientific expertise, expanding collaboration and strengthening Sandia's presence within FAMU's graduate research community.

Connecting with Students Through Classroom Engagement

Sandia's **Ross Schneider** visited the university to deliver a technical seminar to faculty and students at joint college FAMU/FSU College of Engineering on the development and validation of the Torque Angle Signature Logger (TASL). His talk highlighted TASL's role as a novel method for measuring residual preload in bolted joints, a critical requirement for ensuring structural integrity, particularly after dynamic testing where traditional measurement techniques often fall short. Students and faculty gained insight into how advanced sensing and validation methods contribute to national security systems and applied engineering research.



FAMU students & faculty, Sandia **Sheila Lewis**,
Sandia **Ross Schneider**



Sandia **Ross Schneider**

During their visit to campus, Sandia's **Alex Belianinov** delivered presentations to two undergraduate engineering classes, Dr. **Shreyas Balachandran's** *Mechanics and Materials* course and Dr. **Simone Hruda's** *Mechanical & Aerospace Engineering* class, as well as **FAMU's Robotics Club**. The sessions provided students with an overview of Sandia National Laboratories, the START HBCU program, internship and research opportunities, and the suite of graduate-pathway programs available to early-career talent. Students actively engaged with the presenters, asking questions about national-security research, career trajectories, and how to prepare for internships and future roles at Sandia. These classroom visits created a direct and meaningful connection between Sandia and FAMU's engineering students, helping strengthen both awareness and access to laboratory opportunities.



Sandia **Alex Belianinov** & FAMU Robotics Club

Expanding Impact Through Internal Laboratory Investments

A cornerstone of Sandia's START HBCU partnership with Florida A&M is the set of jointly developed projects supported through Sandia's Laboratory Directed Research and Development (LDRD) program. Sandia's LDRD Program enables mission-aligned, collaborative research efforts with START HBCU partners, supports faculty advancement, and provides students with opportunities to work on national-security-relevant challenges.

LDRD Project: Synthesis and Characterization of Nanocomposite Thin Films Write-Up

In the second year of a three-year collaboration between Sandia PI **Nathan Moore** and the Florida A&M team led by **Rebekah Downes**, including PhD students **Nischal Adhikari** and former intern **Zipporah Harlan**, the project is focused on advancing fabrication processes for polymer nanocomposite (PNC) thin films. This project explores alternative fabrication routes to push the boundaries of control over film thickness and spatial resolution, with direct relevance to Sandia's Z machine applications, the world's most powerful pulsed power machine.

By generating extreme temperatures, pressures, and x-rays through high magnetic fields and electrical currents, the Z machine provides rapid and accurate characterization of material behavior under high energy density conditions. Early progress includes setting up experiments and conducting preliminary runs using FAMU's precision inkjet 3D printer, the nScript micro-dispensing system. This technology allows for highly precise material deposition with adjustable flow rate, speed, and temperature controls, enabling the creation of thin layers with tailored properties. These capabilities support exploratory research into novel thin film manufacturing methods that could improve spatial resolution and increase control of material properties.



Sandia **Nathan Moore**

FAMU **Rebekah Sweet**

FAMU **Zipporah Harlan**

FAMU **Nischal Adhikari**

LDRD Project: Structured Light from Superstructured Photonics

In this exciting new collaboration, Sandia PI **Alex Cerjan** is working with Florida A&M faculty **Vasile Lauric** and University of New Mexico's **Terry Loring** to explore novel ways to localize light within nanophotonic structures. The project focuses on confining light to specific regions at the nanoscale by investigating the mathematical concept of the Clifford spectrum, which offers a fresh perspective on light confinement beyond traditional methods.

Building on previous work from the project, the FAMU team is applying advanced mathematical techniques to Maxwell's equations to optimize light localization through a new simulation approach. Their research aims to prove that the Clifford spectrum, a generalization of the joint spectrum for multiple operators, is always non-empty for higher-dimensional matrices. This breakthrough has important implications for predicting electronic localization in materials and classifying topological properties in quantum materials, both critical for next-generation microelectronics and quantum technologies.

Significant progress includes a proof that the Clifford spectrum is non-empty for three 2×2 Hermitian matrices. While extending this result to larger matrices remains challenging, the team has identified promising mathematical tools, such as Weyl's and Ostrowski's theorems, that may lead to further advances. Their findings are detailed in a manuscript submitted for publication, which explores the structure of the Clifford spectrum in this case and proposes pathways for generalization. The manuscript is available on arXiv at <https://arxiv.org/pdf/2602.15302>.

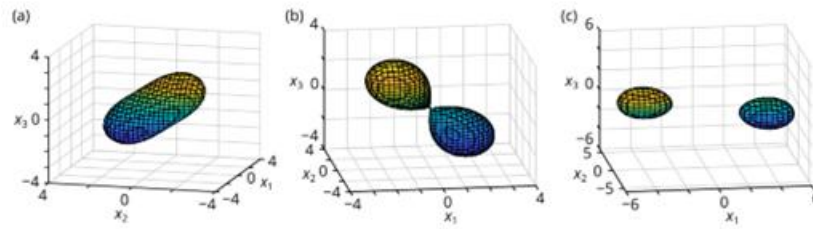


FIGURE 4.1. Surfaces corresponding to the Clifford spectrum for the matrix triplets given in Example 4.1 (a), Example 4.2 (b), and Example 4.3 (c).

Undergraduate students **Olivia Hilton**, **Sydney Tyler**, **Preston Lewis**, and **Cory Ward** have supported the project by constructing Clifford spectra for specific matrices and evaluating hypotheses through computer programming. **Olivia Hilton**, a former Sandia summer intern in 2025, will return for another internship in summer 2026 under Alex Cerjan, contributing further to this LDRD project.



Sandia Alex Cerjan

FAMU Vasile Lauric

FAMU Sydney Tyler

FAMU Corey Ward

FAMU Olivia Hilton



Strengthening Academic Integration Through a Joint Appointment



Sandia Mi'Kayla Word

The partnership deepened this year through an outbound joint appointment for Sandia post doc, **Mi'Kayla Word**, within NSU's Department of Chemistry and facilitated by Academic Program's Faculty Loan Program Team. Under the direction of Department Chair Dr. **George Miller**, Mi'Kayla contributes expertise in computational chemistry, quantum chemistry, and molecular modeling to support NSU's expanding research efforts in quantum science. Her appointment has enhanced both instructional capacity and strategic program development. She has played a direct role in student development, teaching Math Methods for Physics and Chemistry majors, supporting students as they strengthened their quantitative problem-solving skills.

As part of her joint appointment, Mi'Kayla helped strengthen Sandia's academic integration with NSU through the **NNSA Minority Serving Institution Partnership Program (MSIPP) NoVEL project**. The consortium focuses on building research and educational capacity in materials science and photonic engineering, disciplines central to the Nuclear Security Enterprise. Mi'Kayla delivered a session titled **"Systems Thinking for Scientists and Engineers"** as part of the NoVEL invited speaker series, where she helped students learn how to integrate systems-level approaches into their research workflows.



MSIPP NoVEL Speaker Series

Elevating Optical Engineering Through Classroom Engagement

Sandia continued to strengthen its relationship with Norfolk State University this year through direct engagement with students in the Optical Engineering program. Sandia researcher **Charles Reinke** delivered a technical seminar to Dr. **Ivy Jones'** Optical Engineering classes, offering students an in-depth look at Sandia's cutting-edge research in photonic and phononic microsystems, highlighting its communication, sensing, computing, imaging and quantum applications. The talk sparked thoughtful discussion and expanded student exposure to advanced research pathways.

Advancing Materials Research Through a CINT User Proposal

Sandia's partnership with Norfolk State also extends through the [Center for Integrated Nanotechnologies \(CINT\)](#), a DOE Office of Science user facility jointly operated by Sandia and Los Alamos National Laboratories. CINT provides researchers across academia, industry, and the national laboratories with access to advanced nanoscience tools and expertise. Access is granted through competitive user proposals, which undergo scientific merit and feasibility review during CINT's open call periods. Approved users receive no-cost access to instrumentation, scientific support, and collaborative opportunities with CINT scientists.

Norfolk State currently leads an active CINT user project running from July 1, 2025, to December 31, 2026. The effort, "*Ion Implantation of Ti^{3+} Ions into Sapphire for Laser Development*", spearheaded by NSU faculty member Dr. **Carl Bonner** in collaboration with CINT scientist **Igal Brener**. This collaboration demonstrates NSU researchers are leveraging national-laboratory user facilities to advance impactful materials science research.

Expanding Impact Through Internal Laboratory Investments

A cornerstone of Sandia's START HBCU partnership with Norfolk State is the set of jointly developed projects supported through Sandia's Laboratory Directed Research and Development (LDRD) program. Sandia's LDRD Program enables mission-aligned, collaborative research efforts with START HBCU partners, supports faculty advancement, and provides students with opportunities to work on national-security-relevant challenges.

LDRD Project: Search for Superconducting Diode Effect in Topological Materials

Now in its final year, this collaboration between Sandia PI Dr. **Wei Pan** and Norfolk State faculty lead Prof. **Doyle Temple** is advancing the search for the superconducting diode effect (SDE) in topological materials. The effort focuses on unraveling magnetic field-free superconducting diode effect (SDE) in these materials, which could lead to new designs for superconducting electronics.

NSU researchers and Dr. Wei Pan have worked closely throughout the project. Recently, samples fabricated at Sandia were mounted and tested at NSU using their newly installed quantum measurement systems. The work has provided insights into time reversal symmetry breaking superconducting states and contributed to NSU's expanding quantum research capabilities. PhD student **Orrin Clarke-Delgado** and undergraduate **Layla Smith** have played key research roles, working extensively in both Sandia & NSU's lab and contributing to publications. The project has generated multiple peer-reviewed publications in [Materials Science & Engineering](#) and [Nano Letters](#), along with several student conference presentations. Additionally, Dr. Wei Pan delivered a seminar at NSU on novel Josephson effects in Dirac semimetals, further supporting the university's emerging quantum PhD program.

LDRD Project: Unrolling MLEM Estimates through Machine Learning

In a promising collaboration between Sandia and Norfolk are harnessing machine learning to revolutionize high-speed x-ray imaging of energetic events. Led by Sandia PI **Ed Jimenez** and NSU faculty **James Tipton** and **Ana Vivas**, this project aims to develop a neural network capable of delivering results up to 100 times faster than traditional methods. This breakthrough will enable scientists to capture and analyze fleeting physical phenomena occurring in billionths of a second, critical for advancing national security research.

The project focuses on building a 4D imaging algorithm to capture events occurring on billionths of a second. These fast events produce overlapping images that are difficult to analyze with conventional techniques. By leveraging machine learning, the team aims to improve both the speed and clarity of image reconstruction. Progress includes developing two models, a base convolutional neural network inspired by a 1991 method and plans for a more advanced maximum likelihood estimation model using synthetic data generated through Monte Carlo simulations. Students **Michael Barnett**, **Nazeerah Peasant**, and **Shawn Strobel** have contributed by writing MATLAB scripts, training neural networks, and preparing materials for upcoming conferences. Their work supports both the research goals and provides valuable hands-on experience in machine learning and scientific communication. This work promises to significantly enhance the speed and accuracy of imaging technologies critical to national security and other scientific fields requiring rapid, high-resolution observation of transient phenomena.



Sandia **Anthony Sanders**, NSU **Nazeerah Peasant**, NSU **James Tipton**, NSU **Michael Barnett**, NSU **Shawn Strobel**, Sandia **Monica Salter-Williams**, Sandia **Ed Jimenez**, Sandia **Jasmine Mabrey**



Championing Innovation at the College of Engineering Senior Design Expo

Sandia continued its long-standing engagement with North Carolina A&T by supporting the College of Engineering Senior Design Expo, a signature event that showcases the creativity, technical skill, and real-world problem-solving abilities of students. Sandians



Photo Credit: North Carolina A&T College of Engineering ([LinkedIn](#))

Dennisa Thomas and **Patrice Gregory** served as judges for the 2026 competition, evaluating capstone teams as they presented solutions to complex engineering challenges.

The Expo featured interdisciplinary projects addressing manufacturing, energy, aerospace, computing, advanced materials, and emerging technologies. Sandia's participation helped reinforce the Lab's commitment to experiential learning while offering students professional-level feedback on project execution, design rigor, innovation, and presentation quality. This event continues to be a powerful touchpoint for deepening faculty relationships and identifying future talent.

DREA²M Supports Engineering Degree Apprenticeship Pathway with NC A&T and Forsyth Tech

Sandia has strengthened its partnership with North Carolina A&T through its DREA²M Mission Campaign, "**Digitally Realized and Enabled Agile Advanced Manufacturing**," a new Investment Area within the Laboratory Directed Research and Development (LDRD) program. DREA²M aims to accelerate mission-critical product development by modernizing advanced manufacturing capabilities across the laboratory. DREA²M's manager, **Mohan Karulkar**, and technical business development specialist, **Viviana Bauldry**, visited NC A&T's College of Engineering to explore collaboration opportunities aligned with DREA²M's mission of advancing agile, digitally enabled manufacturing.

A key focus of this partnership is the Engineering Degree Apprenticeship Pathway (EDAP), a transformative program led by **Growth Sector's Greg Monty, David Gruber, and Chris Fincher**. EDAP combines academic learning with paid internships to create clear pathways from community college to bachelor's degrees and high-paying STEM careers. The program is designed to open engineering opportunities by providing hands-on experience and mentorship through technical internships.

Sandia will contribute by providing meaningful manufacturing problem sets to Forsyth Technical Community College's summer 2026 student cohort, under the mentorship of North Carolina A&T faculty **Nelson Granda**, and Forsyth Tech's **Tandeka Boko & Zuania Pacheco Del Rio**. Sandia will also host these students at the 2026 START HBCU Poster Symposium. This collaboration enhances access to advanced education, promoting experiential learning, and strengthening post-graduation outcomes through connections to higher education and workforce opportunities.

Strengthening the Talent Pipeline Through Graduate Pathways

Sandia's Graduate Pathways programs, including the [Critical Skills Recruiting Program \(CSR\)](#) and the HBCUUNM Pathways Program, continue to open doors for students from HBCUs to pursue advanced degrees while contributing directly to national-security missions. These programs are key components of the START HBCU strategy to create sustainable, long-term educational and professional pathways aligned with Sandia's mission needs.

From NCAT Undergraduate to Full-Time R&D Engineer Through CSR: Mehki Parker

Former START HBCU intern and North Carolina A&T alumni, **Mehki Parker**, reached a major milestone this year through the Critical Skills Recruiting Program (CSR), which provides full funding for a graduate degree while early-career staff develop skills in mission-critical disciplines. Starting with a computer engineering degree at North Carolina A&T, this individual's journey into national-security work was shaped by early exposure to Sandia and the support of START HBCU programming.



NCAT Mehki Parker

Upon acceptance into CSR, Mehki, completed a master's degree in computer engineering at North Carolina State University, gaining deeper technical specialization while continuing their Sandia work. After graduating, they transitioned into a full-time role on a team focused on digital design, verification, embedded software, and hardware development for advanced controllers. As a new R&D S&E Computer Engineer, he will help develop the firmware that drives one of Sandia's mission-critical hardware systems. His path reflects the strength of the START HBCU and CSR models in preparing students for impactful, long-term careers at the national laboratories.

HBCUNM Pathways Scholars: Kenedi Catoe, Eryal Rhinehart, and Mayah Drayton

This year marked a major milestone for three START HBCU interns from North Carolina A&T State University, **Kenedi Catoe**, **Eryal Rhinehart**, and **Mayah Drayton**, who were accepted into the HBCUNM Pathways Program. This initiative provides a seamless transition from ABET-accredited HBCUs into funded engineering master's programs at the University of New Mexico while students continue hands-on research at Sandia.

All three scholars have been deeply shaped by long-term mentorship, peer support within the cohort, and participation in both the START HBCU intern program and the Black Leadership Committee's Hands-On-Minds On Technology (HMTech) STEM initiative, where they contribute to summer programming for students in grades 6–12. Each one also benefited from structured guidance in graduate-school planning, career exploration, and technical development from Sandia mentors.

Kenedi Catoe



NCAT Kenedi Catoe

Kenedi, NCAT graduate of Bachelors of Computer & Electrical Engineering, joined Sandia in 2023 as a START HBCU intern in Subsystem/Component & COTS Surety Engineering and will remain in her technical organization while completing her graduate studies at UNM in Mechanical Engineering. Her work focuses on surety systems, an area central to Sandia's national-security mission, and she has made rapid technical progress in system-level risk assessment and component analysis. Kenedi also served as Sandia's Student Ambassador for North Carolina A&T, strengthening the recruitment pipeline between NCAT and Sandia.

Eryal Rhinehart



NCAT Eryal Rhinehart

Eryal, NCAT graduate of Bachelor of Mechanical Engineering, now pursuing a graduate degree in Optics & Optical Engineering at UNM, while continuing her research with the Non-Destructive Evaluation & Development organization at Sandia. Her graduate thesis research centers on ZnO thin films (~100 nm) as promising candidates for GHz (nanosecond) optical thermometry applications. A key challenge is the direct deposition of ZnO onto stainless steel substrates, which is hindered by lattice strain mismatch and thermal expansion differences, often leading to cracking. Her testing includes continuous-wave and pulsed photoluminescence, SEM,EDS and XRD analyses to assess surface morphology and crystallinity. This work is critical for advancing ultrafast optical thermometry in extreme environments.

Mayah Drayton



NCAT Mayah Drayton

Mayah, a NCAT graduate with a bachelor's in computer engineering, is making strong contributions to Sandia through her work with the Scalable Computer Architecture group. Her work advances high-performance computing capabilities across national security. She is continuing this work while pursuing a graduate degree in Computer Engineering at the University of New Mexico, through HBCUNM, where she is integrating her Sandia internship research directly into her graduate thesis under the guidance of her technical mentor, Gwen Voskuilen. In addition to her research accomplishments, Mayah has taken on a leadership role within the UNM community, recently becoming treasurer of the university's chapter of the National Society of Black Engineers.

Expanding Impact Through Internal Laboratory Investments

A cornerstone of Sandia's START HBCU partnership with North Carolina A&T is the set of jointly developed projects supported through Sandia's Laboratory Directed Research and Development (LDRD) program. Sandia's LDRD Program enables mission-aligned, collaborative research efforts with START HBCU partners, supports faculty advancement, and provides students with opportunities to work on national-security-relevant challenges.

LDRD Project: Advancing Cyber-Physical Security Through AI-Driven Threat Modeling

A new one-year project, *Cyber-Physical Threat Modeling with AI-Driven Attack Generation*, unites Sandia PIs **Nathan Fabian** with NCAT faculty member **Ahmad Patooghy** to enhance physical security analysis through complementary AI-driven approaches. At the core of this effort is Sandia's Dante simulation tool, which models adversary attacks on critical sites using automated force-on-force Monte Carlo simulations. Dante produces extensive data to help analysts statistically evaluate the effectiveness of physical security systems.

While Dante provides high-fidelity simulations of physical security performance, the NCAT team focuses on complementary cyber-physical aspects, particularly sensor equipment and software vulnerabilities. Their work employs two AI-driven strategies: the first uses large language models (LLMs) combined with Retrieval-Augmented Generation (RAG) to extract structured system knowledge from design documents, supporting verification efforts. PhD student **Khalil Hasan** is developing LLM-based grey-box vulnerability detection to identify potential weaknesses.

The second strategy leverages reinforcement learning alongside LLMs to dynamically generate and stress test attack scenarios, challenging the resilience of cyber-physical systems. Undergraduate researcher **Delvan Paulino** is developing LLM-based scenario generation tools.

Together, these complementary efforts advance the understanding and modeling of cyber-physical threats, strengthening the overall capability to protect critical infrastructure. The team is preparing to submit their findings for conference presentations and pursue follow-on funding.



Sandia **Nathan Fabian**

NCAT **Ahmad Patooghy**

NCAT **Khalil Hassan**

NCAT **Delvan Paulino**

LDRD Project: Should Computers Observe or Decide? Human Factors in Security System Automation

Sandia PI **Alan Hesu**, together with NCAT researchers **Ahmad Patooghy**, with consulting from Old Dominion faculty, **Hossein Sarrafzadeh**, have launched a two-year project investigating how biometric monitoring and facial expression recognition (FER) can enhance security system automation. Supported by PhD student **Tiffany Davis-Stewart**, graduate student **Jaquan Blanks**, and undergraduate **Eddie Coren**, the team aims to better understand how operators interact with different levels of automation and how biometric and behavioral data can inform the design of more adaptive and responsive security technologies. A key focus is evaluating commercial multimodal stress and emotion detection tools, such as iMotions, to assess their performance and reliability across various sensor modalities and real-world conditions. The team is developing a unified stress scoring framework that synthesizes data from multiple sources. In parallel, the project is advancing machine learning models for stress detection using FER. Moving beyond cloud-based commercial solutions, the team is creating localized, privacy-conscious deep learning models capable of detecting a range of emotions and improving stress recognition accuracy by personalizing analysis to individual users. Current efforts include refining emotion classification and extending models to better capture stress-related states.

This research supports Sandia's Security Systems of Systems mission imperative by optimizing system effectiveness and advancing university research in national security. It also provides valuable hands-on experience for students working at the intersection of human factors, machine learning, and security automation.



Sandia **Alan Hesu**

NCAT **Ahmad Patooghy**

NCAT **Jaquan Blanks**

NCAT **Eddie Coren**

NCAT **Tiffany Davis-Stewart**

LDRD Project: Simulation of Dynamic Adversarial Environments for CUAS Assessment and Optimization

This new one-year collaboration with NCAT is led by Sandia PI **Daniel McArthur** alongside NCAT faculty lead Dr. **Ali Karimoddini**, postdoctoral collaborator Dr. **Negasa Yah**i, and PhD student **Azmol Fuad**. Sandia is interested in understanding physical interaction dynamics that occur when small racing drones conduct kinetic intercepts against significantly larger uncrewed aircraft systems. The NCAT team is developing detailed models that capture how counter-UAS maneuvers influence a threat drone's trajectory and mission performance. This work supports the creation of a high-fidelity simulation environment capable of assessing how CUAS engagements affect the ability of one or multiple threat UAS to complete their objectives.

Early progress includes integrating low-level physics models for a wide range of UAS types, including fixed-wing aircraft, multirotors, helicopters, eVTOL systems, and hybrid VTOL designs, into a mission-planning simulation environment. These models have been successfully tested within an urban air mobility simulation framework, enabling higher-level assessments of adversarial interactions. The strength of this work has already fostered follow-on research support, with NCAT receiving funding for *Intelligent Contingency Management for Urban UAS Operations* (\$100K, Boeing, 2026–2027).



Sandia **Daniel McArthur**

NCAT **Ali Karimoddini**

NCAT **Azmol Fuad**

NCAT **Negasa Chereha**

LDRD Project: Development of Formal Threat Models for Semi-Automated Vulnerability Exploration (SAVE)

Led by Sandia PIs **Andrew Cox**, **Karla Morris Wright**, and **Evan Roncevich** in collaboration with NCAT faculty **Ahmad Patooghy**, this LDRD project aims to advance secure-by-design strategies by formalizing threat models and integrating them with formal verification methods. The research focuses on mathematically representing threats and combining these with formal system models to understand how threats translate into risks. This approach enables the creation of provable security properties and system requirements that can eliminate entire classes of risks from system designs.

Inspired by the challenges of effectively exploring the vast cyber risk search space, the project addresses the critical need to reduce risk exposure in high-consequence systems operating in accelerated threat environments. By developing formal analytics to devise and verify system security properties, the team seeks to enable rapid and comprehensive risk exploration in the digital domain, ultimately producing digital architectures that are secure by design.

NCAT's contributions include developing threat models (FTMs) for the Spacecraft Identification and Localization (SIDLOC) system. The team will identify several candidate cyber threats that could disrupt SIDLOC's functions and collaborate with Sandia personnel Evan Roncevich and Karla Morris Wright to select key threats for detailed modeling. Using Sandia's natural language threat modeling methodology, NCAT will create and vet natural language threat models before formalizing them with the Alloy application. This collaborative effort promises to enhance the rigor and effectiveness of cybersecurity risk assessment, supporting the development of resilient systems capable of withstanding advanced adversaries in dynamic threat landscapes.



Sandia **Andrew Cox**

Sandia **Karla Morris Wright**

NCAT **Ahmad Patooghy**

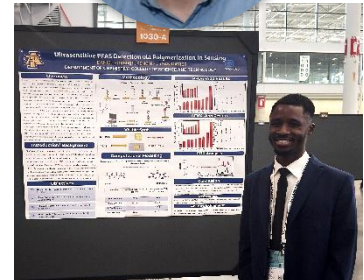
LDRD Project: Exploring Accelerated Degradation Pathways of Environmentally-Persistent Fluorochemicals to Secure Water Supplies

Led by Sandia PI **Ryan D. Davis** in collaboration with NCAT faculty **Peng He** and student researcher **Daniel Boamah**, this project focuses on developing low-cost water treatment processes along with low-cost, field-deployable chemical sensors for rapid detection of per- and polyfluoroalkyl substances (PFAS) in water. Current detection methods rely on expensive, specialized equipment like liquid chromatography-mass spectrometry, which is impractical for on-site monitoring at water treatment facilities or contaminated sites. The goal is to create sensors based on amplification-by-polymerization (AbP) technology that provide near real-time feedback on PFAS concentrations during remediation. NCAT's core contribution centers on developing a low-cost sensor for PFAS. The project aims to develop a sensor that can indicate the extent of PFAS degradation in the field, enabling timely and cost-effective decision-making. Building on previous LDRD collaborations, Dr. He's AbP biosensing technique amplifies detection signals by triggering polymer brush formation upon biomolecular binding, making the presence of PFAS visually detectable without complex instrumentation. The team is studying how different PFAS compounds affect the polymerization process to optimize sensor performance.

Sandia **Ryan D Davis**



Together this project seeks to establish a comprehensive wastewater treatment and environmental tracking platform for PFAS. While the core project advances accelerated PFAS oxidation and environmental fate understanding, NCAT contributions focuses on developing the low-cost sensing technology. This integrated approach promises to enhance water security by enabling efficient PFAS remediation and real-time monitoring, addressing a critical environmental and public health challenge. Graduate student **Daniel Boamah** has contributed significantly, earning a poster award at the Triangle Student Research Competition in September 2025 and presenting at the SLAS2026 International Conference in Boston.



NCAT **Daniel Boamah**

LDRD Project: Models for Automated Nuisance, False, Valid Alarm Categorization Error Identification Using Zero-Shot Prompting

In this new one-year project, Sandia PIs **JP Nelms** and **Caleb Cheng** collaborated with NCAT faculty **Kaushik Roy** and students **Zachariah Lunsford**, **Alexander Nanor**, and **Aryaunna Armstrong** to improve alarm management systems through advanced language model techniques. Alarm systems rely heavily on human operators to categorize events, but inconsistent or erroneous tagging, due to human error, limited context, or misalignment, can obscure meaningful alarm patterns and hinder proactive maintenance.

This project investigates the use of zero-shot large language models (LLMs) to analyze security logs and detect mis-tagged alarms without requiring extensive labeled datasets or training examples. By evaluating foundational LLMs' ability to identify human-operator errors in physical security system alarms, which can number over 1,000 daily, the research aims to reduce late or unnecessary maintenance, prevent wasteful lifecycle actions, improve security risk assessments, and ensure compliance with federal regulations.

NCAT's contribution leverages natural language processing and zero/few-shot learning methods alongside embedding-based anomaly detection to identify inconsistencies between human-entered assessments and system-generated alarms. Progress includes building a synthetic data generator, testing multiple prompting strategies across nine models, and developing mechanisms for trust calibration and explainability. Temporal modeling of alarm sequences is underway as a stretch goal. This research complements Sandia's core LDRD efforts by addressing higher-risk questions and fostering collaboration through shared methodologies and verification, accelerating advancements in automated alarm assessment and decision support for physical security systems.



Sandia **JP Nelms**

NCAT **Kaushik Roy**

NCAT **Zachariah Lunsford**



A Renewed Commitment: Executing a Five-Year MOU

Sandia and Prairie View A&M University (PVAMU) strengthened their partnership this year with the execution of a new five-year Memorandum of Understanding, effective February 3, 2026, through February 3, 2031. The agreement outlines collaboration in several mission-aligned technical areas, including data analytics, radiation research, cybersecurity, advanced manufacturing, and emerging 4-D printing technologies, reflecting the breadth and ambition of Sandia's engagement with PVAMU.

This renewed MOU builds on a long history of collaboration that began through recruitment in the 1980s to the inaugural Sandia Week at Prairie View A&M in early 2020. That event catalyzed deeper conversations about shared research priorities and served as the foundation for the first formal agreement signed later that year. Since then, Sandia and PVAMU have continued to align efforts around the university's growing research enterprise, supported by strong relationships with PVAMU Research & Innovation (R&I) leadership, including Vice President **Magesh Rajan**, Executive Director of Innovation & Strategic Partnerships **Sunjay Bali**, and Executive Director of Administration Dr. **Ramaswamy Krishnamoorthi**. PVAMU's R&I division is working to elevate the university into the upper quartile of HBCU research institutions and toward emerging-research-institution status, and Sandia has become a valued partner in supporting that vision.



Sandia Anthony Sanders, Booby Melvin, PVAMU R&I Ramaswamy Krishnamoorthi, PVAMU R&I Magesh Rajan, Sandia Chrisma Jackson, PVAMU R&I Darius Sims, Sandia Breanna Gallegos-Schnedar, Sandia Suzanne Moore, Sandia Mark Martin, PVAMU R&I Jacek Jonca-Jasinski

Elevating Research Impact: Sandia at PVAMU's Strategic Partnerships & Innovation Forum

Sandia, industry, and PVAMU R&I panelist



Sandia Mark Martin (photo credit: PVAMU Research & Innovation - [LinkedIn](#))

PVAMU's Research & Innovation office hosted its Strategic Partnerships & Innovation Forum, bringing together more than 15 representatives from industry, academia, national laboratories, and economic development organizations. Sandia's **Mark Martin** and **Kevin Wyre** participated in the event, with Mark serving on a panel focused on "Accelerating Research Impact".

Mark discussed what national laboratories look for when establishing university partnerships, highlighting the importance of mission alignment, complementary research capabilities, accessible infrastructure for rapid prototyping, and academic environments adaptable to national-security-focused topics. He emphasized the value of guest lecturers, curriculum development collaboration, and faculty with bandwidth for research engagement, as well as the need for strong U.S. citizenship pipelines for security-sensitive work.

Panelists also explored how faculty can navigate federal laboratory systems, the importance of early relationship-building between PIs, and emerging research areas, such as AI science and quantum technologies, that will require new partnership models in the decade ahead.

Celebrating Upcoming Student Summer Interns

Sandia's relationship with PVAMU extends deeply into student support. Sandians **Kevin Wyre** and **Josh James** joined PVAMU's annual Job Offer & Career Recognition Banquet, with current and former SNL interns, PVAMU distinguished faculty, and family, to celebrate and honor the culmination of many PVAMU panthers efforts' to obtain career enrichment opportunities. Reflecting the strength of the partnership, Sandia anticipates onboarding four PVAMU students as interns this summer in technology transfer, energy security, microelectronics, solid mechanics, and structural dynamics.

Senior Design Projects Strengthened by Deep Sandia Mentorship

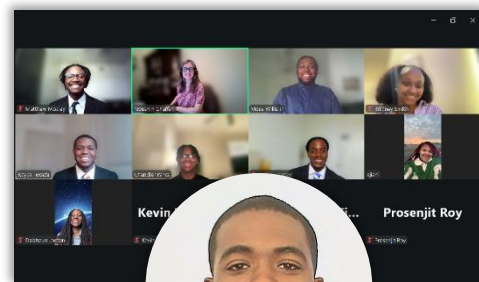
Sandia strengthened its hands-on engagement with PVAMU students through two major senior design capstone collaborations:

Cybersecurity & LLM-Driven System Updates (Computer Science Capstone)

Eight computer science students, **Mose Willis**, **Matthew Mosely**, **Daizhaun Jordan**, **Javion Looney**, **Royce Texada**, **Chandler Parkers**, **Brittney Smith**, and **Jiani Miller**, completed a project in Dr. **Noushin Ghaffari's** class focused on developing a cybersecurity system supported by a large language model (LLM). With mentorship from Sandian **Madison Helmstetter**, the team designed red-team shell scripts to probe vulnerabilities, while the blue-team side built the system's front-end and back-end interfaces to enable safe user interaction with the LLM.

Madison's mentorship played a critical role, offering technical guidance, helping the students think like national-security engineers, and coaching them through design, testing, and iteration. Ghaffari reported that the mentorship strengthened their understanding of real-world cyber defense and broadened their exposure to LLM-integrated systems.

Computer science capstone students and faculty **Noushin Ghaffari**



Sandia Mentor **Madison Helmstetter**

Counterfeit Bolt Detection System (Engineering Capstone)

Six engineering seniors, **Zoe Hardeman**, **Tyrell Oliver**, **Christian Watts**, **Kamea Hill**, **Marquis Butler**, and **Remington Felder**, participated in Sandia's Senior Design Bonanza project led by Sandian **Michelle Pang**, with direct mentorship from Sandian **Devin Dunaway**. The team designed, built, and tested a portable, nondestructive counterfeit bolt detection system aimed at improving industrial safety and reliability.

Dunaway's mentorship was instrumental, helping the students interpret engineering requirements, evaluate detection methods, understand mission-relevant constraints, and refine their prototype into a functional system.

Together, these projects highlight the impact of strong, consistent mentorship from Sandia—helping PVAMU students transform classroom knowledge into practical, mission-aligned engineering solutions.

Advancing Materials-at-the-Extreme (MATE) Through Research and STEM Pathways

PVAMU plays a key role in the NNSA Minority Serving Institution Partnership Program (MSIPP) project Materials-at-the-Extreme (MATE), a collaboration among PVAMU, Florida A&M University, Sandia National Labs, and Los Alamos National Laboratory. MATE focuses on advanced manufacturing, engineering, and materials science for extreme environments, with the goal of expanding sustainable STEM pathways and providing students with research-based experiences that align with national security needs. The project pushes the boundaries of in-situ materials testing to uncover fundamental principles of how materials behave in hypersonic, nuclear, marine, and other high-performance applications.



PVAMU MATE faculty and students

PVAMU **Guddi Suman** and **Merlyn Pulikkathara**



Sandia **Mo Payne**

Sandia **Mohammed Shohel**

As part of this effort, former Sandia postdoctoral researcher and PVAMU master's and doctoral graduate **Guddi Suman** is actively contributing to the MATE project. Suman, who holds a PhD in Electrical and Electronics Engineering, supports Dr. **Merlyn Pulikkathara's** research on materials science for extreme environments. She brings over a decade of cross-disciplinary R&D expertise, including thin-film devices, metallurgy, radiation-hardened composites, high-reliability manufacturing, radiation-effects characterization, and failure analysis. Suman will collaborate with Sandia PIs **Mo Payne** and **Mohammed Shohel** to support research activities, enhance student recruitment, and strengthen outreach and internship pathways.

In addition to ongoing research engagements, Sandian **Mo Payne** participated in PVAMU's "Day of Science", an outreach event for local high school students. Payne led an "Atom Science Escape Room" activity introducing core science concepts while highlighting Sandia's mission and career opportunities. During the visit, Payne also connected with PVAMU faculty and student researchers in his role as PI for the MATE collaboration, reinforcing the program's commitment to building long-term partnerships and supporting the next generation of STEM talent.



Day of Science Attendees



Sandia **Mo Payne** and Day of Science students

Supporting National Conversations in Cyber and Microelectronics Security



Sandia **Will Zortman**

PVAMU faculty Dr. **Akshay Paghavendra Kulkarni** invited DAHCS Mission Campaign lead **Will Zortman** to serve as keynote speaker at the IEEE Conference on Secure and Trustworthy Cyber Infrastructure for IoT and Microelectronics. Zortman discussed emerging challenges in supply-chain assurance and secure microelectronics, connecting these themes to Sandia's research in digital assurance.

While on campus, he also delivered a technical talk on Digital Assurance for High-Consequence Systems (DAHCS), introducing PVAMU faculty and students to Sandia's mission to develop measurable, science-based approaches for digital risk assessment across nuclear weapons, hypersonics, space systems, and critical infrastructure.

AI & Additive Manufacturing Tech Talk by PVAMU Faculty

Sandia deepened its PVAMU engagement through the DREA²M Mission Campaign (Digitally Realized and Enabled Agile Advanced Manufacturing), a new LDRD Investment Area focused on modernizing Sandia's advanced manufacturing capabilities. As part of the DREA²M Speaker Seminar Series, PVAMU's Dr. **Noushin Ghaffari** joined Texas A&M's Dr. **Mohsen Taheri Andani** for a joint presentation on in-situ monitoring and qualification for metal additive manufacturing using LPBF and EB-PBF. Their work highlighted progress in correlating sensing data with microstructural properties and identified future opportunities for collaboration on high-temperature materials such as tungsten and refractory alloys.



PVAMU faculty **Noushin Ghaffari**

Recognizing Leadership and Broadening Technical Horizons

PVAMU Campus Executive **Chrisma Jackson** was featured in the *Albuquerque Journal* for her work in cybersecurity and mission computing, for her leadership in cybersecurity and mission computing, her mentorship of students at Texas A&M and Prairie View A&M, and her work strengthening Sandia's relationship with both institutions. Her leadership continues to elevate Sandia's visibility and impact within the Texas A&M System.



Sandia **Chrisma Jackson** and PVAMU leadership

As Campus Executive, Chrisma is responsible for stewarding the institutional partnership between Sandia and Prairie View A&M in alignment with Sandia's University Partnership Network (SUPN). This role focuses on three major objectives: enhancing Sandia's visibility and recruiting presence on campus; fostering collaborative research that expands Sandia's capabilities; and facilitating academic engagement that develops Sandia staff and strengthens a culture of partnership. Chrisma's leadership continues to elevate Sandia's engagement at PVAMU, deepening collaborative research opportunities and expanding pathways for students to pursue national-security-focused careers.

Expanding Radiation Research Through TAMU System Collaboration

The Texas A&M Nuclear Security Office (NSO) has seeded a collaborative effort between Texas A&M University – College Station (TAMU) and Prairie View A&M University (PVAMU) to advance radiation-hardened electronics research. This joint project aligns with Sandia's RAD-TECH mission campaign (Research Assured Design and Testing for Electronics and Computational Hardening), leveraging Sandia's unique partnership with both universities to identify and cultivate research ideas alongside Sandian **James Bartz**, that could address the lab's strategic needs. Texas A&M's **Sam Palermo** and Prairie View A&M's **Pamela Obiomon** and **Merlyn Pulikkathara**, are working together to design, fabricate, and test radiation-hardened electronics for reliable operation in extreme environments such as space and nuclear facilities. Prairie View A&M contributes by performing critical characterization and measurement of devices, pre and post, X-ray exposure. Additionally, students have been trained to program, test, and characterize these electronic boards that have been exposed across varying radiation levels.



NUCLEAR SECURITY OFFICE



PVAMU Dean **Pamela Obiomon**



Sandia **James Bartz**



PVAMU faculty **Merlyn Pulikkathara**



TAMU **Sam Palermo**

Expanding Impact Through Internal Laboratory Investments

A cornerstone of Sandia's START HBCU partnership with Prairie View A&M is the set of jointly developed projects supported through Sandia's Laboratory Directed Research and Development (LDRD) program. Sandia's LDRD Program enables mission-aligned, collaborative research efforts with START HBCU partners, supports faculty advancement, and provides students with opportunities to work on national-security-relevant challenges.

LDRD Project: Broad Spectrum Electromagnetic Absorbers for Mixed Radiation Threat Environments

In this final year of collaboration, Sandia PIs **Andrew Padgett** and PVAMU faculty **Merlyn Pulikkathara** & **Mahmudur Rehman** are advancing a novel hybrid electromagnetic absorber designed to protect drones, communication systems, and satellites from high-intensity electromagnetic threats. This innovative absorber offers broad frequency coverage, durability in hostile radiation environments, can be applied conformally, and matched to the coefficient of thermal expansion of the substrate, making it highly versatile for defense applications.

The Prairie View A&M team plays a key role by using Raman spectroscopy and electrical characterization to understand how x-ray radiation affects the electromagnetic properties of carbon nanotubes and ferrites, critical components of the absorber. Their work includes fabricating bucky paper from carbon nanotubes and testing its properties before and after radiation exposure, linking microscopic changes to bulk electromagnetic behavior.

This research not only pushes the boundaries of materials science but also strengthens Sandia's ability to develop resilient technologies that safeguard critical systems in complex threat environments. Contributions from student researchers **Lena Baison** and **Kieran Brooks** highlight the project's educational impact alongside its technical achievements.



LDRD Project: X-Ray Induced Degradation of III-V Semiconductor Detectors for Radiation Sensing

This new one-year project brings together Sandia PIs **Lilian Casias** and **Evan Anderson** with Prairie View A&M and lead PI **Merlyn Pulikkathara**, faculty researcher **Mahmudur Rehman**, postdoc researcher **Guddi Suman**, and undergraduate student **Lance Fusilier**. Together, the team is investigating how ionizing x-ray radiation affects the performance of infrared (IR) semiconductor detectors, a critical concern for space-based national security sensors exposed to harsh radiation environments. The fruit of the collaboration is **Guddi Suman**, former Sandian and PVAMU alumni, who brings her breadth of experience and expertise in semiconductor chip analysis and materials development.



The project focuses on studying total ionizing dose effects on InGaAs detectors with and without dielectric coatings, specifically BCB (benzocyclobutene), silicon dioxide, and silicon nitride layers. By monitoring electrical characteristics such as dark current before, during, and after x-ray irradiation, the researchers aim to understand how radiation degrades sensor performance and shortens mission lifetimes. This data is vital for predicting the radiation tolerance of new and improved IR sensors used in long-term space missions.

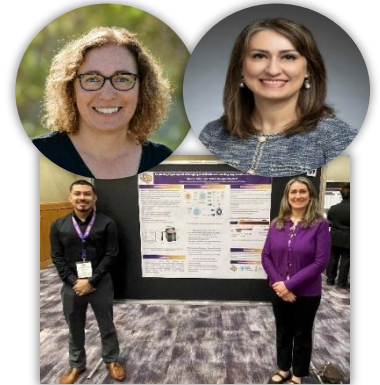
Early progress includes irradiating IR detectors inside the x-rad IR160 x-ray chamber at PVAMU and measuring dark current responses under varying doses and dose rates. Future work will focus on post-radiation characterization at higher doses and annealing effects to assess long-term effects. The team's aspires to present at the SPIE Optics and Photonics 2026 conference in San Diego. Undergraduate **Lance Fusilier** will also gain hands-on experience through a summer internship at Sandia's Materials Characterization & Performance Department, under **Tim Ruggles**.

LDRD Project: Machine Learning Analysis of Hyperspectral Confocal Fluorescence Microscopy Data

This new collaboration between Sandia PI **Jeri Timlin** and PVAMU faculty member **Noushin Ghaffari**, with graduate student **Marc Mata**, is pioneering advanced machine learning (ML) techniques to analyze hyperspectral confocal fluorescence microscopy (HCFM) images for bioenergy crop research. The project aims to enhance identification of photosynthetic pigments by leveraging both spatial and spectral information from HCFM images, an improvement over traditional methods that analyze these dimensions separately. By developing novel ML approaches, the PVAMU team seeks to accelerate and improve the accuracy of pigment localization and trait prediction in bioenergy crops such as sorghum.

This work supports early detection of plant health issues and microbial community genotypes through hyperspectral phenotyping, offering a powerful tool for resilient and secure bioenergy crop cultivation. Machine learning enables faster pattern recognition and trait prediction, facilitating early warning of diseases and contributing to advances in bioenergy, bio defense, and the bioeconomy. The following **posters "Exploring Hyperspectral Imaging and Machine Learning Approaches for Plant Analysis"**, and **"Scalable Computational Frameworks for Complex Scientific Systems"** were presented by Dr. Ghaffari and Marc Mata at PVAMU's Division of Research & Innovation poster presentations, highlighting the project's strong educational and research impact.

Sandia Jeri Timlin *PVAMU Noushin Ghaffari*



PVAMU Noushin Ghaffari & Marc Mata

Index of Individuals Spotlighthed

Alabama A&M Mentions

NAME	PAGE & SECTION
ALEJANDRO ROSA	5 - LDRD Project: Innovating Thermal Characterization Methods to Strengthen Component Reliability
ASCHALEW KASSU	5 - LDRD Project: Innovating Thermal Characterization Methods to Strengthen Component Reliability
BARACK CHIMBA	4 - LDRD Project: Building Smarter Neuromorphic Systems Through Materials Innovation
CLAUDI MUNTELE	4 - LDRD Project: Advancing Space-Based Sensing Materials
ISAIAH THOMPSON	3 - From AAMU Undergraduate to Full Time R&D Engineer Through CSR: Isaiah Thompson
JEFFREY DULANEY	5 - LDRD Project: Advancing Arctic Domain Awareness Through Machine Learning and Distributed Sensing
JONATHAN LASSITER	4 - LDRD Project: Advancing Space-Based Sensing Materials
KAVEH HEIDARY	5 - LDRD Project: Advancing Arctic Domain Awareness Through Machine Learning and Distributed Sensing
KENNETH SARTOR	2 - Welcoming a New Deputy Campus Executive 5 - LDRD Project: Advancing Arctic Domain Awareness Through Machine Learning and Distributed Sensing
LADARRIEN MCCALL	5 - LDRD Project: Innovating Thermal Characterization Methods to Strengthen Component Reliability
MEBOUGNA DRABO	5 - LDRD Project: Innovating Thermal Characterization Methods to Strengthen Component Reliability 5 - AAMU Expands Research Infrastructure and Academic Capacity
MYAH MAGWOOD	5 - LDRD Project: Advancing Arctic Domain Awareness Through Machine Learning and Distributed Sensing
PHIL BORDING	5 - LDRD Project: Advancing Arctic Domain Awareness Through Machine Learning and Distributed Sensing
SALTIMIS BUDAK	3 - Showcasing Student Excellence at AAMU's 19th Annual STEM Day 4 - LDRD Project: Advancing Space-Based Sensing Materials 4 - LDRD Project: Building Smarter Neuromorphic Systems Through Materials Innovation 5 - LDRD Project: Innovating Thermal Characterization Methods to Strengthen Component Reliability 5 - AAMU Expands Research Infrastructure and Academic Capacity
SHANICE GRAY	3 - Showcasing Student Excellence at AAMU's 19th Annual STEM Day 4 - LDRD Project: Advancing Space-Based Sensing Materials
SYDNEY FLEMING	4 - LDRD Project: Building Smarter Neuromorphic Systems Through Materials Innovation
ZHIGANG XIAO	4 - LDRD Project: Building Smarter Neuromorphic Systems Through Materials Innovation 5 - LDRD Project: Innovating Thermal Characterization Methods to Strengthen Component Reliability 5 - AAMU Expands Research Infrastructure and Academic Capacity

Florida A&M Mentions

NAME	PAGE & SECTION
AKIL DYSON	7 - Supporting Academic Development Through PhD Committee Support: Akil Dyson
CHAD ZENG	6 - DREA ² M Engagement: Campus Visits Spark Deeper Research Alignment
CHRISTIAN KENNEDY	6 - DREA ² M Engagement: Supporting a FAMU Capstone Team through Hands On Advanced Manufacturing
CORY WARD	9 - LDRD Project: Structured Light from Superstructured Photonics
JOSHUA DAVEY	6 - DREA ² M Engagement: Supporting a FAMU Capstone Team through Hands On Advanced Manufacturing
NICHOLAS ROSSI	6 - DREA ² M Engagement: Supporting a FAMU Capstone Team through Hands On Advanced Manufacturing
NISCHAL ADHIKARI	8 - LDRD Project: Synthesis and Characterization of Nanocomposite Thin Films Write-Up
OLIVIA HILTON	9 - LDRD Project: Structured Light from Superstructured Photonics
PRESTON HILTON	9 - LDRD Project: Structured Light from Superstructured Photonics
REBEKAH DOWNES	8 - LDRD Project: Synthesis and Characterization of Nanocomposite Thin Films Write-Up
SHREYAS BALACHANDRAN	7 - Connecting with Students Through Classroom Engagement
SIMONE HRUDA	7 - Connecting with Students Through Classroom Engagement
SUNSHINE MCDONALD	6 - DREA ² M Engagement: Supporting a FAMU Capstone Team through Hands On Advanced Manufacturing
SYDNEY TYLER	9 - LDRD Project: Structured Light from Superstructured Photonics
VASILE LAURIC	8-9 - LDRD Project: Structured Light from Superstructured Photonics
ZIPPORAH HARLAN	8 - LDRD Project: Synthesis and Characterization of Nanocomposite Thin Films Write-Up

Forsyth Technical Community College Mentions

NAME	PAGE & SECTION
TANDEKA BOKO	12 - DREA ² M Supports Engineering Degree Apprenticeship Pathway with NC A&T and Forsyth Tech
ZUANIA PACHECO DEL RIO	12 - DREA ² M Supports Engineering Degree Apprenticeship Pathway with NC A&T and Forsyth Tech

Growth Sector Mentions

NAME	PAGE & SECTION
CHRIS FINCHER	12 - DREA ² M Supports Engineering Degree Apprenticeship Pathway with NC A&T and Forsyth Tech
DAVID GRUBER	12 - DREA ² M Supports Engineering Degree Apprenticeship Pathway with NC A&T and Forsyth Tech
GREG MONTY	12 - DREA ² M Supports Engineering Degree Apprenticeship Pathway with NC A&T and Forsyth Tech

Old Dominion University Mentions

NAME	PAGE & SECTION
HOSSEIN SARRAFZADEH	15 - LDRD Project: Should Computers Observe or Decide? Human Factors in Security System Automation

Norfolk State Mentions

NAME	PAGE & SECTION
ANA VIVAS	11 - LDRD Project: Unrolling MLEM Estimates through Machine Learning
GEORGE MILLER	10 - Strengthening Academic Integration Through a Joint Appointment
IVY JONES	10 - Elevating Optical Engineering Through Classroom Engagement
CARL BONNER	10-11 - Advancing Materials Research Through a CINT User Proposal
DOYLE TEMPLE	11 - LDRD Project: Search for Superconducting Diode Effect in Topological Materials
JAMES TIPTON	11 - LDRD Project: Unrolling MLEM Estimates through Machine Learning
LAYLA SMITH	11 - LDRD Project: Search for Superconducting Diode Effect in Topological Materials
MICHAEL BARNETT	11 - LDRD Project: Unrolling MLEM Estimates through Machine Learning
NAZEERAH PEASANT	11 - LDRD Project: Unrolling MLEM Estimates through Machine Learning
ORRIN CLARKE-DELGADO	11 - LDRD Project: Search for Superconducting Diode Effect in Topological Materials
SHAWN STROBEL	11 - LDRD Project: Unrolling MLEM Estimates through Machine Learning

North Carolina A&T Mentions

NAME	PAGE & SECTION
AHMAD PATOOGHY	14-15 - LDRD Project: Advancing Cyber-Physical Security Through AI-Driven Threat Modeling 15 - LDRD Project: Should Computers Observe or Decide? Human Factors in Security System Automation 16 - LDRD Project: Development of Formal Threat Models for Semi-Automated Vulnerability Exploration (SAVE)
ALI KARIMODDINI	16 - LDRD Project: Simulation of Dynamic Adversarial Environments for CUAS Assessment and Optimization
AZMOL FAUD	16 - LDRD Project: Simulation of Dynamic Adversarial Environments for CUAS Assessment and Optimization
DANIEL BOAMAH	17 - LDRD Project: Exploring Accelerated Degradation Pathways of Environmentally-Persistent Fluorochemicals to Secure Water Supplies
DELVAN PAULINO	14-15 - LDRD Project: Advancing Cyber-Physical Security Through AI-Driven Threat Modeling
EDDIE COREN	15 - LDRD Project: Should Computers Observe or Decide? Human Factors in Security System Automation
ERYAL RHINEHART	13-14 - HBCUNM Pathways Scholars: Kenedi Catoe, Eryal Rhinehart, and Mayah Drayton
JAQUAN BLANKS	15 - LDRD Project: Should Computers Observe or Decide? Human Factors in Security System Automation
KAUSHIK ROY	17 - LDRD Project: Models for Automated Nuisance, False, Valid Alarm Categorization Error Identification Using Zero-Shot Prompting
KENEDI CATOE	13-14 - HBCUNM Pathways Scholars: Kenedi Catoe, Eryal Rhinehart, and Mayah Drayton
KHALIL HASAN	14-15 - LDRD Project: Advancing Cyber-Physical Security Through AI-Driven Threat Modeling
MAYAH DRAYTON	13-14 - HBCUNM Pathways Scholars: Kenedi Catoe, Eryal Rhinehart, and Mayah Drayton
NEGASA YAHY	16 - LDRD Project: Simulation of Dynamic Adversarial Environments for CUAS Assessment and Optimization
NELSON GRANDA	12 - DREA ² M Supports Engineering Degree Apprenticeship Pathway with NC A&T and Forsyth Tech
PENG HE	17 - LDRD Project: Exploring Accelerated Degradation Pathways of Environmentally-Persistent Fluorochemicals to Secure Water Supplies

TIFFANY DAVIS-STEWART	15 - LDRD Project: Should Computers Observe or Decide? Human Factors in Security System Automation
ZACHARIAH LUNSFORD	17 - LDRD Project Models for Automated Nuisance, False, Valid Alarm Categorization Error Identification Using Zero-Shot Prompting

Prairie View A&M Mentions

NAME	PAGE & SECTION
AKSHAY PAGHAVENDRA KULKARNI	22 - Supporting National Conversations in Cyber and Microelectronics Security
BRITTNEY SMITH	19 - Cybersecurity & LLM Driven System Updates (Computer Science Capstone)
CHANDLER PARKERS	19 - Cybersecurity & LLM Driven System Updates (Computer Science Capstone)
CHRISTIAN WATTS	19 - Counterfeit Bolt Detection System (Engineering Capstone)
DAIZHAUN JORDAN	19 - Cybersecurity & LLM Driven System Updates (Computer Science Capstone)
DARIUS SIMS	19 - A Renewed Commitment: Executing a Five-Year MOU 20 - Elevating Research Impact: Sandia at PVAMU's Strategic Partnerships & Innovation Forum
GUDDI SUMAN	20 - Advancing Materials-at-the-Extreme (MATE) Through Research and STEM Pathways 22 - LDRD Project: X-Ray Induced Degradation of III-V Semiconductor Detectors for Radiation Sensing
JACEK JONACA-JASINSKI	19 - A Renewed Commitment: Executing a Five-Year MOU
JAVION LOONEY	19 - Cybersecurity & LLM Driven System Updates (Computer Science Capstone)
KAMEA HILL	19 - Counterfeit Bolt Detection System (Engineering Capstone)
KIERAN BROOKS	22 - LDRD Project: Broad Spectrum Electromagnetic Absorbers for Mixed Radiation Threat Environments
LANCE FUSILIER	22 - LDRD Project: X-Ray Induced Degradation of III-V Semiconductor Detectors for Radiation Sensing
LENA BAISON	24 - LDRD Project: Broad Spectrum Electromagnetic Absorbers for Mixed Radiation Threat Environments
MAGESH RAJAN	18 - A Renewed Commitment: Executing a Five-Year MOU 23 - Recognizing Leadership and Broadening Technical Horizons 20 - Elevating Research Impact: Sandia at PVAMU's Strategic Partnerships & Innovation Forum 21 - Recognizing Leadership and Broadening Technical Horizons
MAHMUDUR REHMAN	22 - LDRD Project: Broad Spectrum Electromagnetic Absorbers for Mixed Radiation Threat Environments 23 - LDRD Project: X-Ray Induced Degradation of III-V Semiconductor Detectors for Radiation Sensing
MARC MATA	23 - LDRD Project: Machine Learning Analysis of Hyperspectral Confocal Fluorescence Microscopy Data
MARQUIS BUTLER	19 - Counterfeit Bolt Detection System (Engineering Capstone)
MATTHEW MOSELY	19 - Cybersecurity & LLM Driven System Updates (Computer Science Capstone)
MERLYN PULIKKATHARA	20 - Advancing Materials-at-the-Extreme (MATE) Through Research and STEM Pathways 21 - Expanding Radiation Research Collaboration Through TAMU System White Papers 22 - LDRD Project: Broad Spectrum Electromagnetic Absorbers for Mixed Radiation Threat Environments 22 - LDRD Project: X-Ray Induced Degradation of III-V Semiconductor Detectors for Radiation Sensing
MOSE WILLIS	19 - Cybersecurity & LLM Driven System Updates (Computer Science Capstone)
NOUSHIN GHAFFARI	19 - Cybersecurity & LLM Driven System Updates (Computer Science Capstone) 21 - AI & Additive Manufacturing Tech Talk by PVAMU Faculty 23 - LDRD Project: Machine Learning Analysis of Hyperspectral Confocal Fluorescence Microscopy Data

PAMELA OBIOMON	21 - Expanding Radiation Research Collaboration Through TAMU System White Papers
RAMASWAMY KRISHNAMOORTHY	19 - A Renewed Commitment: Executing a Five-Year MOU 20 - Elevating Research Impact: Sandia at PVAMU's Strategic Partnerships & Innovation Forum 23 - Recognizing Leadership and Broadening Technical Horizons
REMINGTON FELDER	19 - Counterfeit Bolt Detection System (Engineering Capstone)
ROYCE TEXADA	19 - Cybersecurity & LLM Driven System Updates (Computer Science Capstone)
SUNJAY BALI	18 - A Renewed Commitment: Executing a Five-Year MOU 18 - Elevating Research Impact: Sandia at PVAMU's Strategic Partnerships & Innovation Forum
TYRELL OLIVER	19 - Counterfeit Bolt Detection System (Engineering Capstone)
XJIANI MILLER	19 - Cybersecurity & LLM Driven System Updates (Computer Science Capstone)
ZOE HARDEMAN	19 - Counterfeit Bolt Detection System (Engineering Capstone)

Sandia Labs Mentions

NAME	PAGE & SECTION
ALAN HESU	15 - LDRD Project: Should Computers Observe or Decide? Human Factors in Security System Automation
ALEX BELIANINOV	3 - Showcasing Student Excellence at AAMU's 19th Annual STEM Day 6 - Header Florida A&M Accomplishments 7 - Supporting Academic Development Through PhD Committee Support: Akil Dyson 7 - Connecting with Students Through Classroom Engagement
ALEX CERJAN	8-9 - LDRD Project: Structured Light from Superstructured Photonics
ANA GARCIA	3 - From AAMU Undergraduate to Full Time R&D Engineer Through CSR: Isaiah Thompson 14 - From NCAT Undergraduate to Full Time R&D Engineer Through CSR: Mehki Parker
ANDREW COX	16 - LDRD Project: Development of Formal Threat Models for Semi-Automated Vulnerability Exploration (SAVE)
ANDREW PADGETT	22 - LDRD Project: Broad Spectrum Electromagnetic Absorbers for Mixed Radiation Threat Environments
ANTHONY SANDERS	3 - Showcasing Student Excellence at AAMU's 19th Annual STEM Day 12 - LDRD Project: Unrolling MLEM Estimates through Machine Learning 18 - Header Prairie View A&M Accomplishments 20 - A Renewed Commitment: Executing a Five-Year MOU
BREANNA GALLEGOS-SCHNEDAR	3 - Showcasing Student Excellence at AAMU's 19th Annual STEM Day 19 - A Renewed Commitment: Executing a Five-Year MOU
CALEB CHENG	17 - Models for Automated Nuisance, False, Valid Alarm Categorization Error Identification Using Zero-Shot Prompting
CHARLES REINKE	10 - Elevating Optical Engineering Through Classroom Engagement
CHLOE DOIRON	4 - LDRD Project: Building Smarter Neuromorphic Systems Through Materials Innovation
CHRISMA JACKSON	19 - A Renewed Commitment: Executing a Five-Year MOU 21 - Recognizing Leadership and Broadening Technical Horizons
DANIEL MCARTHUR	16 - LDRD Project: Simulation of Dynamic Adversarial Environments for CUAS Assessment and Optimization
DENNISA THOMAS	12 - Header North Carolina A&T Accomplishments 13 - Championing Innovation at the College of Engineering Senior Design Expo
DEVIN DUNAWAY	19 - Counterfeit Bolt Detection System (Engineering Capstone)
ED JIMENEZ	3 - Showcasing Student Excellence at AAMU's 19th Annual STEM Day 11 - LDRD Project: Unrolling MLEM Estimates through Machine Learning
ELLIOT FOWLER	6 - DREA ² M Engagement: Supporting a FAMU Capstone Team through Hands On Advanced Manufacturing
ERYAL RHINEHART	14/15 - HBCUNM Pathways Scholars: Kenedi Catoe, Eryal Rhinehart, and Mayah Drayton
EVAN ANDERSON	4 - LDRD Project: Advancing Space-Based Sensing Materials

	22 - LDRD Project: X-Ray Induced Degradation of III-V Semiconductor Detectors for Radiation Sensing
EVAN RONCEVICH	16 - LDRD Project: Development of Formal Threat Models for Semi-Automated Vulnerability Exploration (SAVE)
GABE BIRCH	2 - Welcoming a New Deputy Campus Executive
IGAL BRENER	10-11 - Advancing Materials Research Through a CINT User Proposal
ISAIAH THOMPSON	3 - From AAMU Undergraduate to Full Time R&D Engineer Through CSR: Isaiah Thompson
JAMES BARTZ	21 - Expanding Radiation Research Collaboration Through TAMU System White Papers
JAMES YOUCHINSON	6 - DREA ² M Engagement: Campus Visits Spark Deeper Research Alignment
JASMINE MABREY	12 - LDRD Project: Unrolling MLEM Estimates through Machine Learning
JERI TIMLIN	23 - LDRD Project: Machine Learning Analysis of Hyperspectral Confocal Fluorescence Microscopy Data
JOHN TENCER	5 - LDRD Project: Innovating Thermal Characterization Methods to Strengthen Component Reliability
JOSH JAMES	19 - Celebrating Upcoming Student Summer Interns
JP NELMS	5 - LDRD Project: Advancing Arctic Domain Awareness Through Machine Learning and Distributed Sensing 17 - Models for Automated Nuisance, False, Valid Alarm Categorization Error Identification Using Zero-Shot Prompting
KARLA MORRIS WRIGHT	16 - LDRD Project: Development of Formal Threat Models for Semi-Automated Vulnerability Exploration (SAVE)
KENEDI CATOE	14/15 - HBCUNM Pathways Scholars: Kenedi Catoe, Eryal Rhinehart, and Mayah Drayton
KEVIN WYRE	18 - Elevating Research Impact: Sandia at PVAMU's Strategic Partnerships & Innovation Forum 19 - Celebrating Upcoming Student Summer Interns
LADARRIEN MCCALL	5 - LDRD Project: Innovating Thermal Characterization Methods to Strengthen Component Reliability
LILIAN CASIAS	22 - LDRD Project: X-Ray Induced Degradation of III-V Semiconductor Detectors for Radiation Sensing
MADISON HELMSTETTER	19 - Cybersecurity & LLM Driven System Updates (Computer Science Capstone)
MAYAH DRAYTON	14/15 - HBCUNM Pathways Scholars: Kenedi Catoe, Eryal Rhinehart, and Mayah Drayton
MEHKI PARKER	13 - From NCAT Undergraduate to Full Time R&D Engineer Through CSR: Mehki Parker
MICHAEL BAKER	5 - LDRD Project: Advancing Arctic Domain Awareness Through Machine Learning and Distributed Sensing
MICHELLE PANG	19 - Counterfeit Bolt Detection System (Engineering Capstone)
MI'KAYLA WORD	10 - Strengthening Academic Integration Through a Joint Appointment
MARK MARTIN	18 - A Renewed Commitment: Executing a Five-Year MOU 18 - Elevating Research Impact: Sandia at PVAMU's Strategic Partnerships & Innovation Forum
MOHAN KARULKAR	6 - Forging New Pathways Through the DREA ² M Mission Campaign 12 - DREA ² M Supports Engineering Degree Apprenticeship Pathway with NC A&T and Forsyth Tech 21 - AI & Additive Manufacturing Tech Talk by PVAMU Faculty
MONICA SALTER-WILLIAMS	10 - Header Norfolk State Accomplishments 12 - LDRD Project: Unrolling MLEM Estimates through Machine Learning
MO PAYNE	20 - Advancing Materials-at-the-Extreme (MATE) Through Research and STEM Pathways
MOHAMMED SHOHEL	20 - Advancing Materials-at-the-Extreme (MATE) Through Research and STEM Pathways
MYAH MAGWOOD	5 - LDRD Project: Advancing Arctic Domain Awareness Through Machine Learning and Distributed Sensing
NATALIE PITCHER	3 - Showcasing Student Excellence at AAMU's 19th Annual STEM Day 4 - LDRD Project: Building Smarter Neuromorphic Systems Through Materials Innovation
NATHAN FABIAN	14-15 - LDRD Project: Advancing Cyber-Physical Security Through AI-Driven Threat Modeling

NATHAN MOORE	8 - LDRD Project: Synthesis and Characterization of Nanocomposite Thin Films Write-Up
OLIVIA HILTON	9 - LDRD Project: Structured Light from Superstructured Photonics
PATRICE GREGORY	3 - Header Alabama A&M Accomplishments 3 - Showcasing Student Excellence at AAMU's 19th Annual STEM Day 12 - Championing Innovation at the College of Engineering Senior Design Expo
REZA ARGHAVANI	5 - LDRD Project: Innovating Thermal Characterization Methods to Strengthen Component Reliability
ROBERT CRAIG	6 - DREA ² M Engagement: Supporting a FAMU Capstone Team through Hands On Advanced Manufacturing
ROSS SCHNEIDER	7 - Connecting with Students Through Classroom Engagement
RYAN D DAVIS	17 - LDRD Project: Exploring Accelerated Degradation Pathways of Environmentally-Persistent Fluorochemicals to Secure Water Supplies
SARAH LEMING	2 - Welcoming a New Deputy Campus Executive 3 - Showcasing Student Excellence at AAMU's 19th Annual STEM Day
SUZANNE MOORE	19 - A Renewed Commitment: Executing a Five-Year MOU
THOMAS LUCKIE	5 - LDRD Project: Advancing Arctic Domain Awareness Through Machine Learning and Distributed Sensing
VIVIANA BAULDRY	6 - Forging New Pathways Through the DREA ² M Mission Campaign 12 - DREA ² M Supports Engineering Degree Apprenticeship Pathway with NC A&T and Forsyth Tech 21 - AI & Additive Manufacturing Tech Talk by PVAMU Faculty
WARREN DAVIS	2 - Advancing AI Education and Awareness on Campus
WEI PAN	11 - LDRD Project: Search for Superconducting Diode Effect in Topological Materials
WILLIAM CHAPMAN	4 - LDRD Project: Building Smarter Neuromorphic Systems Through Materials Innovation 23 - AI & Additive Manufacturing Tech Talk by PVAMU Faculty
WILL ZORTMAN	20 - Supporting National Conversations in Cyber and Microelectronics Security

Texas A&M University Mentions

NAME	PAGE & SECTION
EVELYN MULLEN	21 - Expanding Radiation Research Collaboration Through TAMU System White Papers
MOHSEN TAHERI ANDANI	21 - AI & Additive Manufacturing Tech Talk by PVAMU Faculty
SAM PALERMO	21 - Expanding Radiation Research Collaboration Through TAMU System White Papers
STEVE PUTNA	24 - Expanding Radiation Research Collaboration Through TAMU System White Papers

University of New Mexico Mentions

NAME	PAGE & SECTION
LIZ GODWIN	13-14 - HBCUNM Pathways Scholars: Kenedi Catoe, Eryal Rhinehart, and Mayah Drayton
TERRY LORING	8-9 - LDRD Project: Structured Light from Superstructured Photonics