NORFOLK STATE UNIVERSITY

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CSET Good News Report
May 2026

1: Department of Mathematics

(a) Dr. James Tipton, Assistant Professor of Mathematics, accompanied three undergraduate researchers—**Mr. Michael Barnett, Ms. Nazeerah Peasant, and Mr. Shawn Strobel**—to Sandia National Laboratories in Albuquerque, New Mexico. During the visit, the students toured Sandia's research facilities and met with scientists and engineers working in advanced imaging, computational modeling, and national security applications. The students also presented their ongoing research to Sandia staff and researchers, providing an opportunity to discuss their work and receive feedback from experts in the field.

The visit supported a collaborative research project titled Leveraging Afterglow in Scintillation-based X-ray Detectors for Spacetime-resolved Computed Tomography for Accelerated Acquisition and High-Speed Event Capture. The project seeks to develop advanced computational methods that significantly reduce the time required for image reconstruction in next-generation computed tomography (CT) systems. By combining physics-informed machine learning with statistical estimation techniques, the research aims to accelerate the processing of large-scale imaging data while maintaining the accuracy and interpretability required for high-consequence scientific and engineering applications.

The experience provided the students with valuable exposure to a national laboratory research environment and strengthened the collaboration between Norfolk State University and Sandia National Laboratories. Through technical presentations, discussions with researchers, and laboratory tours, the students gained firsthand insight into how advanced mathematical modeling, artificial intelligence, and computational imaging technologies are being applied to address challenges relevant to national security and scientific discovery.

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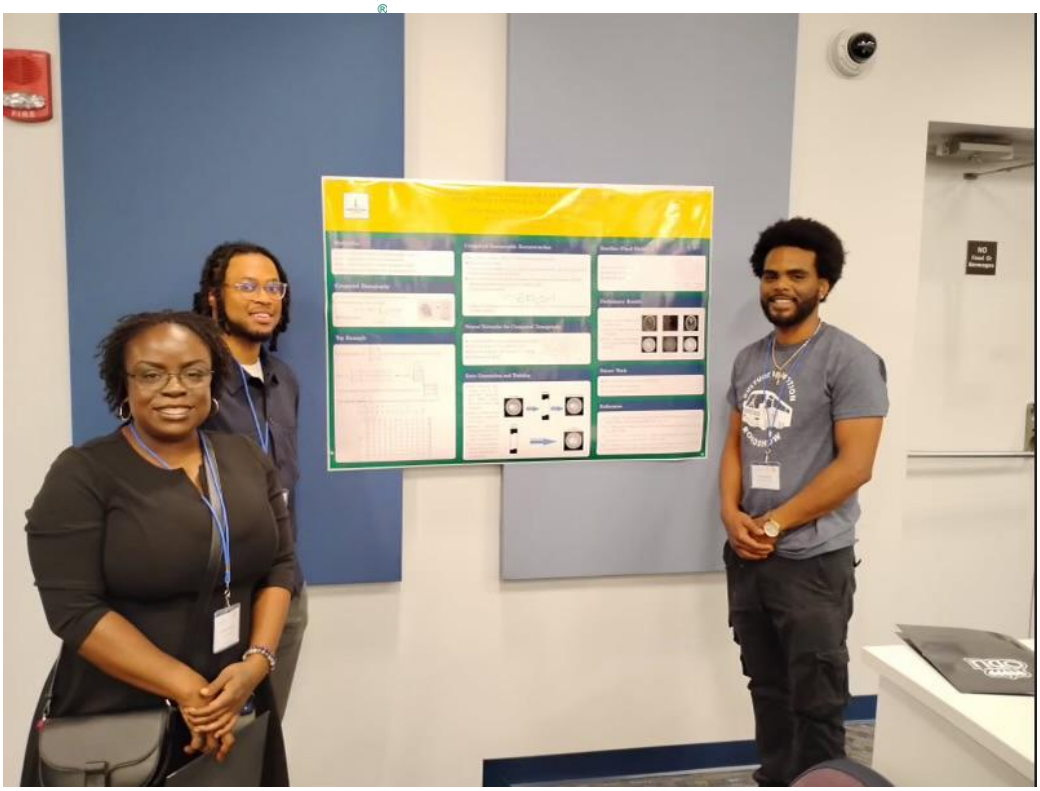
(b) Dr. James Tipton, Assistant Professor of Mathematics, and **Dr. Ana Vivas**, Professor of Mathematics, together with undergraduate researchers **Mr. Michael Barnett, Ms. Nazeerah Peasant, and Mr. Shawn Strobel**, presented a research poster titled Learning to Approximate MLEM Reconstruction with Physics-Informed Neural Networks at the Southwest Data Science Conference 2026: Mid-Atlantic hosted at Old Dominion University.
The poster described ongoing research investigating the use of physics-informed neural networks to approximate the output of Maximum Likelihood Expectation Maximization (MLEM) reconstruction algorithms used in computed tomography (CT). Statistical reconstruction methods such as MLEM can provide high-quality image reconstructions but often require substantial computational resources. The team's approach seeks to learn the behavior of the estimator itself, enabling rapid prediction of reconstruction results while preserving important physical and mathematical constraints.

This research is part of a broader effort to accelerate image reconstruction for spacetime-resolved computed tomography systems used in scientific imaging applications. By combining mathematical modeling, machine learning, and imaging physics, the project aims to significantly reduce reconstruction times while maintaining the accuracy and interpretability associated with traditional statistical estimation techniques. The conference provided an opportunity for students to present their work, interact with researchers from a variety of data science disciplines, and gain valuable experience communicating research findings to a broader scientific audience.



2: Department of Biology

Dr. Suresh C. Subedi, Assistant Professor of Biology at Norfolk State University, recently published a peer-reviewed research article entitled *"Past Legacies and Future Trajectories: Climatic Refugia, Range Shifts, and Conservation Gaps for the Endangered Oglethorpe Oak (Quercus oglethorpensis)"* in Frontiers in Forests and Global Change. The project included contributions from Norfolk State University undergraduate student Naja Rover. Using species distribution modeling and climate projections, the study examined how the distribution of the endangered Oglethorpe oak has changed through time and how it may shift under future climate change scenarios. The findings identified important climatic refugia that may support the persistence of the species and revealed conservation gaps where future suitable habitats may remain unprotected, highlighting the need for targeted conservation and management strategies. Citation: Subedi SC, Adhikari B, Rover N and Bhandari S (2026). *Past legacies and future trajectories: climatic refugia, range shifts, and conservation gaps for the endangered Oglethorpe oak (Quercus oglethorpensis). Front. For. Glob. Change* 9:1702966. doi: 10.3389/ffgc.2026.1702966.

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3: Army ROTC

The following two Norfolk State University students have been selected to participate in the 2026 Army HBCU-MI Student Program for Army Research and Knowledge (SPARK), a competitive, fully paid 10-week summer research internship hosted across Army laboratories and technical centers.

- ***Eva Hudgins***
- ***Faith Dabney***

The Army SPARK Program provides undergraduate students, graduate students, and recent graduates from HBCUs and Minority-serving Institutions with immersive, mission-aligned research experiences under the mentorship of Army scientists and engineers. The program is designed to strengthen early-career STEM talent pipelines while deepening institutional engagement in areas critical to Army science and technology priorities. These students' selection reflects both their academic excellence and the strong preparation provided by NSU STEM faculty.