October 2025

HIGHLIGHTS

Greetings from the College of Science and Technology (CoST) at N.C. A&T State University.

In this edition of *CoST Highlights*, we are proud to celebrate the remarkable achievements of our students and faculty. Two of our STEM juniors have earned the coveted 2025 Astronaut Scholarships. One of our recent mathematics graduates continues to showcase Aggie Pride through her Ph.D. work at Duke University. At national conferences, two student researchers captured presentation awards, and nine new Ph.D. candidates defended their dissertations. We've also welcomed new faculty members this year — including a pioneering AI specialist featured in this issue.

Our Aggie Pride runs deep. These stories highlight the remarkable achievements, resilience, and spirit of our College of Science and Technology family. We invite you to enjoy this selection and celebrate the excellence that defines CoST.

Abdellah Ahmidouch, Ph.D., Dean, College of Science and Technology

Alexis Spence, Avery Love Selected as 2025 Astronaut Scholars

The College of Science and Technology is delighted to recognize Alexis Spence and Avery Love as recipients of the distinguished 2025 Astronaut Scholarship. Awarded by the Astronaut Scholarship Foundation, this honor supports outstanding STEM students who exhibit creativity, initiative, and academic excellence. Like the other Astronaut Scholars, Alexis and Avery are the Innovators of Tomorrow!

Alexis is majoring in physics with a minor in professional theater. A native of Cedar Rapids, Iowa, she has also spent time living in Mexico and Japan — experiences that have broadened her worldview and deepened her passion for cross-cultural communication.

Her research bridges astrophysics and high-energy particle physics. Last summer, she joined the Dark Matter Quantum Information Science (DMQIS) group at Stanford University, where she worked on characterizing the HVeV transition-edge sensor and MEMS calibrator. She aims to better understand the Low Energy Excess (LEE) interference seen in direct dark matter detectors. She will present this work at upcoming conferences. Previously, she presented research at the American Astronomical Society meeting in Anchorage, Alaska, and received the Chambliss Astronomy Achievement Award.

Alexis plans to pursue graduate studies and a career as a science communicator — bringing complex scientific ideas to the public through education and media.

Avery, a double major in chemistry and biology, received the Cheatham-White Honors scholarship as well as a Dow Scholars Undergraduate Research Experience (Sure), which enabled him to conduct fundamental research in biochemistry. The Dow Sure scholarship supports Avery's research focusing on methods for metabolomics using mass spectrometry. This research is being conducted under the guidance of Dr. Thomas Forshaw, assistant professor in biochemistry.

In the spring of 2025, Avery was awarded the Chemistry Department Dean's Award for his outstanding research participation. He has also participated in several other research projects during his college career, including enzyme kinetics for carbon capture at N.C. A&T, evolutionary biochemistry at Yale University, and bacterial genomics at the University of California, Santa Cruz.

Avery was also selected to the Chemistry Honor Society and is currently one of its officers. He aims to earn his Ph.D. in biochemistry and molecular biophysics and focus on understanding the molecular and chemical mechanisms driving infectious diseases.

CoST Welcomes Olaide Nathaniel Oyelade, Ph.D., AI Faculty Member

We are pleased to introduce Olaide Nathaniel Oyelade, Ph.D., as the newest AI-focused faculty member in CoST's Department of Computer Systems & Technology. From building web and mobile applications to exploring advanced AI methods, Dr. Oyelade brings a broad and deep passion for programming, innovation and transformative research.

Dr. Oyelade pursued his M.S. in computer science at Ahmadu Bello University, where he investigated automated business processes through knowledge reasoning and semantic web techniques. Building on that foundation, his Ph.D. work (also at Ahmadu Bello University) focused on the development of a novel interface combining machine learning with rule-based expert systems for disease detection and diagnostics, grounded in knowledge representation and algorithmic reasoning.

Following his Ph.D., Dr. Oyelade secured a competitive postdoctoral appointment at the University of KwaZulu-Natal in South Africa, focusing on neural network methods for disease detection. He later joined Queen's University Belfast in the U.K. as a research scholar then later accepted a position as senior lecturer in computer science and AI at the University of Chichester.

Dr. Oyelade's research interests span the frontiers of AI: machine learning and deep learning (including computer vision), knowledge graphs and large language models, computational intelligence, and algorithm optimization. Much of his work has been applied in medical and clinical domains, especially biomedical image analysis. He has authored bio-inspired optimization algorithms that are now used across medical imaging and engineering applications, helping to bridge his pursuits in computer vision and computational intelligence.

Currently, Dr. Oyelade is working to advance AI models that strengthen feature learning for multimodal inputs — bringing together vision and language modalities. Looking ahead, he plans to expand into projects at the intersection of AI and nanotechnology to translate visual data into language, simulate biological processes, and deploy AI to enhance the security of bio-devices. Dr. Oyelade welcomes collaboration with faculty and students across CoST and the University who are interested in interdisciplinary AI research. We're excited to have him join our community and look forward to the ideas and projects he will help ignite.

Hailey Poole Wins Outstanding Student Presentation at AMS Conference
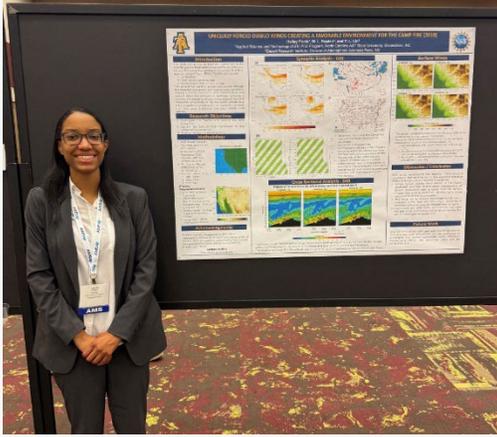
CoST is happy to announce that Hailey Poole, a Ph.D. student in applied science and technology (AST) with a concentration in atmospheric, environmental and energy (AEE) science, won an Outstanding Student Poster Presentation award at the
21st Conference on Mesoscale Processes of the American Meteorological Society (AMS), held June 23-26, 2025, in Boise, Idaho. Hailey presented her research, "Uniquely Forced Diablo Winds Creating a Favorable Environment for the Camp Fire (2018): Synoptic Dynamics."

The 2018 Camp Fire in Northern California was one of most destructive wildfires in California history, claiming 85 lives, burning over 150,000 acres, and causing an estimated $16.5B in damage. A severe event like this drew Hailey's attention to study its causes with her Ph.D. advisor Dr. Yuh-Lang Lin.

With the aid of the state-of-the-art Weather Research and Forecasting (WRF) model, they found that the Camp Fire was strengthened by an atypical set of atmospheric processes including northwest-southeast oriented jet stream that interacted with a warm inverted surface trough over the Central Valley. This configuration strengthened an approaching cold front and generated strong downslope winds and hydraulic jumps that funneled through canyons near the fire's ignition point. Hailey's study highlights how atypical atmospheric patterns caused the extreme Camp Fire.

A native North Carolinian, Hailey joined the AST Ph.D. program in fall 2024 with a Chancellors Distinguished Fellowship following her graduation *magna cum laude* with a B.S. in atmospheric science and meteorology (ASME) in the Department of Physics.

Myla Simmons Brings Aggie Pride to Duke University

Myla Simmons, a May 2025 graduate in applied mathematics, is making waves in both academia and industry. With a 3.93 GPA and a track record of high-level research and technical internships, Myla has become a rising star in data science and software engineering. She is now enrolled in the Ph.D. program at Duke University.

During her N.C. A&T career, Myla contributed to several cutting-edge research initiatives across the country. At the University of California, Irvine, she investigated algorithmic fairness in risk assessment tools. Earlier, at the University of Pennsylvania, she applied machine learning to enhance biosensor technology. Most recently, Myla worked at Honeywell as a software engineering intern, developing traffic models and performance metrics to optimize smart metering infrastructure.

Her academic and research accomplishments are matched by a strong commitment to service. As a mentor with the Aggie Mentor Collective, Myla supported underclassmen as they navigated college life. She also volunteers with veterans and participates in charity events supporting Alzheimer's research.

A member of Pi Mu Epsilon and recipient of numerous honors, Myla combines advanced skills in Python, R, SQL, Tableau, and cloud platforms like AWS and Azure with a passion for equity in STEM. Her senior capstone project explored sensitive survey techniques to study academic integrity among college students.

Currently, Myla's' coursework at Duke University includes data engineering, general statistics, deterministic optimization (specialized statistics course), using Python for data analysis, and professional development. She is actively seeking data science-related internship roles in companies across multiple industries, with a preference for analytics-oriented positions.

Introducing the New CoST Ph.D.s!

Please join CoST in congratulating the Applied Science and Technology doctoral candidates who successfully defended their dissertations in Spring and Summer 2025:

Olugbenga Balogun, Ph.D.
Anti-inflammatory Effect of Onion Peel Extract in the Intestine (Dr. Hye Won Kang, adviser)

Shilpi Bhatia, Ph.D.
Coronavirus Wastewater-based Epidemiology and Transmission in Salivary Gland Cells (Dr. Liesl Jeffers-Francis, adviser)

Tewodros Gebre, Ph.D.
Smart Traffic Solutions: Enhanced UAV-based Traffic Monitoring, Object Detection and AI-Enhanced Guidance System (Dr. Leila Hashemi-Beni, adviser)

Chinenye Ifebirinachi, Ph.D.

Estimating Causal Effects with Interaction Screening and Selection in High-Dimensional Data
(Dr. Seong-Tae Kim, adviser)

Vidya Jadhav, Ph.D.
Effect of Dietary Fat Sources on Cecal Microbiota in Broiler Chickens (Dr. Scott Harrison, adviser)

Saif Qawasmeh, Ph.D.
Using Machine Learning to Detect Insider Threats, Real-Time Behavior Analysis and Risk Assessment
(Dr. Evelyn Sowells-Boone, adviser)

Tenesha Robinson, Ph.D.
Social Exchange and IT Workforce Preparation of Previously Incarcerated Individuals: A Mixed-method
Approach (Drs. Tonya Smith-Jackson and Zhaohui Wang, advisers)

Farzana Rony, Ph.D.
Development of Polymer-based Film for Fuel Cell and Drug Delivery Applications (Drs. Jianzhong Lou
and Mohammad Azad, advisers)

Abdulhakim Eddin, Ph.D.
Developing a Practical Technology for the Production of a Viable and Stable Probiotic Culture (Dr.
Salam Ibrahim, adviser)

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