BOWIE STATE UNIVERSITY
1865

BULLDOG BYTE

College of Arts & Sciences

DEPARTMENT OF COMPUTER SCIENCE

FALL 2025

BULLDOG BYTE

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ABET
Computing Accreditation Commission

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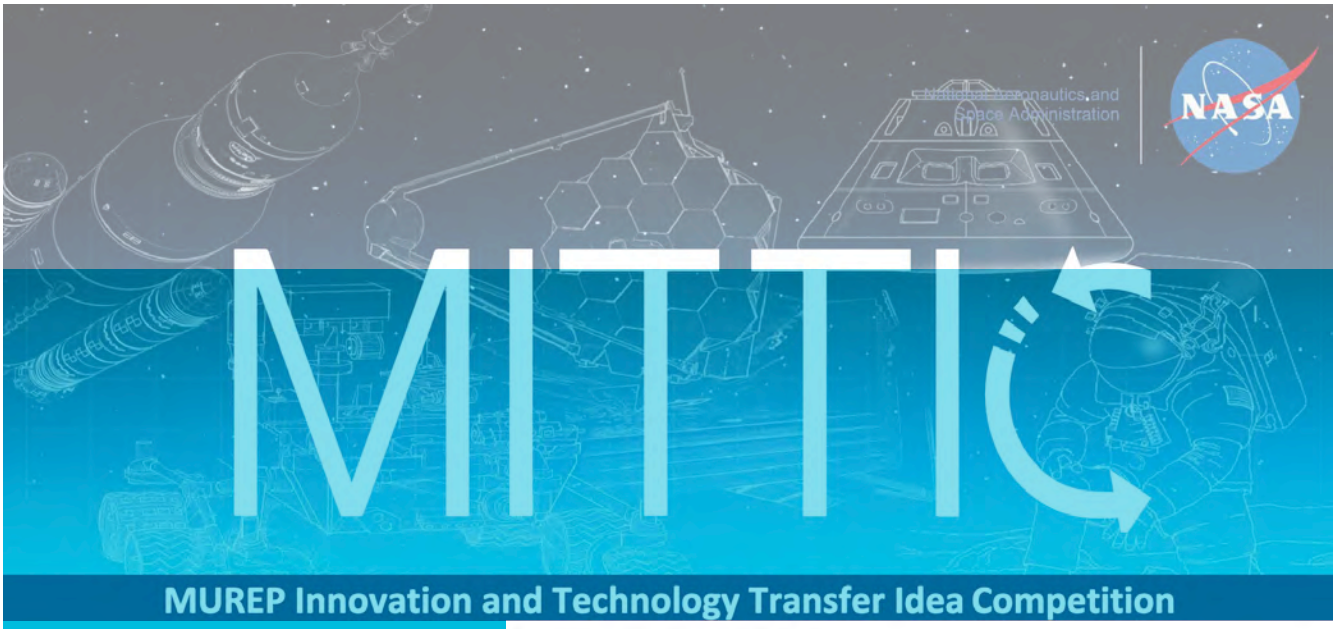
The Computer Science Department is committed to being a model of creativity and technical leadership. From building software for complex systems to exploring virtual reality, our students study a wide range of concepts in networking, artificial intelligence, research and cybersecurity that prepares them for success.



Doctorate Degrees By Major,
FY 2021 – FY 2025

Source: DIS

HEGIS Code	Major	2021	2022	2023	2024	2025
070100	Computer Science	2	2	1	5	7

Undergraduate Degrees By Major,
FY 2021 – FY 2025

Source: DIS

HEGIS Code	Major	2021	2022	2023	2024	2025
Arts & Sciences						
070100	Computer Science	16	11	26	38	37

CHAIRPERSON'S WELCOME

Welcome to the 2025 *Bulldog Byte* Magazine!

It has been an exciting year for the Department of Computer Science at Bowie State University. From national recognition to student-centered growth, our department continues to make significant strides.

Here are just a few highlights:

- Our student team won first place at the 2024 NASA MITTIC Competition in Houston, earning $20,000 and a VIP trip to the MITTIC Accelerator for their innovative prototype addressing computer vision syndrome.
- Undergraduate enrollment more than doubled, from 189 in 2019 to 425 in 2024, with women's enrollment tripling from 36 to 108.
- Undergraduate graduates more than doubled, from 17 in 2019 to 37 in 2024, reflecting increased student success.
- MS graduates grew from 15 to 16, and doctoral graduates from 2 to 7.
- The University Affiliated Research Center (UARC) continues to expand, employing over 30 students and now involving four faculty members, with $2.4M in funding.
- We took 20 women to the Grace Hopper Celebration in Philadelphia—an incredible opportunity to connect, inspire, and grow.
- Our faculty maintained active engagement through Booz Allen capstone projects, IEEE conferences, and BSides cybersecurity events.

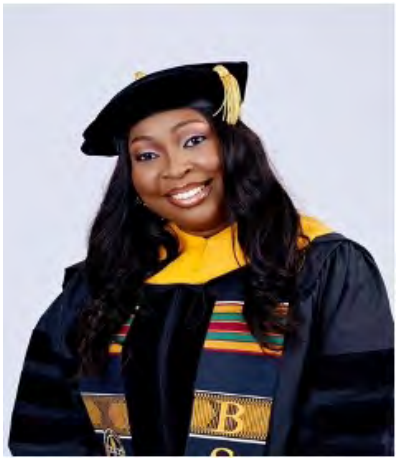
These achievements reflect the passion of our students, the commitment of our faculty, and the momentum of our growing program.

I want to take this opportunity to welcome the new Dean of the College of Arts & Sciences, Dr. Steve Damo and the new Associate Dean, Dr. Benjamin Arah. We hope all will enjoy this edition of the *Bulldog Byte* as we celebrate progress, impact, and the future of computing at BSU.

— Dr. Rose Shumba, Chair
Department of Computer Science

OUR NEWLY-MINTED DOCTORS OF SCIENCE IN COMPUTER SCIENCE

Name: **Dr. Ruth Abidemi Olusegun**
Advisor: **Dr. Bo Yang**



Title: Enhancing Blockchain Network Security with Pre-trained Tabular Transformer Using IFS-TabPFN framework

Dr. Olusegun's research focuses on Artificial Intelligence, Blockchain Technology, and Ethical AI, with a strong emphasis on addressing critical security challenges across sectors such as finance, healthcare, smart systems, and emerging technologies. Her dissertation centered on improving blockchain security using a tabular pre-trained transformer model grounded in Approximate Bayesian Inference and Meta-Learning. She developed a neural network framework capable of real-time monitoring and predictive analysis of blockchain transactions particularly in cryptocurrencies, allowing for proactive security measures and greater transparency. Her approach combined hybrid feature selection and customized tokenizer to process complex data, ultimately enhancing both model performance and interpretability.

Dr. Olusegun's research has been published in leading journals, including IEEE Access and the IEEE Xplore Digital Library with notable titles such as "Enhancing Blockchain Network Scalability Through Parallelization and Aggregation Techniques," "Improved Ethereum Fraud Detection System with Tabular Transformer Model," and "Explainable Tabular Transformer Model for Enhancing Security in Cryptocurrencies." Her work has earned academic recognition and invitations to present at prestigious conferences such as AIRC 2025 in Georgia, Atlanta, IEEE-TPS 2024 in Washington, D.C., and CSCI 2023 in Las Vegas. She had also contributed to federal agencies projects both at FDA and NSA respectively, where she applied Artificial Intelligence to critical health and national security challenges, including geospatial data and protection of cyber-physical systems.

Alongside her research activities, she has also contributed to reviewing several academic papers. Her academic success is matched by her leadership and service. She has mentored students in the Research Experiences for Undergraduates (REU) program, contributed to the Apple Create and Code Camp at Bowie State and supported high school research collaborations through BSU–D.C. Public Schools initiatives. She is also a recipient of the MacKenzie Scott Scholarship Award for Academic Achievement.

Dr. Olusegun exemplifies the strength of Bowie State's commitment to innovation, research, and community engagement and her work continues to push the boundaries of AI and blockchain for the betterment of society. She currently works as an Adjunct Faculty at Bowie State University and Data Scientist at Data Scientific. Inc. Canada.

Name: **Dr. Staphord Bengesi**
Advisor: **Dr. Hoda El-Sayed**

Title: Hybrid of Deep Learning and Transformer Models with Explainable AI for Enhanced Parkinson's Disease Detection

Staphord Bengesi is a recent Doctoral graduate in Computer Science from Bowie State University, where he conducted impactful research at the intersection of artificial intelligence and healthcare. His dissertation focused on leveraging advanced neural networks and transformer architectures to improve the accuracy and interpretability of diagnostic models for Parkinson's disease. His work emphasizes not only high-performance prediction but also transparency in AI decision-making, addressing a critical need in clinical settings where trust and understanding of AI outputs are essential.Staphord collaborated closely with faculty and researchers to advance knowledge in the field.

During his doctoral journey, he co-authored three peer-reviewed journal articles and four conference papers, many of which were co-authored with Dr. El-Sayed and Dr. Md Kamruzzaman Sarker. His research contributions have been well received by the academic community, accumulating over 300 citations by the time of his graduation—an impressive milestone that reflects the real-world relevance and scholarly impact of his work in interpretable AI and biomedical signal processing.

Name: **Dr. Veronica Ama Boateng**
Advisor: **Dr Bo Yang**

Title: Deep Ensemble-Based Modeling Approach for Enhanced Performance in AI-Based Analysis

Dr. Boateng's research focuses on deep ensemble learning, base model selection, stochastic weight perturbation, ensemble diversity, model generalization, prediction accuracy, computational efficiency, ensemble optimization, weight sampling, training dynamics, model robustness, BMS (Base Model Selector), DSWS (Diverse Stochastic Weight Sampling), DEOM (Deep Ensemble Optimized Model), error reduction, model correlation, AI-based analysis, real-world datasets, predictive modeling, skin cancer detection, transportation delay prediction, model reuse, and AI system scalability. She has co-authored publications with Dr. Bo Yang. Currently, she serves as a Lecturer in the Department of Management Information Systems at the College of Business, as well as an Adjunct Professor in the Department of Computer Science at Bowie State University.

Name: **Dr. Tanvi Patel**
Advisor : **Dr. Hoda EL-Sayed**

Title : Enhanced Blood Cells Classification And Conditional Image Generation With Transformer Models

Dr. Tanvi Patel's dissertation presents a significant advancement in applying artificial intelligence (AI) to healthcare, focusing on improving diagnostic accuracy in hematology. Her work introduces a novel hybrid model, EfficientSwin, combining EfficientNet and Swin Transformer to achieve state-of-the-art performance in blood cell classification—critical for early disease detection and treatment monitoring, especially in leukemia.

A major contribution of this research is overcoming data scarcity in medical imaging through StyleSwin-ADA, a generative model enhanced with Adaptive Discriminator Augmentation (ADA), capable of producing high-quality, artifact-free synthetic images. Furthermore, Dr. Patel pioneers the use of vision-language models (BiomedCLIP) for zero-shot and few-shot learning, enabling accurate blood cell classification with minimal labeled data.

Overall, this research establishes a scalable and versatile AI framework that enhances diagnostic precision, reduces data dependency, and opens new avenues for multimodal AI applications in precision diagnostics and personalized healthcare.

Name: **Dr. Michael Abobor**
Advisor: **Dr. Darsana Josyula**

Title: Multi-View Framework for fine-tuning Transformer-Based models with Multi-label Data Augmentation for Social Engineering Detection.

Dr. Abobor's research area focuses on the proposal of a multi-view framework tailored for the detection of social engineering features in multi-label datasets. This proposed framework also addresses the challenges posed by the highly imbalanced and context-sensitive nature of social engineering dataset. The exploration begins with the identification of prominent social engineering features through embedding analysis, semantic clustering, and hierarchical organization of text embeddings generated from GloVe and Transformer-based models like DistilBERT. These analyses provide a systematic understanding of how linguistic and semantic patterns are grouped within social engineering attacks. However, conventional text-level augmentation methods, such as synonym replacement, fail to retain the contextual nuances and semantic relationships critical for detecting sophisticated social engineering attempts. To address these limitations, the framework leverages advanced embedding-level augmentation techniques like SMOTE, MLSMOTE, MLSOL, MLeNN, and MLTL. These augmented embeddings, processed through a linear transformation, ensure compatibility with Transformer-based models, enriching the representation of the underlying data. At the heart of the proposed framework lies its dual-branch multi-view architecture, which integrates textual features from a DistilBERT based branch with synthetic features derived from augmented embeddings via an embedding branch. The outputs of these branches are concatenated into a unified representation and passed through a Multi-Layer Perceptron (MLP) classifier. This design not only enhances the model's ability to learn multi-label dependencies but also ensures scalability across diverse datasets. Through extensive experiments, the multi-view framework demonstrated superior performance across evaluation metrics outperforming traditional single-view and shallow feature-based approaches in detecting social engineering features.

Currently serving as a Senior Data Scientist & AI/ML Engineer, Dr. Abobor designs and implements cutting-edge machine learning models, optimizes algorithms, and seamlessly integrates AI technologies into products and services. Dr. Abobor has inspired audiences at major AI conferences in places such as Denver Colorado, Las Vegas, Dubai, and Africa. Beyond the podium, he is a passionate mentor to the next generation of AI leaders, guiding students, professionals, and organizations in understanding and adopting AI- driven solutions.

RESEARCH LABS

SECURITY AND OPTIMIZATION OF STOCHASTIC SYSTEMS (SOPSS) LAB

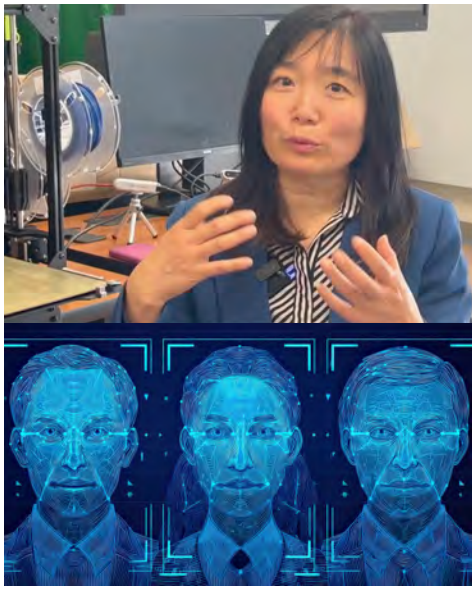
Dr. Vivek Shandilya

The work involves investigating and establishing the structures in the interaction of intelligent agents with conflicting and mutually unknown motivations in stochastic systems. This problem manifests in optimization and security situations of computational, biological, and socioeconomic systems. NSA, NASA, NSF, and other agencies sponsor projects.

CYBERSECURITY AND VIRTUAL REALITY LAB

Dr. Jie Yan

This research lab focuses on AI in Cyber Security Applications, Computer Graphics and Animation, 3D modeling and Visualization, Computer Vision and Pattern Recognition, Machine learning, and Human-Computer Interface. The research team includes one undergraduate student, eight doctoral students, and one postdoctoral researcher. NSF, DHS, DoD, NASA, and Adobe Research fund the research.

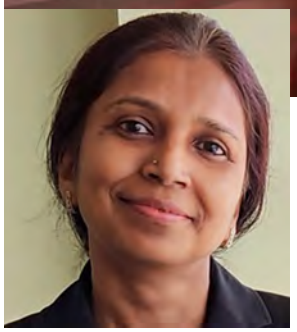


BIOMEDICAL INFORMATICS LAB

Dr. Soo-Yeon Ji

Faculty and students work on analyzing data in various domains, including network/cyber security, human emotion recognition, stress detection, and medical and health, by integrating machine learning (ML), visual analysis, and signal processing.

Current research is NSF funded in collaboration with Old Dominion University. Former research was funded by the US Army Research Office (ARO). The lab also collaborated with the US Army Research Laboratory (ARL), Indiana University, Coastal Carolina University, University of the District of Columbia, and Virginia Tech University.



AUTONOMOUS TECHNOLOGIES LAB

Dr. Darsana Josyula

Students and faculty work on goal-oriented and rule-based interfacing agents capable of adapting based on the anomalies they encounter, anomaly detection, and system adaptation from the perspective of Artificial Intelligence's data-driven machine learning side. The lab has several funded grants in collaboration with the University of Maryland, College Park, BAE systems, and several small businesses. The faculty and students have completed prior NSF, AFOSR, ONR, and DARPA-funded projects. Five doctoral students have graduated from the lab. Also, ongoing research on adaptive online classifiers, drift tolerance, meta-reasoning, federated learning, cooperative agency, knowledge acquisition, and handling conflicting information in autonomous settings form a strong foundation for doctoral students to build upon their dissertations. The University of Maryland's (UMD) five-year ArtIAMAS (AI and Autonomy for Multi-Agent Systems) cooperative agreement with the US Army Research Laboratory (ARL) funds current research. In October 2024, the Lab received a new round of funding totaling $788,250 through the Department of Defense's (DoD) equipment/ instrumentation program to acquire cutting edge robotic systems that will be used to develop software to conduct search and rescue field operations independently in dynamic settings. The new equipment includes robots with a six-degree-of-freedom arm, twenty smaller robots, and five drones with sensor payloads and supplementary accessories. Specific equipment includes the Boston Dynamics' legged robot - Spot, Modal AI's VOXL 2 Development drone - Sentinel, and Quanser's educational robots - QCar, QBot, and QArm Mini. The cutting-edge systems are designed to collect multi-modal data, navigate complex terrains, and carry payloads enabling advanced research in machine learning, perception, reasoning, and agent behaviors. *Photo of Dr. Josyula by Howard University RITA, 2025.*

INTELLIGENT ENGINEERING LAB FOR LARGE INFORMATION

Dr. Bo Yang

The lab has seven doctoral students working in cybersecurity, data privacy and reliability, Big Data, IoT Edge Computing, Natural Language Information Retrieval, and Machine Learning. NASA, NSF, DoD, and industry, including Radiant and Adobe Research, fund the research. The research has resulted in academic publications and software packages. Two of the doctoral students received a Research Award from the Bowie State University Graduate School, and the National Society of Black Engineers conferred a Distinguished Engineer of the Year award on one of them.

RITA UNIVERSITY AFFILIATED

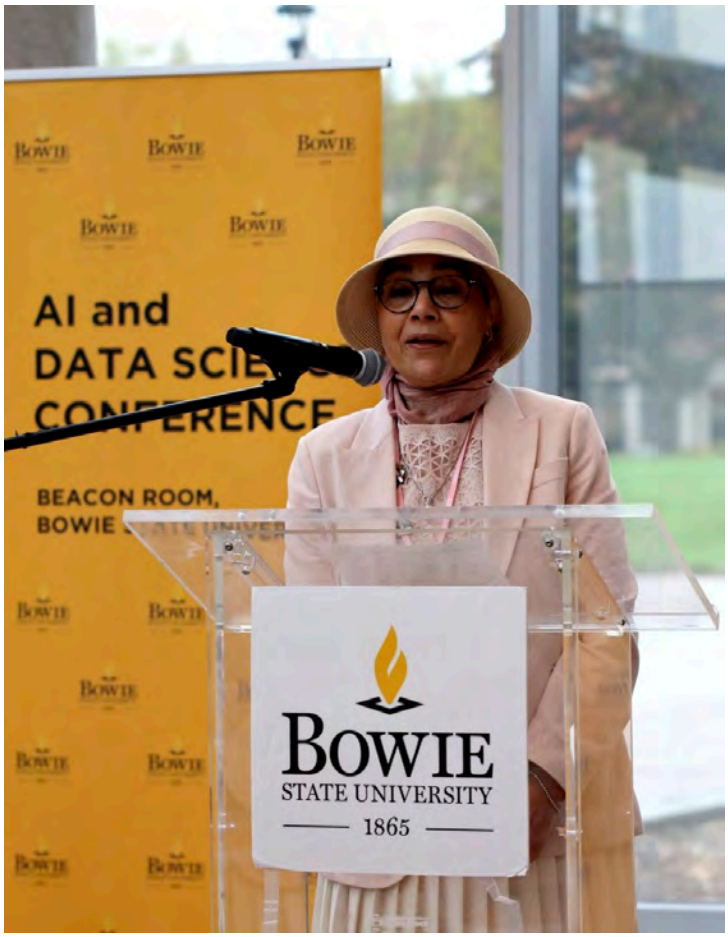
BSU's Department of Computer Science has been chosen to undertake two projects as part of a new task order issued by the US Air Force to the newly established Research Institute for Tactical Autonomy (RITA UARC). BSU has secured a total Funding of $545,242 to execute these projects over two years. The projects entail task allocation for autonomous agents and content retrieval utilizing large language models.

Drs. Josyula, Yang, and Yan will lead a team of BSU students and post-doctoral researchers in completing these projects.

THE CENTER FOR HIGH-PERFORMANCE INFORMATION PROCESSING (CHIP)

Dr. Hoda El-Sayed

The Center for High-Performance Information Processing (CHIP) (Dr. El-Sayed): The lab research focuses on High-Performance Computing (HPC). CHIP includes several collaborating prominent faculty spanning many other applications domains in HPC; parallel programming and parallel algorithms partitioned Global Address Space (PGAS) programming and algorithms for application acceleration using Graphical Processing Units (GPUs) and Manycore Chips, such as the Intel Phi. CHIP also focuses on sequencing large databases of DNA through a DNA Barcoding Initiative to sample, identify and classify species. Seven graduate students are working in this lab.



CYBER-PHYSICAL SYSTEMS AND ML LAB

Dr. Sreeni Ramamurthy

Faculty and students work on machine learning for thoughtful, intelligent, and cyber-physical systems research. The research involves studying the relationship between human activities and underlying cognitive health impairment. The research covers extracting remote photoplethysmography (rPPG) from facial videos, deploying real-time IoT systems for rPPG, sports analytics, developing interoperable and fault-tolerant networks for ground and aerial robots in contested environments for resource optimization, and model-based systems engineering for cybersecurity. One of the projects is funded by NAVAIR, and other projects are financed by The University of Maryland's (UMD) five-year ArtIAMAS (AI and Autonomy for Multi-Agent Systems) cooperative agreement with the US Army Research Laboratory (ARL).

NEW HIRE IN COMPUTER SCIENCE

RICHARD LI

*I am a new Program Management Specialist. I received my MBA from the University of Maryland (2009) and an MS in Electrical Engineering (2000) from Queen's University, Canada. I also hold a BS in Electrical Engineering. Prior to joining BSU, I worked for the Federal Home Loan Bank of Pittsburg for 12 years as a Senior Market Risk Analyst. Before that, I held analyst positions at several financial services firms in the DC metro area, including Fannie Mae, Freddie Mac, and E*Trace Financial where I focused on financial modeling, reporting, and risk management. I am excited to have the opportunity to support the BSU Computer Science Department by assisting faculty with grant and contract management, financial reporting and compliance, liaison with funding agencies, and more.*


Internship

Internship

Fall 2024 Internship Experience Report

Name: Bruce Metoyer

Department: Computer Science

Internship Organization: CognosanteAFS

Internship Duration: Fall 2024

Role: Cognosante Fall scholar '24' | Software Development Team

1. Introduction.

Hello, everyone; my name is Bruce Metoyer. I graduated in the spring of 2025. During the Fall 2024 semester, I had the opportunity to intern at CognosanteAFS, working with the Software Development team. As part of this program, 11 other scholars and I relocated to the science and technology campus of George Mason in Manassas, Virginia. We would visit the office 2-3 times a week, while the rest would work online.

The cohort was divided into teams based on their specific skills and interests. As a cohort, we would also participate in many events outside of work. We were able to attend a Washington Commanders and Spirits game in New York, along with other events such as bowling and a sip and paint session. As a fall scholar, I had the tremendous opportunity to work with a fantastic cohort and exemplary leaders in their fields. My primary responsibilities in the Software Development team included addressing minor issues and bugs with the SCRUM team and assisting other software engineers in any way possible.

Here I am at the Spirits Game.

2. Learning Objectives & Expectations

Before starting my internship, I set several learning objectives, including:

- Be available, be on time, be flexible, and be responsible.
- Learn how to work and navigate in a real-world working environment.
- Don't be afraid to fail and learn new things.
- Form genuine bonds and connections with people in your cohort, your managers and coworkers.
- Become more proficient and confident in your technical skills.
- Gain experience working in a collaborative team environment.
- Have fun and don't stress yourself; pat yourself on the back for small victories.

Here I am at our Sip and Paint

3. Work Experience & Responsibilities

Development Tasks: Throughout my internship, I worked as a developer, QA analyst, and a Scrum master. As a developer, I primarily addressed bugs assigned to me by my manager and completed them promptly. I participated in daily Scrum meetings with my team, communicating what we had done the previous day, our progress, and what we planned to do that day. We communicated with the team if we had any impediments or blockers. I would also sit in on code reviews with other developers, examining the developers' code. If the other developers approved it, then the code would move on for the QAs to review so that the story could be approved. We tracked progress using story points. More complex stories would be five-pointers, usually split between developers, while many stories ranged from 1 to 3, typically involving bug fixes or implementations. I had regular meetings with my manager, Mikias, who helped me get set up with the project and addressed any questions or concerns I had. I genuinely formed a bond with my manager. Outside the meetings, we discussed various topics related to sports or school. I am glad I connected with my manager; we are still in contact today.

QA Responsibilities: Many team members helped me get accustomed to multiple roles. The QA on our team, Nancy, showed me what she does and even allowed me to test my knowledge independently. As a QA, I reviewed and tested cases that should pass the criteria for the user stories. I would have to follow the steps outlined in the test cases so that I could test fixed bugs correctly. If the test cases were not up to standard, I would provide feedback and inform Nancy of the necessary changes or implementations.

Scrum Duties: I acted as a Scrum master during my experience. The Scrum master on the team was Monica, who taught me about the Scrum process and her responsibilities as the Scrum master. She taught me about the software development life cycle (SDLC), the benefits of the SDLC, the importance of ceremonies, and the roles of each Scrum team member, such as product owners, developers, and QA. I then acted as Scrum Master, overseeing the daily stand-ups and preparing and presenting ceremonies, such as Sprint planning.

CARES/Final Presentation: We could represent small start-up organizations in the CARES program with CognosanteAFS. We were divided into three teams, all tasked with representing an organization. My team, the Innovative Effect, represented StartUp Ministry, a start-up in North Carolina, and pitched to the entire company to secure support for StartUp Ministry. The cohort participated in required power skills training, which is vital for personal development. Some of the highlights from the workshops included essential skills in communication and presentation, as well as the L&D workshop on self-confidence hosted by Bobby.

On the last day of the internship, we all had to present what we learned through the 16 weeks, including our impact on our team, power skills takeaways, education and certifications, and our next steps after the internship. The dinner after the final presentation was a great but sad close-off! Many people from CognosanteAFS and representatives from each cohort's school showed up, allowing everyone to network and share their experiences.

4. Team Building Activities

During my time with CognosanteAFS, I had a wonderful time with my cohort. I attended multiple fun events and formed a bond with everyone.

Here I am on the NYC Trip and at the Washington Commanders game.



5. Key Takeaways & Skills Gained

During the internship, I gained valuable experience in:

- **Technical Skills:** JavaScript, React, GraphQL, API development
- **Soft Skills:** Improved collaboration, communication, teamwork, and problem-solving abilities.
- **Industry Practices:** Learned about Scrum and Agile development, Git workflows, Jira, Software development lifetime cycle(SDLC), and debugging large-scale applications.
- **Certifications**: Lean Six Sigma Yellow Belt Certification

6. Challenges & How I Overcame Them

One of the biggest challenges I faced was the pressure of trying to be perfect while balancing schoolwork and work with the company. I also had issues initially getting set up in the repository and issues with some bugs. I also struggled with work/fun balance. To overcome this, I:

1. I met with my manager numerous times, and he helped me get set up with either a bug assigned to me or the repository.
2. Review documentation and existing code to understand how different components work.
3. I expressed gratitude and applauded myself for my victories and achievements during the internship.
4. I divided the problem into smaller tasks and tackled them individually.
5. Took a step away from work sometimes for a refresher to focus on mental health
6. I created a schedule to balance out what I needed to do and what I did not need to do
7. Remember to have fun and enjoy the experience.

This experience taught me the importance of perseverance and using available resources effectively.

7. Reflection & Future Goals

This internship was an invaluable experience that reinforced my interest in software engineering. Moving forward, I plan to:

- Continue refining my skills to become a great software engineer.
- Seek additional projects that challenge me and help me grow.
- Apply the lessons I've learned to my coursework and future career opportunities.

8. Conclusion

My internship at Cognosante AFS as a Fall Scholar was an incredible experience that provided me with invaluable technical knowledge, fostered professional growth, and established lasting connections. Through hands-on experience in software development, quality assurance, and Scrum methodologies, I strengthened my problem-solving skills and gained confidence in my abilities. The mentorship and support from my manager, teammates, and fellow cohort members played a significant role in making this journey both educational and rewarding.

Beyond the technical skills, this internship taught me the importance of adaptability, collaboration, and work-life balance. I learned to navigate real-world challenges, embrace new learning opportunities, and appreciate the power of teamwork in a professional setting. The friendships and professional relationships I built during this time will continue to inspire and support me as I advance in my career.

As I prepared to graduate in Spring 2025, I was more motivated than ever to pursue a career in software engineering. This experience has reinforced my passion for technology and problem-solving, and I look forward to applying what I have learned in my future endeavors. I am incredibly grateful for this opportunity and excited for what lies ahead in my journey as a computer scientist.

STUDENT	ACADEMIC STANDING	COMPANY AND ROLE
Kimberly Allagnon	Sophomore	Dev technology group- business analyst
Nia Plair	Junior	Fannie Mae, Technology UI Intern
Taj Smith	Already Graduated/ Alumni	Adobe Inc.- Security Engineer
Kamar Johnson	Senior	Bowie State University - Data Science Researcher
Fahmina Nur Salma	Graduate	Bowie State University, Department of Computer Science, STEM Technical Assistant, SURI- Research Mentor
Praise Ben	Senior	Apple Large Language Model(LLM) Intern @ Apple Maps Real Time Incident Team
Carlson R. Cox Jr.	Graduate	CACI International- Software Engineer
Abdoul Diallo	Sophomore	HCDI- Data Analyst
Rameses	Senior	MITRE Cyber Futures intern
Jordan Mayo	Graduate	University of the District of Columbia- Lab Technician
Mojolaoluwa Owolabi	Junior	Mastercard - Software Engineer Intern
Danny Zapet	Senior	HealthCare Dynamics International (HCDI)- Data Team Intern

Damien Ticer	Senior	Dev Technology Group/Intern
Chanord Malcolm	Junior	SURI - student researcher
Melanie Nzaou Nziengui	Junior	Cvent - Data science intern
Geriani Jean Baptiste	Junior	Amergis - Asset Administration
Eddy Koundjou Yem	Graduate	Serco - Assistant Security Specialist
Brionna Nunn	Junior	HCDI- Data team,
Trinity Bowling	Senior	Autonomous Technologies Lab - Researcher
Dayana Ferrufino	Junior	Microsoft Inc.- Software Engineer,
Selorm Leslie Afeawo	Senior	Bowie State University, Computer Science Dept. - CYPHERLAB, Undergraduate Student Researcher, Robotics and ML,
Akif Muhtasim	Already Graduated/ Alumni	Microsoft Inc.- Software Engineer,
Pius Odhiambo	Already Graduated/ Alumni	Blue Nile Analytica, Project Manager - KISWATE Digital Academy
Darryl Lomax Jr.	Junior	Runwei™, Chatbot Development and Research Intern,

Ihab Ashkar	Sophomore	Digital Engineering Technology Consultant @ Ernst & Young
Andre Herron	Graduate	John Hopkins University, Applied Physics Laboratory, Tactical Intelligence Systems Intern
Antonio Jackson Jr	Junior	Prince George's County Department of Corrections Center, enrolled as Technical Service Support
Cheryl-Devon Twyman	First Year	MITRE, Cybersecurity Research Intern
Gracemercy Gichaga	Sophomore	SURI (Undergrad Research Assistant)
Deborah Adeyemi	Graduate	Bowie State University, Department of Computer Science, Autonomous Technologies Lab, Graduate Research Assistant
Nicholas Armenta	Sophomore	Bowie State University, Department of Computer Science, The Autonomous Technologies Lab, Undergraduate research Assistant,

John Dominic Paja	Sophomore	Bowie State University, Department of Computer Science, CYPHER Lab, Undergraduate Research Assistant
IXCHEL FLORES	Junior	Bowie State University, Department of Computer Science, CYPHER Lab, Undergraduate Research Assistant
Ayomide Aisida	Sophomore	Bowie State University, Department of Computer Science, CYPHER Lab, Undergraduate Research Assistant
Starfranklyn Olivers	Graduate	Bowie State University, Department of Computer Science, CYPHER Lab, Graduate Research Assistant
Kamar Johnson	Junior	Bowie State University, Department of Computer Science, CYPHER Lab, Undergraduate Research Assistant
Azaera Toussaint	Junior	SURI Internship.
Miles Brown	Senior	Bowie State University, Department of Computer Science, CYPHER Lab, Undergraduate Research Assistant
Srinivasa Kranthi Kiran Kolachina	Graduate	Adobe Inc., Security Data Scientist
Carlos Sanni	Already Graduated/ Alumni	Graham Technologies, Junior Front-End Developer
Tolulope Oshuntoye	Graduate	Bowie State University—Summer Undergraduate Research Insitute (SURI) Graduate Mentor
Oluwatobi Akeju	Junior	Bowie State University, Department of Computer Science, The Autonomous Technologies Lab; Research Assistant
Dimitri Waddell	Graduate	Bowie State University, Department of Computer Science, The Autonomous Technologies Lab, Research Assistant
Roxan Rockefeller	Graduate	Bowie state university, AI Cybersecurity Team Lead, SURI undergraduate researcher
Olumide Aisida	Sophomore	Bowie State University, SURI Undergraduate Researcher
Anthony Middleton	Junior	Bowie State University employed by Summer Graduate Research institute, AI/ cybersecurity researcher or intern

Iteoluwakiishi Ogunbiyi	Already Graduated/ Alumni	Cloudflare, Solutions Engineer
Abdoul Diallo	Sophomore	HCDI, Data Scientist.
Ange Kongo	First Year	Bowie State University, SURI-Undergraduate Research Assistant
Ange Maxime TEZAI	First Year	SURI Undergraduate researcher
Joshua Harrell	Sophomore	Bowie State University, SURI Undergraduate Researcher
Tolulope Oshuntoye	Graduate	Bowie State University–Summer Undergraduate Research Institute (SURI) Graduate Mentor
Oluwatobi Akeju	Junior	Bowie State University, Department of Computer Science, The Autonomous Technologies Lab,; Research Assistant
Dimitri Waddell	Graduate	Bowie State University, Department of Computer Science, The Autonomous Technologies Lab, Research Assistant
Roxan Rockefeller	Graduate	Bowie state university, AI Cybersecurity Team Lead, SURI undergraduate researcher
Olumide Aisida	Sophomore	Bowie State University, SURI Undergraduate Researcher
Anthony Middleton	Junior	Bowie State University, Summer Graduate Research institute (SURI), AI/cybersecurity, Undergraduate Researcher
Iteoluwakiishi Ogunbiyi	Already Graduated/ Alumni	Cloudflare, Solutions Engineer
Abdoul Diallo	Sophomore	HCDI, Data Scientist.
Ange Kongo	First Year	Bowie State University, SURI Research Assistant
Ange Maxime TEZAI	First Year	SURI Undergraduate researcher

COMPETITIONS, CONFERENCES, AWARDS, HIGHLIGHTS, AND CLUBS

NASA

DOMINATING NASA MITTIC AS FIRST-PLACE WINNERS AND SECURING $20,000 : BOWIE STATE BULLDOGS MAKE WAVES

Screen Sight on stage after winning first place for their pitch! 🎉 The team secured $20,000 in funding and a trip to Mountain View, California, to meet with investors. *Pictured (left to right):* Bukunmi Jaiyeola, Juliana Pianim, Ashanti Boone, Dior Whitfield, Hanaa Salim, CJ Obizuo, Darsana Josyula.

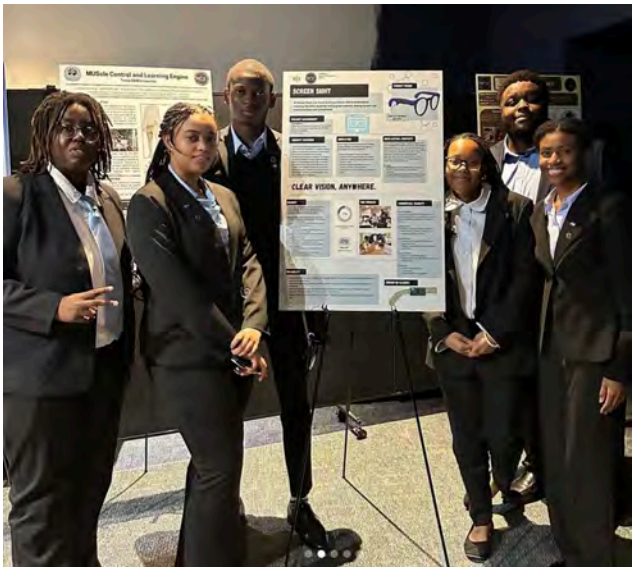
March 2024 marked the beginning of an exhilarating journey for a team of Bowie State University students who set their sights on the NASA Minority University Research and Education Project Innovation & Technology Transfer Idea Competition (MITTIC). This prestigious competition challenges students from Minority-Serving Institutions (MSIs) to develop innovative products using NASA-licensed intellectual property. Initially hesitant due to the fast-approaching deadline, the team took a leap of faith, submitted an idea, and astonishingly secured a spot in the top ten finalists.

While their first attempt didn't result in a victory, the experience was invaluable. Determined to come back stronger, the team reassembled in August 2024 with a refined strategy in place. This time, they built a diverse, interdisciplinary team, addressing their previous competition's shortcomings—most notably, a lack of a well-defined marketing plan. Their new team comprised seven dedicated students: Tobi Ayodeji, Ashanti Boone (team lead), Bukunmi Jaiyeola, CJ Obizuo, Juliana Pianim, Hanaa Salim, and Dior Whitfield, alongside two esteemed faculty advisors, Professors Ruth Agada and Darsana Josyula.

By the fall semester, the team had identified two NASA IPs and finalized their product concept focused on enhancing device accessibility. Selected once again to pitch their innovation in Houston, Texas, they committed themselves to weeks of preparation that ultimately led them to an extraordinary victory.

The Winning Formula: 5 Key Strategies for Success

Expert Mentorship: With guidance from JPMorgan mentors, the team honed their marketing strategy and simplified their technical pitch, ensuring it was accessible to a broad audience.



Prototype Development: Instead of relying solely on theoretical concepts, they built a working prototype, significantly strengthening their presentation.

Rigorous Practice: The team rehearsed extensively, memorizing key points, preparing backup plans for technical failures, and incorporating an engaging pitch delivery.

User Research: By distributing surveys among friends and family, they gathered critical feedback to refine their product's features and pricing.

Personal Connection: A deep personal motivation drove their innovation—three of their nine team members wore glasses, enabling them to design an accessibility solution that would personally benefit them.

Their dedication paid off—Bowie State University's team clinched first place, earning a $20,000 cash prize and an exclusive trip to California. This triumph was a testament to their resilience, teamwork, and ingenuity, proving that with the right strategy and determination, anything is possible.

Visiting the Mission Control Center in Houston, Texas., the team heard insights from a flight director and witnessed two astronauts in space.

24 HOURS, TOP 7 FINISH: BSU Tackles AI at HBCU Battle of the Brains

Bowie State University competed in the HBCU Battle of the Brains competition in Austin, Texas. The team consisted of 5 undergraduates: Matthew Akinmolayan, Tobiloba Ayodeji, Chenilyn Espineda, Dayana Ferrufino, and Oluwatomisin Laniyi, and one graduate student: Hermann Fokouchendjou. The competition is a week-long event where students and advisors participate in a series of events. Each event is tailored to the sponsors, where everyone visits different locations owned by the companies. For example, the teams all explored Dell's headquarters and the Dell Diamond stadium.

The actual competition is divided into two parts. First is the 24-hour competition, and the other is the presentation during the finals. Our team was one of 26 schools, where students spent 24 hours in a secluded building to plan a pitch based on a prompt given to them that morning. During this time, students were unable to discuss their ideas with their advisors or communicate with them for any other reason, unless there was an emergency. This year, the students were tasked with developing an idea to enhance targeting, boost engagement, or optimize performance measurement of advertising using artificial intelligence. The solution also needed to be mindful of sustainability.

Each team was required to submit a series of deliverables on time within 24 hours to be eligible. These deliverables were distributed throughout the day, allowing teams time to plan their solutions. First, the students needed to submit an outline and a business plan detailing their solution and how they planned to generate revenue. Next, everyone worked on the technical solution and a summary of the work, which generally involves websites and other visuals based on their idea. Finally, each team submits a presentation that may be presented during the finals.

After the 24-hour portion of the competition was completed, the students needed to prepare for a presentation, during which only the top 7 schools would be allowed to present. The finalists were not announced until the last day of the competition, so everyone had to ensure they were prepared. On the day of the finals, the BSU team was the first to be named and succeeded in reaching the top 7 schools. After further preparation, BSU presented their idea to a panel of judges, which included an NFL player and representatives from the sponsoring companies. While the team did well in the finals, unfortunately, they did not reach the top 3. However, some students did gain internship opportunities at the end of the competition.


2024 Mid Atlantic Regional
ICPC Programming Contest


BOLDLY
BSU STUDENT CENTER

In an outstanding display of coding prowess, eleven talented undergraduate students from the Computer Science Department at Bowie State University competed in the **2024 ICPC (International Collegiate Programming Contest) Mid-Atlantic Regional,** held at Johns Hopkins University on November 16, 2024. Under the expert mentorship of Dr. Avijoy Chakma, the team faced off against 126 teams and 376 contestants, showcasing their remarkable skills in the highly competitive event.

The ICPC Mid-Atlantic Regional is part of the broader North America Division Championship and includes seven competition sites, with Johns Hopkins University serving as one of them. These sites are split into two divisions: Division 1 and Division 2. Representing Bowie State University, four teams competed in Division 2, showcasing both individual and collective brilliance.

Among the four BSU teams, one rose to the top—claiming the Maryland State Division 2 Champion title. The winning team, consisting of Nehemiah Gray, Darryl Lomax, and Rameses Peyton, achieved remarkable success, solving 3 out of 13 problems in an impressive 227 minutes. This victory not only earned them a prestigious title but also highlighted their exceptional problem-solving ability and resilience under pressure.

The other BSU teams also showcased their impressive capabilities. Two teams tied for 38th place, each solving three problems, though with varying times: one completed the challenges in 437 minutes, while the other took 567 minutes. The fourth BSU team solved two problems in 226 minutes, contributing to the department's overall strong performance.

Throughout the contest, all participants demonstrated outstanding teamwork, critical thinking, and discipline—key traits for navigating the high-stakes, time-sensitive challenges of the ICPC. The success of these students is a testament to their dedication and the ongoing support from the Computer Science Department and campus leadership, who were instrumental in helping them excel.

As the Maryland State Division 2 Champion, Bowie State University not only solidified its reputation in the competitive programming arena but also celebrated the hard work, collaboration, and excellence that are central to the university's mission.

COMPUTER SCIENCE BULLDOGS SECURE MARYLAND STATE DIVISION 2 TITLE AT 2024 INTERNATIONAL COLLEGIATE PROGRAMMING CONTEST MID-ATLANTIC USA REGIONAL

Certificate of Achievement

The 2024 ICPC Mid-Atlantic Regional Contest
2024-Nov-16

Maryland State Div. 2 Champion

Bowie State University
BSU-4

Nehemiah Gray
Darryl Lomax
Rameses Peyton
Avijoy Chakma, Coach

William B. Poucher, Ph. D.
ICPC Executive Director

BOWIE STATE UNIVERSITY STUDENTS SHOWCASE INNOVATION AT THE 40TH ANNUAL CONSORTIUM FOR COMPUTING SCIENCES IN COLLEGES (CCSC) EASTERN REGION CONFERENCE 2024

In a remarkable display of innovation and research excellence, students from Bowie State University, guided by their dedicated faculty mentors, presented their groundbreaking work at the 4**0th Annual CCSC Eastern Region Conference, held at Mount St. Mary's University in Emmitsburg, Maryland, in October 2024.** More than five undergraduate students from the Computer Science Department had the opportunity to publish their research at this prestigious conference, showcasing their contributions to the field of technology and its real-world applications.

The students' research covered critical areas of technological advancement, with projects addressing contemporary challenges such as malware detection and object recognition for visually impaired individuals. These projects reflect not only the students' technical expertise but also their commitment to creating solutions that have a tangible, positive impact on society. Their work was well-received by the broader academic community and highlighted the university's commitment to fostering research that addresses real-world issues.

Presenting their research at the conference allowed the students to refine their communication skills and engage in intellectual discourse with peers and professionals alike. In doing so, they strengthened their ability to share complex ideas effectively and further developed their research expertise.

Through their groundbreaking research and active participation in the conference, these students not only demonstrated their technical skills but also made important strides in the fields of mobile technology, accessibility, and cybersecurity. Their success at the CCSC Eastern Region Conference underscores BSU'S dedication to fostering a culture of research, innovation, and excellence in the field of Computer Science.

Highlighted Research Papers:

Regular Papers:

1. **R. C. Rockefeller**, "Malware Detection using Deep Learning," in *Proceedings of the CCSC Eastern Region 40th Annual Conference*, Mount St. Mary's University, Emmitsburg, MD, October 2024.

2. **I. S. Renner**, **O. F. Niyiowoeye**, **C. Miller**, **M. Fahmida**, and **M. K. Sarker**, "Mobile Application for Object Recognition for Visually Impaired People," in *Proceedings of the CCSC Eastern Region 40th Annual Conference*, Mount St. Mary's University, Emmitsburg, MD, October 2024.

3. **D. L. Marshall** and **M. K. Sarker**, "Malware Detection in Android Phones," in *Proceedings of the CCSC Eastern Region 40th Annual Conference*, Mount St. Mary's University, Emmitsburg, MD, October 2024.

Poster Paper:

4. **T. Montgomery**, **B. Wiggins**, **M. Gray**, **S. Bengesi**, and **M. K. Sarker**, "SightAssist: Helping Visually Impaired Navigate Better," in *Proceedings of the CCSC Eastern Region 40th Annual Conference*, Mount St. Mary's University, Emmitsburg, MD, October 2024.

Computer Vision and Pattern Recognition Conference (CVPR 2024)

The IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR 2024), held in Seattle, Washington, from June 17 to 21, 2024, proved to be a valuable experience for attendees. As one of the premier annual events in the field of computer vision, the conference drew experts, researchers, and innovators from around the world. The event featured a comprehensive lineup of workshops, tutorials, presentations, and exhibits, offering an in-depth look at the latest developments in computer vision.

The first two days were dedicated to workshops and tutorials, covering a wide range of topics relevant to the future of computer vision research. These community-driven sessions allowed for engaging discussions and networking opportunities, fostering collaboration among participants.

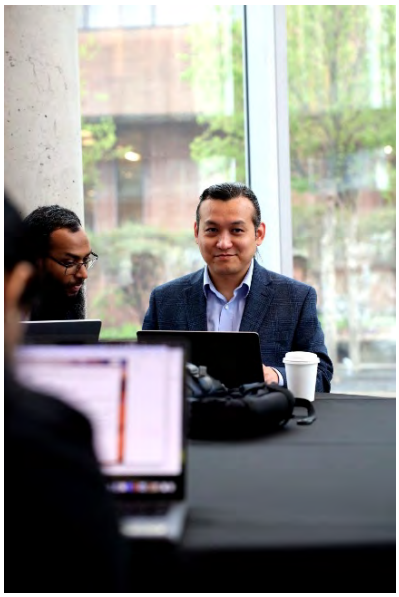
Starfranklyn Olivers, Halima Audu, and Tunde Ayodele

On Day 3, the conference officially began with opening remarks that outlined the event's activities, introduced the conference chairs, and presented awards for exceptional papers in the field. Various oral sessions were held, covering topics such as Vision and Graphics, Low-Level Vision, and Deep Learning Architectures and Techniques. These sessions provided deep insights into cutting-edge research, offering attendees valuable takeaways.

Day 4 continued with additional oral sessions and poster presentations. Attendees took advantage of the poster sessions to engage with authors, ask questions, and gain a better understanding of the research. A highlight of the conference was the Expo session, where major companies, including Apple, Google, Meta, and Amazon, showcased their latest innovations. This activity provided an excellent opportunity for networking, discussing research interests, and learning more about current industry trends and research. It also offered a chance to explore potential career and collaboration opportunities within the field of computer vision.

The tutorial and workshop sessions were particularly impactful, providing deeper insights into state-of-the-art advancements in computer vision, particularly in areas such as health, robotics, image and video synthesis, and autonomous systems. These sessions highlighted the vast potential and future directions of the field, sparking thoughtful discussions and ideas for future research. The conference also facilitated valuable collaborations with researchers from different institutions, further expanding knowledge and perspectives in the field.

In conclusion, CVPR 2024 was a highly enriching experience, broadening attendees' understanding of current trends and future directions in computer vision. The event offered valuable opportunities for networking, collaboration, and professional growth. The knowledge gained from the conference will undoubtedly influence ongoing and future research, contributing to the continued development of the field.



Where Innovation Meets Security: Highlights from BSU's First AI & Data Science Conference

Bowie State University successfully hosted its inaugural Artificial Intelligence (AI) & Data Science Conference on April 11, 2025.

The event, held at the university's Beacon Room in the Natural Science Building, brought together experts, faculty members, and students to discuss the latest advancements and challenges in AI and data science, with a particular focus on cybersecurity infrastructure.

The conference began with opening remarks from the Provost's Office, setting the stage for a day filled with insightful discussions and knowledge sharing. The morning session featured three keynote speeches from distinguished experts. Dr. Tian Lan, professor at the Department of ECE, George Washington University, and the Director of Human-centric Autonomy and Robotics (HART) lab, shared his research on machine learning, optimization, and applications to networking and cybersecurity. Dr. Kun Sun, a professor at George Mason University and the director of the Sun Security Laboratory, focuses on systems and network security. Tina Williams-Koroma, Founder & CEO of TCecure, discussed the intersection of cybersecurity and AI.

Following the keynote speeches, the conference included two engaging panel discussions. The first panel, moderated by Dr. Sreenivasan Ramasamy Ramamurthy, assistant Professor at Bowie State University, explored essential hands-on skills in the AI and data science field. Panelists included Dr. Martial Michel from Infotrend Inc., Dr. Bipendra Basnyat from AI SENSE, Dr. Abu Zaher Md Faridee from Amazon, and Dr. Malarvizhi Arulraj from the University of Maryland, College Park. The second panel addressed cybersecurity challenges and AI-guided solution strategies, moderated by Dr. Avijoy Chakma from Bowie State University, featuring Ms. Yacine Gaye, Vice President at Morgan Stanley, and Dr. Martial Michel.

The afternoon session continued with two more keynote speeches. Bahirah Adewunmi from Booz Allen Hamilton emphasized the importance of equity and inclusion in the STEM field. Dr. Sean Guillory from Booz Allen Hamilton discussed the intersection of neurotechnology, human-machine teaming, and the information environment. The conference concluded with a hands-on workshop led by Dr. Martial Michel, focusing on the use of containers to develop machine learning applications. Participants gained practical skills in AI model development, data engineering, and ethical AI practices.

The conference provided a platform for knowledge exchange and fostered collaboration among attendees. Dr. Md Kamruzzaman Sarker, the event's publicity chair, expressed his gratitude to all participants and highlighted the importance of such events in advancing research and education in AI and data science.

Bowie State University, Maryland's first historically Black college and university, continues to lead in preparing students for careers in technology and science. The success of this inaugural conference underscores the university's commitment to academic excellence, innovation, and community impact.

Accelerating Discovery:
BSU Researchers Explore AI Frontiers at Argonne Lab

Dr. Ramamurthy and three students, Starfranklyn, Ixchel and Leslie, recently attended a workshop titled **"Scientific Discovery in the AI Age"** held at **Argonne National Laboratory, in Chicago**. The workshop was designed to foster interdisciplinary collaboration and brought together researchers from various national laboratories and universities.

The event featured a series of insightful talks on **Autonomous Discovery** across domains such as **Biology, Materials Science, and Chemistry**. In addition to the presentations, we participated in hands-on tutorials focused on **building autonomous laboratories** and developing **digital twin infrastructure** to support autonomous scientific research.
This workshop provided a valuable opportunity to engage with several Argonne researchers and gain deeper insights into the evolving landscape of AI-driven scientific discovery. The knowledge and perspectives gained from this experience will enhance our ongoing grant-funded research.

From Curiosity to Impact:

Fahmina Nur Salma Shines at Bowie State's Research and Innovation Conference 2025

Fahmina's award-winning poster, titled "Early Prediction of Dementia Using Multimodal AI Frameworks," introduced a powerful hybrid model combining neuroimaging (MRI/PET), eye-tracking, and cognitive testing. The framework integrates cutting-edge technologies, such as Vision Transformers (ViTs) and Graph Neural Networks (GNNs), within an uncertainty-aware learning paradigm to detect pre-symptomatic biomarkers of dementia up to 5–7 years before clinical diagnosis. Her research has the potential to revolutionize how memory clinics screen and diagnose dementia, particularly in its early stages, where intervention is most crucial.

Fahmina's poster did more than showcase innovation—it raised essential questions about cost-effective biomarkers, clinical interpretability, and the role of AI in advancing healthcare equity. Her research questions tackled pressing concerns:

- Can multimodal fusion outperform single-modality AI in detecting dementia?
- Can uncertainty-aware GNNs reduce false positives in real-world noisy clinical data?
- Is eye-tracking a scalable, affordable tool for early screening?

Working under the guidance of her advisor, Dr. Kamruzzaman Sarker, Assistant Professor of Computer Science and a specialist in Explainable AI, Fahmina's work is part of a broader research effort to build trustworthy deep learning models and strengthen cybersecurity through AI. Together, they are charting a path forward for AI in healthcare that is both innovative and ethically sound.

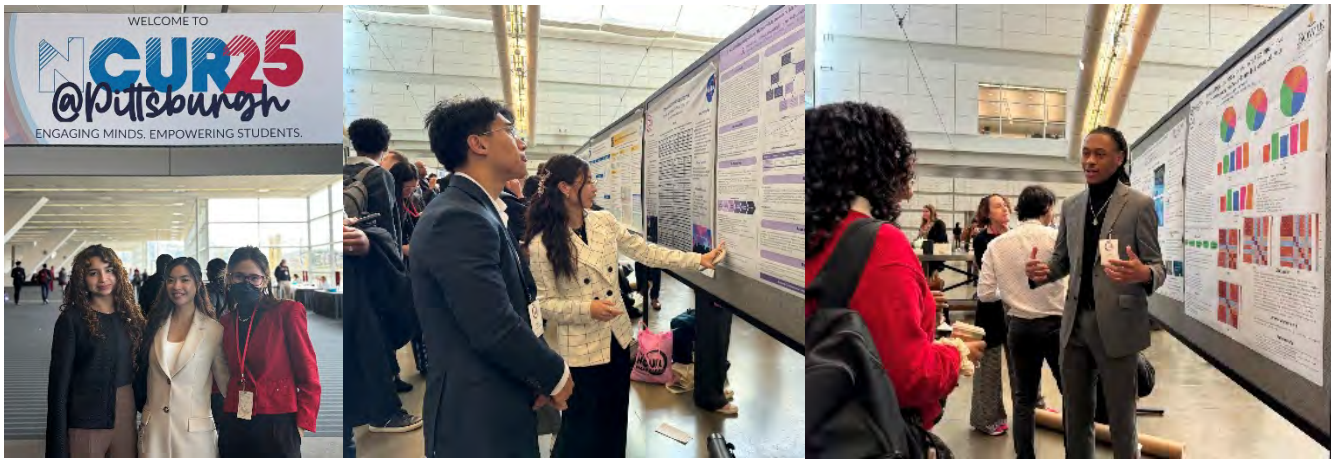
"We are proud to showcase our work and share our research on such a meaningful platform," Fahmina said. "It's a joy to contribute to the Bowie State community and represent our department through impactful, interdisciplinary research."

The achievement was met with overwhelming support from faculty and leadership, including Dr. Shumba, Chair of the Department of Computer Science, who praised Fahmina's dedication and encouraged her and other scholars to continue pushing boundaries.

Fahmina's journey into AI for healthcare is built on a deep well of experience—over a decade of teaching and mentoring more than 200 students globally, numerous hackathon victories, and a solid academic background in both software and hardware, including High-Performance Computing, Microprocessor Interfacing, and VLSI design. Her contributions bridge theoretical understanding with real-world impact.

As Fahmina continues her academic journey, her commitment to socially impactful innovation, ethical AI, and student engagement is a beacon for others at Bowie State University and beyond. She is not just conducting research; she is shaping the future of AI in healthcare, one discovery at a time.

Congratulations to Fahmina Nur Salma for her remarkable achievement and for exemplifying the collaborative and visionary spirit of Bowie State University.



From Code to Conference: BSU CS Students Shine at NCUR 2025

During the week of April 7th–9th, five members of the Bowie State University community—**Miles Brown, Chenilyn Espineda, Dayana Ferrufino, Nicole Balay, and Dr. Soo-Yeon Ji—**attended the National Conference on Undergraduate Research (NCUR) in Pittsburgh, PA. For many of us, it was our first academic conference and a defining moment in our research journeys. Representing the Computer Science department, our team showcased three diverse and impactful projects, all of which were selected for poster presentation after the support and guidance of our mentor, Dr. Ji.

🧠 **"Channel-Based Analysis of Neurological Disorders Using Permutation Entropy and Machine Learning"** by Dayana Ferrufino, Nicole Balay, Dr. Soo-Yeon Ji

💼 **"Enhancing Bankruptcy Prediction: A Comparative Study of Imputation Techniques in Financial Data"** by Miles Brown, Dr. Soo-Yeon Ji

🧬 **"A Machine Learning-Based Multilevel Approach to Identify High-Risk Dementia Prediction"** by Chenilyn Espineda, Dr. Soo-Yeon Ji

Miles Brown reflected on how inspiring it was to present his bankruptcy prediction research in such an intellectually energizing and supportive environment. He shared, "Sharing my work and receiving feedback from fellow researchers and faculty was incredibly valuable. The space felt low-pressure but deeply academic—exactly the kind of setting where collaboration can thrive. I was surrounded by peers passionate about everything from biomedical science to political theory. It was that shared curiosity that truly brought us together."

His experience culminated in joining *Sigma Xi*, the Scientific Research Honor Society, further cementing his commitment to being part of the larger research community.

Chenilyn Espineda took away not just academic growth but personal clarity from the event:

"I presented my work on dementia prediction using machine learning, and some attendees had really thoughtful questions about my data preprocessing and modeling techniques. Those discussions helped me become a better communicator of my work and even led to conversations about future collaborations. Meeting a professor studying the long-term effects of preterm birth was a turning point—I left feeling inspired to explore bioinformatics more seriously. For the first time, I could actually picture my future path."

Dayana Ferrufino went in expecting to talk about machine learning and EEG signals. She came out with a new academic direction:
"At the beginning of college, I didn't think grad school was for me. But by the end of NCUR, I found myself excited at the idea of applying to master's programs—especially in bioinformatics. When a Virginia Tech rep said the cancer researchers would love my work, something just clicked. This trip changed what success looks like for me. I no longer feel like I need to chase a FAANG job to feel accomplished. Now, I want to explore the intersection of medicine and tech—something I didn't even know existed before."

And **Nicole Balay**, captured the spirit of NCUR perfectly:
"This wasn't just a tech expo or career fair—it was a space where ideas flourished across every discipline imaginable. We saw choreographed dances, documentary films, traditional poster sessions, and so much more. I have a niche interest in computing education research, and I was able to find others who share that passion. On top of the research, there was this genuine sense of community. We practiced together, supported one another's presentations, played games at the hotel, and just bonded. I'm convinced BSU had the largest HBCU presence there—and it showed. We made each other proud."
As we settle back into our semester schedules, one thing is clear—we've returned transformed. Whether we're heading toward graduate school, new collaborations, or fresh ideas, the momentum from NCUR is carrying us forward. And we're only just getting started.

BSides Charm 2025

A group of about 13 Bowie State University students attended the first day of BSides Charm, a cybersecurity conference held nationally and annually. The conference offered a great opportunity for students to network, get career advice, and learn more about the cybersecurity industry. The event contained a variety of workshops, speeches and company booths for the students to participate in and interact with. The keynote speaker was Harry Cooker, Secretary of the Maryland Department of Commerce and former U.S. National Cyber Director. During his speech he talked about the evolving cyber industry. Some of the following talks involved protecting your privacy beyond the use of VPN's, detecting post breach activity in the cloud, and advice on how to get a role in Information Security. The event also hosted cybersecurity training which went on for the entirety of the time we were there. One student participated in this training and found it very helpful. The workshops included an IOT village, Cloud village, SANS Breach village, Aero Space village, RF Hackers village, and hiring village. Each of the villages had different things for attendees to do. For example, in the IOT village attendees were tasked with hacking IOT devices, and in the Cloud village they hosted a CTF.

BOWIE STATE UNIVERSITY 1865

DEPARTMENT OF COMPUTER SCIENCE

CYBERCLUB

National Cyber League (NCL) Competition AY 2024-2025

Dr. Ruth Agada working with BSU Cyber Club students during a training session.

The **National Cyber League (NCL)** is a prestigious cybersecurity competition designed to prepare students for careers in cybersecurity by simulating real-world challenges. Participants engage in tasks such as digital forensics, penetration testing, vulnerability assessment, and incident response. The BSU Cyber Club actively encourages students to compete in the NCL to enhance their skills, earn recognition through NCL Scouting Reports and contribute to our university's standing in the National Cyber Power Rankings. This report summarizes the club's participation in the Fall 2024 and Spring 2025 NCL seasons, highlighting student involvement, team performance, and logistical support.

Individual Games Fall 2024 :

13 students participated in the individual competition, tackling challenges across various cybersecurity domains.

Team Games (November 8–10, 2024):

Two teams were formed, representing BSU in the team games.

The competition was hosted in the Computer Science Building (CSB), Room 314, which provided a collaborative environment for strategy development and problem-solving.

Individual Games Spring 2025:

11 students registered for the individual challenges, continuing the club's tradition of active engagement.

Team Games (April 25–27, 2025):

Two teams will compete, with expanded facilities in CSB Rooms 312 and 314 to accommodate participants and enhance teamwork.

Assistant Coach Support:

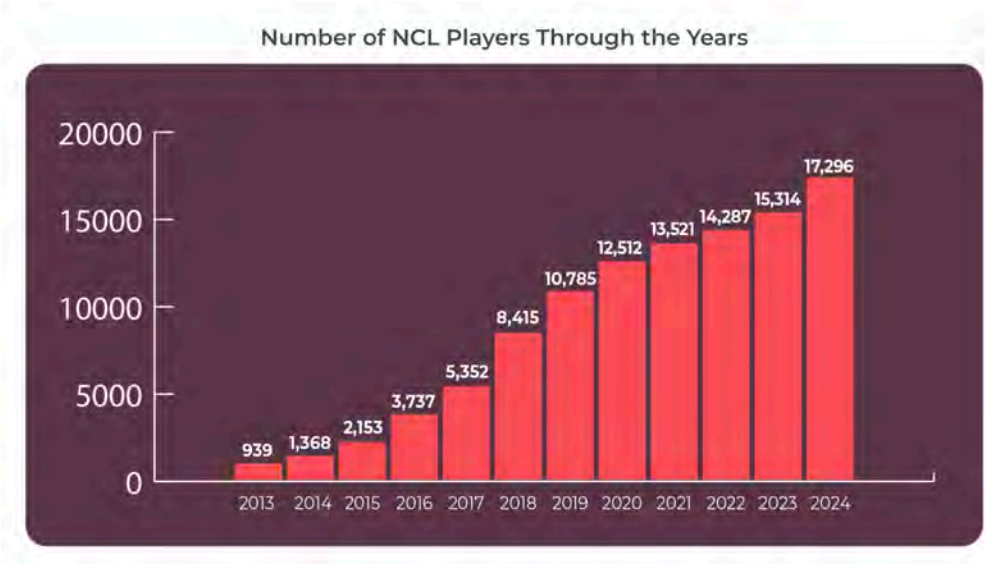
Dr. Ruth Agada, Assistant Coach, played a key role in mentoring students, offering technical guidance, and fostering a competitive yet supportive atmosphere.

The BSU Cyber Club remains committed to developing cybersecurity talent through hands-on competitions like the NCL. Participation in the AY 2024-2025 seasons has allowed students to:

Strengthen practical cybersecurity skills.

Gain national visibility through NCL Scouting Reports.

Contribute to BSU's ranking in the Cyber Power Rankings.



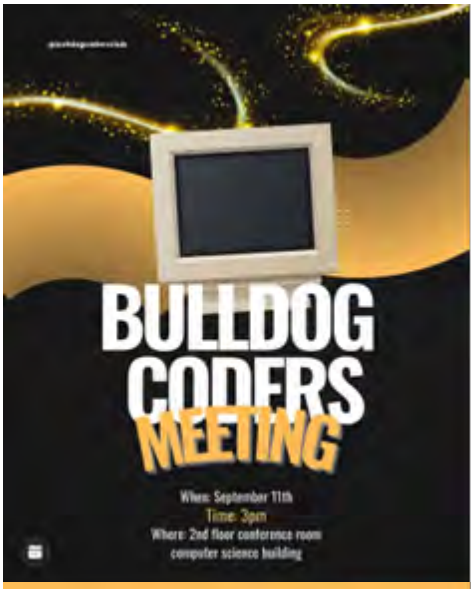
WiCyS 2025 Report

April 2025, Sage Despeignes and Haley Reyes had the privilege of attending WiCyS 2025, one of the premier conferences supporting women in cybersecurity. Across four days filled with keynotes, workshops, interactive sessions, and informal conversations, one theme stood out clearly: the power of sharing stories. Listening to personal accounts of challenges, triumphs, lessons learned, and career journeys created a space where we felt connected and inspired. These moments reminded us how essential it is to hear from others who have walked paths we aspire to follow and how storytelling opens doors for imagining what is possible. At this year's conference, we explored new areas of cybersecurity, from governance, risk, and compliance (GRC) to research and security operations. We tested our skills through interactive experiences like an industrial control systems escape room and a Capture the Flag competition, and we deepened our understanding of emerging topics such as critical infrastructure security. Beyond attending sessions, we volunteered with the WiCyS team and reconnected with student chapters that first sparked our interest in cybersecurity. Engaging with a broad network of students, faculty, and professionals reaffirmed how much we value the collaborative and uplifting spirit that defines the WiCyS community. Attending WiCyS 2025 reminded us that this organization is more than just a conference. It is a supportive, judgment-free space where women can learn, grow, and empower one another. Whether new to the field or experienced professionals, we each have a place here. We look forward to continuing to contribute to this community and helping shape the future of cybersecurity together.


women in cybersecurity
WiCyS
DALLAS 2025

Bulldog Coders: Innovate, Code, and Collaborate

The **Bulldog Coders** club at **Bowie State University** is dedicated to fostering a thriving community of aspiring programmers, innovators, and tech enthusiasts. Our mission is to showcase the vast world of coding to students across campus, with a special emphasis on empowering those in the **Computer Science Department**. We strive to ensure that students develop the technical expertise needed to secure opportunities in high-tech companies, all while creating an inclusive and supportive environment where individuals of all backgrounds and skill levels feel welcome. Whether you're a beginner taking your first steps in coding or an experienced developer looking to sharpen your skills, **Bulldog Coders** is the perfect place to learn, collaborate, and grow in the ever-evolving field of technology.



September

September 11th: First Bulldog Coders Meeting

The Bulldog Coders Club kicked off the semester with its first meeting on September 11th. Members gathered in the 2nd-floor conference room of the Computer Science Building to discuss the club's goals for the semester and plan upcoming events. **Attendance: 12 members.**

September 18th: Resume Building & LinkedIn Workshop

In preparation for the upcoming career fair, Bulldog Coders hosted a Resume Building & LinkedIn Workshop. Members learned how to craft professional resumes, optimize their LinkedIn profiles, and network effectively. **Attendance: 15 members.**

September 25th: LeetCode Problem-Solving Session

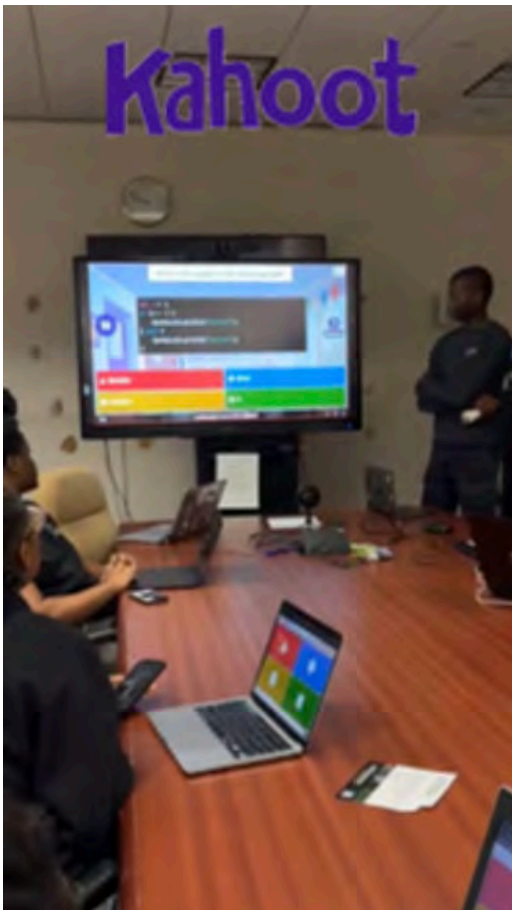
The club held its first technical skills workshop, focusing on solving LeetCode problems. Members worked on the classic **"Two Sum"** problem, which helped them understand hash maps and problem-solving strategies. **Attendance: 10 members.**

October

October 23rd: Kahoot & Coding Challenge

During this meeting, members participated in a fun and educational **Kahoot quiz** to test their knowledge of key programming concepts. Afterward, the group tackled a **coding problem**, encouraging critical thinking and problem-solving. **Attendance: 12 members.**

October 30th: LeetCode Problem-Solving Session



Members worked on two **LeetCode problems**, focusing on fundamental data structures and algorithmic techniques. Discussions centered around different approaches and optimizations. **Attendance: 14 members.**

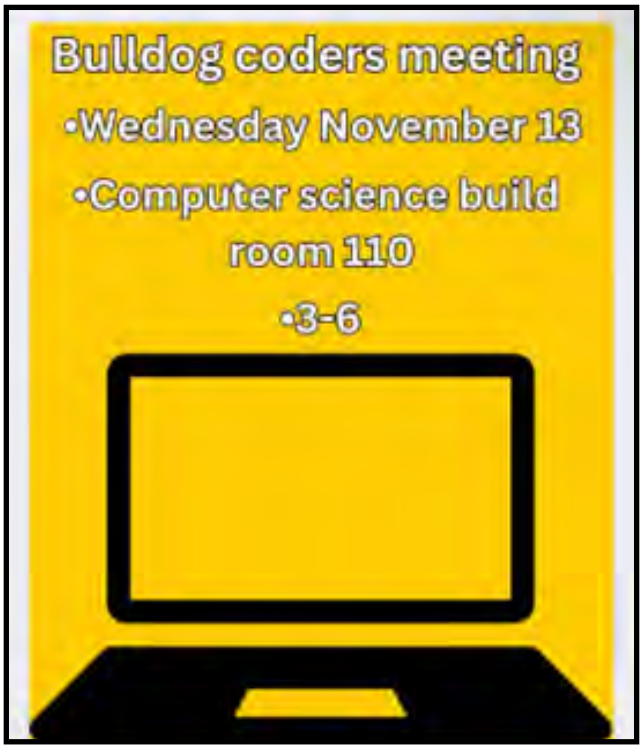
November

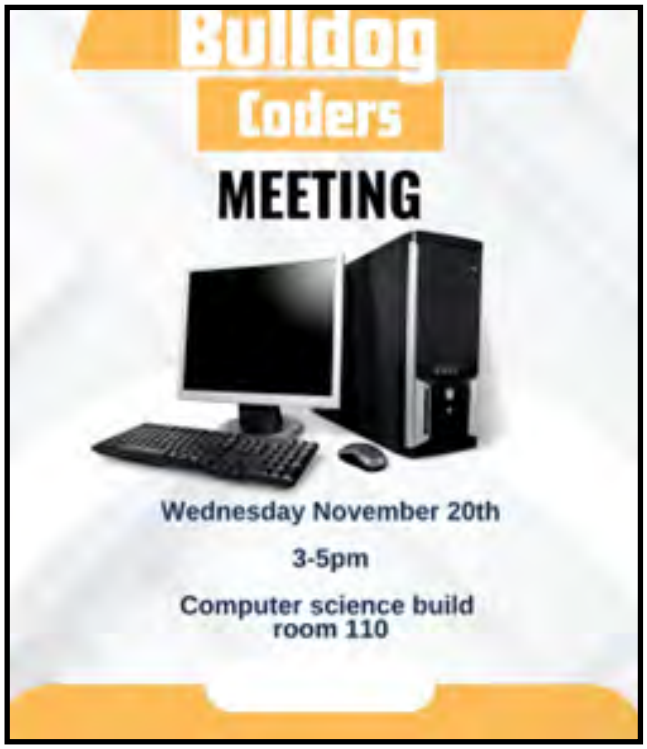
November 13th: Technical Skills Workshop & LeetCode "Merge Two Sorted Lists"

Members gathered for another LeetCode problem-solving session, focusing on the **"Merge Two Sorted Lists"** problem. This session helped members improve their skills in working with linked lists and recursion. **Attendance: 11 members.**

November 20th: End-of-Semester Social & LeetCode "Palindrome Number"

To wrap up the semester, Bulldog Coders hosted a social event where members could relax, network, and celebrate their achievements. The event included games, snacks, and a recap of the semester's activities. Members also solved the **"Palindrome Number"** problem as a fun challenge to practice their problem-solving skills. **Attendance: 15 members.**





Breaking Barriers: Empowering Women in Computer Science

WOMEN IN COMPUTER SCIENCE(WiCS)

WiCS is dedicated to empowering and uplifting women in technology by fostering a supportive community of professional development, mentorship, and encouragement. Despite the growing demand for tech talent, studies show that many young women still face barriers to entering the field—only 46% of female students feel confident in learning computer science, compared to 62% of their male peers [Gallup News]. WiCS aims to bridge this gap by providing opportunities such as attending the Grace Hopper Conference, participating in hackathons, networking events, internships, and research clusters. Through workshops, mentorship, and resume-building sessions, we strive to equip women with the skills and confidence they need to thrive in the ever-evolving world of technology.

Fall 2024 Events

August

August 30: First WiCS meeting
To kick off the new school year, the WiCS club hosted its first meeting. New members were welcomed, and WiCS's new leadership was introduced during this meeting. There were over 16 women in attendance. The meeting consisted of sharing the upcoming events for the year, and links to essential places were shared!
August 30: Basketball Game
To kick off the new school year, the WiCS club hosted a basketball game. The basketball game served as a fundraiser. WiCS plans to donate $750 from money raised by their social events. We will donate to SheCodesAfrica, a registered non-profit organization empowering girls and women across Africa with the technical and soft skills needed to match or scale their careers in STEM. At this event, we raised $333 towards our end-of-the-year goal. Over 30 students attended this event.

September

September 6: Weekly WiCS meeting
The Department of Computer Science hosted an event where students could showcase their summer success. We had over 15 members attend this event. Students created posters to share their internship or research experience. Three members even practiced their public speaking skills and spoke on the lessons they learned and key takeaways during the event.

October

October 3: WiCS Beauty Pageant

On October 3, the Women in Computer Science (WiCS) club hosted its first annual Miss WiCS pageant. The event was hosted by Nicole Balay and Hanaa Salim in the Fine and Performing Arts Center (FPAC), with the majority of the proceeds benefiting the organization She Code Africa. The purpose of this event was to crown and elect their first Miss WiCS, a royal representative for the club who participates in outreach and serves on the executive board.

The pageant consisted of four technology-related rounds for contestants to showcase their skills: Elevator Pitch, Conference Qualified, Hack-a-Fit, and Roblox Runway. For the first two rounds, they introduced themselves with an elevator pitch and answered a behavioral interview question while wearing business professional attire. Contestants had to explain a portion of code provided to them in their preferred coding language, mimicking a presentation at a Hackathon in the third round. Lastly, they stated their goals if chosen as Miss WiCS while wearing runway-worthy outfits. Congratulations to Women in Computer Science's first Miss WiCS, Mélanie Nzaou Nziengui, for impressing the judges with her responses! The judges also acknowledged outstanding performances from the second-place winner and People's Choice winner, Belvia Ann Yangue, and the third-place winner, Nia Plair. Excellent work to all participants, including Ashanti Boone, Deasia Craig, Rayya Lee, Dayana Ferrufino, XanniaSimpson, and Shelce Roberts. The amazing judges were Jules Pianim, Ixchel Flores, Mirabel Enofe, Kiishi Ogunbiyi, and Kari Beauvoir.

October 4: Weekly WiCS Meeting - Dev Technology Group, Inc.
As WiCS continued our weekly meetings, we were lucky to be joined by a guest speaker. Kendall Holbrook, a Bowie State alumna and CEO at Dev Technology Group, Inc., joined the meeting to help prepare us for our upcoming trip to Grace Hopper. She has attended the conference several times and provided valuable insights on maximizing our experience in Philadelphia. This was a mandatory meeting for all Grace Hopper attendees, so we had over 20 women in attendance!

October 8-11: Grace Hopper in Philadelphia

On October 8, 27 WiCS members headed to Philadelphia to attend the largest conference for Women in Tech, Grace Hopper. This conference lasts three days and includes keynote speakers, technical workshops, panels, and networking events. Members participated in workshops like creating AI speed racers and listened to talks from esteemed individuals like Angela Harris. Several of our members were lucky enough to participate in interviews with companies like Bloomberg, Bank of America, Eli Lily, and more throughout the conference. Three members even received internship offers. Several members attended networking events throughout the conference.

Coronation: This year's Homecoming coronation was held on October 16th, 2024. Women in Computer Science members, Mélanie Nzaou Nziengui and Nia Plair attended the event in the Martin Luther King Jr. building to represent the club. Mélanie attended as Miss WiCS, wearing the sash and crown she was given at the Miss WiCSPageant the week prior. Nia attended as an escort due to her creation of the Miss WiCS Pageant. Congratulations to both junior Computer Science students for getting the opportunity to represent Women in Computer Science in front of an audience of Bowie State University students and faculty!

October 25: Weekly WiCS Meeting - Google Visits

WiCS continued our weekly meetings, we were fortunate to have some employees from Google join us this week. They gave us an overview of the company and what they have to offer. They provided advice and tips on how to secure an internship offer. They even stayed to help review members' resumes and tell them what they could improve.

November

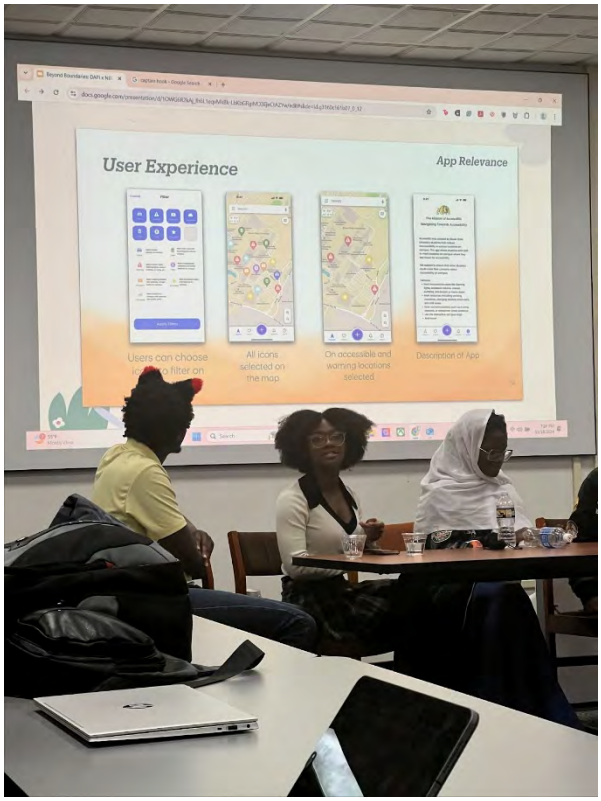
November 1: Weekly WiCS Meeting - HBCU Woman in Tech Event

Four women from Morgan State University Women in Computer Science club joined us for the first Woman in Tech event. This event was created to foster community among local HBCU women in tech clubs. This event included a family feud game to promote friendship. An internship panel featured Melanie, Praise, Nia, and Hanaa, where students shared tips and tricks for having a successful internship. And a chat from a guest speaker, Dr. Tate, to share her experiences as a black woman in tech.

November 15: WiCS Hosts Computer Science Friendsgiving
To foster community in the Computer Science department, WiCS annually hosts a Friendsgiving. This event is where all Computer Science students are welcome to bring their dishes and celebrate Thanksgiving with the department. Students are invited to participate in games after a feast and share what everyone is thankful for—this year, we had a scavenger hunt, a video game competition, and many other interesting events.

November 18: WiCS Co-Host Beyond Boundaries

WiCS worked with two other Bowie clubs (Butch Animations and DAPI) to create the Beyond Boundaries event—an event where diversity and disability in entertainment were discussed. Our secretary, Nia, joined the panel to discuss her experience creating AcessBSU, an app to make the campus more accessible. Nia Plair and two other WiCS members (Chenilyn Espineda and Kai Grant) were selected to present this idea at the Apple Swift Competition last semester.



November 22: Weekly WiCS Visit - Mental Health Check-In

For this weekly WiCS meeting, a campus counselor, Ms. Billie, joined our club. We created an open space to discuss some of our grievances this semester and how to face our challenges. We hosted a bonding activity in an escape room to follow up on the mental health check-in and reduce stress before finals.

November 23: Thanksgiving Volunteering at LARS

Five WiCS members volunteered at a local food shelter to assist during the holiday season. Members organized and passed out Thanksgiving food to local community members at LARS. Their assignments included organizing Thanksgiving food packages, distributing them, handing desserts, and creating a friendly environment.

December

December 6: Weekly WiCS Meeting - Bowie High School Visit

On Friday, December 6th, six of our wonderful WiCS visited the local Bowie High School's Girls Who Code club to visit young prospective WiCS and to celebrate Grace Hopper's birthday. Kai, Chenilyn, Ixchel, Dayana, Mirabel, and Cole held a Q&A panel for the students to discuss the computer science industry and life transparently after high school.

December 13: WiCS Tea Party/Computer Science Christmas Party

WiCS hosted a Christmas Tea Party and a department-wide holiday celebration to bring festive cheer to the Computer Science department. WiCS members gathered for an elegant tea party, dressed in their best attire, and participated in a Secret Santa gift exchange, fostering camaraderie and holiday spirit. Following this, we welcomed all Computer Science students to a Christmas party with exciting games and fun activities. These events created a joyful atmosphere, strengthening our community and ending the semester on a high note!

Research Cluster Report (Women in Computer Science)

The Women's Research Clusters encourages the collaboration of participants across various fields, including cybersecurity, healthcare, artificial intelligence (AI), quantum computing, career development, and the ethical dimensions of digital innovation.

The Women's Research Cluster successfully completed and submitted their poster abstracts for the Consortium for Computing Sciences in Colleges (CCSC) Eastern Region review. This reflects the participants' dedication to the research process.

Each team's abstract summarizes data collection, analysis, ethical evaluation, and technical development across diverse fields such as AI, cybersecurity, healthcare, and quantum computing. The submission phase not only demonstrates the progress of each research project but also prepares students for academic dissemination through public presentation and peer feedback.

Research Cluster Highlights

Strategies Used by Attackers to Plan and Execute Phishing Emails Targeting Financial Services

Team: Cheryl-Devon Twyman, Faynell Daniels, Nia Allen

Mentor: Uchenna Ndolo

Explores phishing strategies targeting financial institutions, emphasizing the need for training and simulated campaigns.

Quantum Computing & Post-Quantum Cryptography

Team: Xannia Simpson & Lashawna Perry

Mentor: Ruth Agada

Assesses how quantum computing threatens current cryptographic systems and highlights post-quantum alternatives.

AI-Driven diagnosis, ethical considerations, and the reduction of potential bias in cancer detection and treatment plans

Team: Desiree Chisholm, Melanie Nzaou and Mojolaoluwa Owolabi

Mentor: Tolulope Oshuntoye

Analyzes racial bias in AI-based cancer diagnosis using NIH data, comparing different models and proposing ethical safeguards.

Traditional Optimization vs AI-Driven Power Management

Team: Kimberly A, Blessing T, Adekemi A
Mentor: Fahmina Nur Salma
Compares AI-based and traditional power management in mobile devices, showing AI's efficiency in real-time optimization.

Smart Career Choices: Using Machine Learning for Personalized Resume Enhancement and Career Guidance

Team: Praise Ben, Adeola Adebayo

Mentor: Ruth Olusegun
Uses machine learning to provide personalized resume improvement and career path suggestions.

Be-Stylist: AI Fashion & Confidence App

Team: Bariroh Salami, Sudina Thapaliya

Mentor: Halima Anavoro
Develops an AI-powered app to enhance user confidence through personalized fashion, skincare, and styling suggestions.

Exploring Feedforward Neural Networks for Algebraic Equation Solving

Team: Ayomide Aisida & Torhira Aminu

Mentor: Oluwatoyin Kode
nvestigates how Feedforward Neural Networks (FNNs) can solve basic linear and quadratic equations, traditionally reserved for symbolic computation.

The psychological effects of computational algorithms in fashion and related fields.

Team: Gracemercy Gichaga

Mentor: Fahmina Nur Salma
Examines how computational algorithms in fashion like AI design tools and personalized recommendations affect people's psychology. It looks at how technologies influence consumer behavior, identity, body image, creativity, and emotional responses in both users and designers.

QUANTUM-SAFE CRYPTOGRAPHY: ADDRESSING ALGORITHMIC GAPS FOR THE POST-QUANTUM ERA

AUTHORS & AFFILIATIONS

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Computer Science Department
Bowie State University
Northrop Grumman

ACKNOWLEDGEMENTS

We express our deepest gratitude to our mentor, Dr. Ruth Agada, our cohort coordinator, Ms. Tolulope Oshuntoye, and our department chair, Dr. Rosemary Shumba, as well as the other mentors and associates of the research clusters. We also acknowledge the contributions of the NIST, IBM Quantum, Google Quantum, and the Qiskit development team. Finally, thank you to Northrop Grumman for their sponsorship.

ABSTRACT

This project explores the development and deployment of **post-quantum cryptographic (PQC)** algorithms in response to emerging quantum threats. While algorithms like **CRYSTALS-Kyber** and **Dilithium** show promise, challenges remain in integrating them into real-world environments. We analyze the roles of **NIST, IBM,** and **Google** in advancing PQC, and identify performance gaps, especially in constrained systems. With **Qiskit** now installed on our lab computer, we plan to take a major step into **quantum error correction,** a critical factor delaying practical quantum computing, and assess its implications for secure cryptographic design.

INTRODUCTION

Quantum computing introduces powerful capabilities by leveraging qubits that use superposition and entanglement. While these breakthroughs offer advantages in computing, they endanger classical encryption schemes like RSA and ECC. Quantum algorithms like Shor's and Grover's threaten to undermine digital security, necessitating the rapid development of post-quantum solutions.

OBJECTIVE

To assess how leading tech companies are developing PQC, identify key deployment gaps, and explore how quantum error correction methods and affects on cryptographic readiness.

METHODOLOGY

- Document Analysis: Reviewed public standards from NIST and white papers from IBM and Google regarding PQC research and quantum hardware development.
- Algorithm Profiling: Compared the design goals, computational requirements, and target environments of PQC algorithms such as Kyber and Dilithium.
- Hardware Compatibility Study: Mapped cryptographic needs (e.g., memory footprint, key sizes, cycle times) to known quantum hardware constraints, specifically those using trapped-ion and superconducting technologies.

Hands-On with Qiskit:

- Installed and configured Qiskit on a lab computer to begin experimenting with quantum gates and circuits.
- Initial simulations will target basic logic and encryption primitives.
- **Next:** model quantum error correction codes (e.g., Shor's code, surface code) to assess overhead and implementation complexity in real PQC scenarios.

RESULTS/FINDINGS

- CRYSTALS-Kyber is the most efficient among NIST's finalists, balancing performance and quantum resistance using lattice-based methods.
- IBM is working on superconducting quantum processors and error-corrected architectures with a roadmap aiming at a million-qubit system by 2030.
- Google's Sycamore processors focus on high-fidelity qubit operation, but are constrained by short coherence times and error rates.
- NIST's framework lacks practical transition guidelines, especially for hybrid systems (quantum + classical).

Resource Demands:

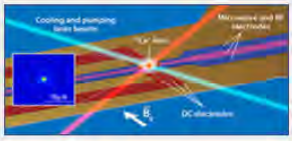
- Kyber and Dilithium require more memory and processing than RSA or ECC, challenging for IoT and mobile use.
- Without widespread error correction, large-scale quantum attacks are not yet viable, but the pace of progress necessitates readiness.

Early Qiskit Use:

- Upcoming tests will explore how error correction increases qubit and operation requirements, affecting feasibility.

LITERATURE REVIEW

- Quantum Threats: Classical cryptographic systems like RSA and ECC are vulnerable to Shor's algorithm, which factors large integers exponentially faster than classical methods. Grover's algorithm also halves the brute-force strength of symmetric ciphers like AES.
- NIST Standardization: Since 2016, NIST has evaluated PQC candidates. In 2022, four algorithms were selected:
  - ML-KEM (**CRYSTALS-Kyber**) – key encapsulation
  - ML-DSA (**CRYSTALS-Dilithium**) – digital signatures
  - SLH-DSA (**SPHINCS+**) – stateless hash-based signatures
  - FN-DSA (**FALCON**) – lattice-based digital signatures
- Hardware Constraints: Challenges in integrating these into mobile, embedded, or legacy systems due to bandwidth, memory, and power demands.
- Error Correction: Foundational works (e.g., Nielsen & Chuang) identify error correction as one of the hardest barriers in scaling quantum systems. Without it, real-world quantum advantage remains elusive.
- Fragmentation Risk: Companies often pursue proprietary implementations, risking compatibility issues across infrastructure layers.



CONCLUSION

Current PQC algorithms are promising but lack scalable, interoperable deployment frameworks. Quantum error correction, essential for reliable quantum computing, is a critical area we aim to explore next. Coordinated hardware/software co-design, lightweight algorithm optimization, and standardized transition protocols are necessary to secure future systems.

PQC Algorithm	Status	Type	PKE/KEM vs Signature
CRYSTALS-Kyber	Standard	Lattice	PKE/KEM
CRYSTALS-Dilithium			Signature
FALCON			
SPHINCS+		Hash	
BIKE	Round 4	Code	PKE/KEM
Classic McEliece			
HQC			
SIKE	Broken	Isogeny	

FUTURE WORK

- Run a quantum error correction using Qiskit

Main Goals:

- Simulate small-scale fault-tolerant circuits to understand resource demands.
- Explore hybrid encryption systems combining classical and PQC.
- Draft implementation strategies tailored to constrained devices and legacy systems.

STUDENT SUCCESS STORIES

Kavari A Leonard

The past few years attending Bowie State University have been incredible. I entered college as a sophomore after completing dual enrollment courses and earning my associate's degree in Hospitality Service Management. During the summer of 2023, I participated in a research program where I worked with Dr. Ji and explored EEG signals and how the brain functions during different emotional states. While gaining insight into this topic, I also became proficient in Python. I conducted research and presented my findings at the end of the program, and I'm very grateful for the opportunity to work with Dr. Ji. This experience opened the door for me to continue as an undergraduate research assistant at Bowie, where I delved deeper into EEG research by reading academic articles and writing analytical papers.

Last summer, I had the opportunity to travel to Old Dominion University and collaborate with graduate students. I collected data using an EEG headset, eye-tracking glasses, and an Empatica E4 device, and I presented my research to students and professors. The ODU project provided a comprehensive education in emotion analysis and detection. Through a blend of theoretical learning and hands-on experience, I developed the skills and knowledge necessary to make meaningful contributions in this field. With current innovations and future advancements, the integration of human emotions into technology is expected to progress significantly.

Two of the classes I especially enjoyed were Gaming 2 and Senior Capstone. In Gaming 2, I learned how to design and build a video game, gaining insight into the essential elements of game development. In Senior Capstone, I worked in a group to develop a deepfake detection system for Booz Allen Hamilton, and we presented our work at the end of the course. It was a valuable experience that taught me the fundamentals of creating deepfake detection tools and working effectively in a team setting.

I met many amazing people during my time at Bowie State and am truly grateful to everyone who supported me throughout this journey.

Ashanti Boone

The past three years at Bowie State University have been a transformative journey, filled with academic achievements, leadership experiences, and unforgettable memories. As a transfer student from Prince George's Community College, I arrived with a CompTIA Network+ certification, but I left as a well-rounded Computer Science major, ready to pursue a Master's degree specializing in Artificial Intelligence.

One of the most defining moments of my senior year was returning to Apple as a Software Engineering Intern during the summer before my final year. This marked my second year as an Apple HBCU Scholar, and I took great pride in mentoring and helping another Bowie State student earn the same prestigious scholarship. That summer, I was honored to receive a $15,000 scholarship from Apple and an additional $10,000 Adobe/BSU Bold Futures Scholarship, which reinforced my confidence in my abilities and aspirations.

Empowering Women in Tech

During my final year, I had the privilege of serving as Co-Chair of the Women in Computer Science Club, a community dedicated to fostering a supportive space for women in technology. One of my proudest accomplishments was organizing the DMV Women in Tech Event, which brought together students from Bowie State, Morgan State, and Howard University. The event featured a fun and engaging game of Family Feud, insightful discussions on internships, and a powerful talk by a guest speaker on supporting women in technology.

Beyond campus initiatives, I also spearheaded a fundraiser for She Codes Africa, a nonprofit organization dedicated to empowering young girls and women in technology across Africa. Through creative campus events—including basketball and football games, as well as holiday-themed gatherings—we successfully raised over $300 to support their mission.

Competition Highlights: NASA MITTIC & Mastercard Data Challenge

Competitions were a major part of my senior year, allowing me to apply my technical and leadership skills on a national stage.

NASA MITTIC Competition: Leading our team in this prestigious challenge, we developed an innovative accessibility solution using NASA technology. Our efforts paid off as we won first place, earning a $20,000 prize and an all-expenses-paid trip to California.

Mastercard Data Challenge: Our project focused on developing educational centers to help single mothers transition into high-paying careers. After a rigorous competition, we made it to the final round and secured first place!

Pushing Boundaries in Research & Development

Beyond competitions, I also immersed myself in research and capstone projects that expanded my technical expertise:

- Hate Speech Detection using NLP: For my Senior Seminar, I built an AI-driven system that achieved 95% accuracy in detecting hate speech on social media platforms. My research was well-received, and I was honored to present my findings at the ERN Conference.

- Deepfake Detection Training Platform: For my Capstone Project, I worked with a team of three to develop an interactive website for Booz Allen employees, training them on how to identify deepfakes through a series of tutorials and quizzes.

My time at Bowie State wasn't just about academics—it was about embracing opportunities, building relationships, and exploring new horizons. Some of my most memorable experiences include: Studying Abroad in Panama, where I immersed myself in a new culture and gained a global perspective on technology. Competing at MorganHacks 2024, where I collaborated with like-minded peers on innovative tech solutions. Attending the Grace Hopper Celebration for three consecutive years, networking with top industry professionals and fellow women in STEM.

Reflecting on my journey, I am incredibly grateful for the unwavering support of my professors, peers, and the Computer Science Department at Bowie State University. As I move forward in my career and continue my studies in Artificial Intelligence, I remain excited to see how Bowie State continues to grow as a powerhouse in technology and innovation.

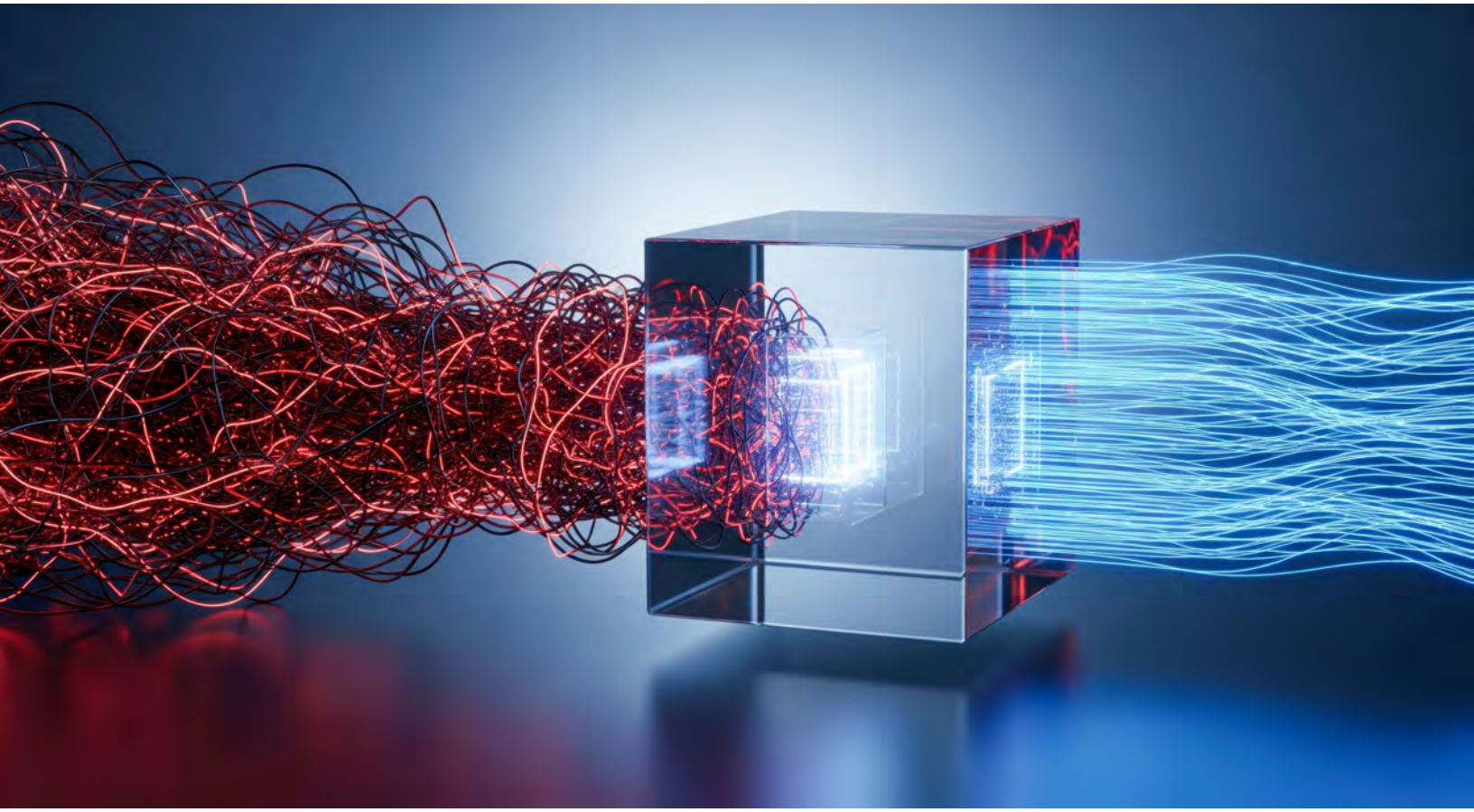
Osrick Abitria

When I first stepped onto Bowie State University's campus as a Computer Science major, I couldn't have predicted how one role would transform my entire academic experience. Although my résumé boasts valuable internships and research projects, it is my role as a Supplemental Instruction (SI) leader and tutor for the last two and a half years that embodies my experience at BSU. What started off as a tutoring position turned into something unexpected. My role as an SI leader in historically difficult computer science courses put me in a unique space between faculty and students. It was this "hidden role" that introduced opportunities that I did not expect and has been a cornerstone of my development as a student.

At Bowie State, I found a home within an environment that urged inquiry and valued diverse perspectives. My research in examining dynamic memory allocation techniques resulted in me developing ways to reduce the incidence of buffer overflows in resource-constrained systems, which exemplified BSU's desire to make an impact solving real problems. In a separate study, I explored how to preprocess electroencephalogram (EEG) data to determine if there were possible correlations with ADHD symptoms, using computational tools to tackle a neuroscience question. I could not have done research that crossed disciplinary boundaries without the organizational structure of BSU. Finally, I explored using video to find ways to connect technology to human health.

By working closely with faculty, I created mentorship relationships that transcended the classroom. Part of these relationships created research opportunities where I could apply concepts covered in class to actual problems. At the same time, my internship experiences provided me valuable real-world experience that I was able to bring back to a real learning experience in my tutoring, and it created a cycle of learning and performance for everyone involved. The most fulfilling part of this experience was to witness the development of my peers. The feeling of watching someone decipher a dense algorithm or better yet when a difficult programming concept "clicked" for an otherwise overwhelmed student was rewarding to me.

It has been very rewarding to watch many students that doubted their computer science capability perform well and succeed in advanced classes; knowing I played a small role in their success is fulfilling. The community we developed from those study sessions was bigger than academic support. The students who met in my SI sessions formed study groups, worked on projects together, and leaned on each other throughout their experience at BSU. I am proud to have helped shorten the bridge and develop an atmosphere that made computer science collaborative and not daunting.



As I look back on my time at BSU, what I came for was to receive a computer science education, but what I received was a higher purpose to use my education to uplift others. I understood my own success as a student was not only based on my GPA or technical accomplishments, but the capacity I shared that would positively impact students long after I graduated. My overall experience shows that sometimes the most significant experiences of your life journey come from the role you would least expect.

Through the role between students and faculty, I have been a better computer scientist, and a better communicator, mentor, and leader focused on the good of the community I am returning to as a BSU graduate. Choosing to further my education at Bowie State University was more than the decision about where to go for my education; I unknowingly selected the right surrounding to help me find out who I might become.

Kevin Elias-Mejia

When I first arrived at Bowie State University and decided to major in Computer Science, I was filled with excitement to begin this new chapter—but also nervous and unsure of what to expect. I was initially incredibly shy, often keeping to myself and going straight home after class. It took time to come out of my shell. But slowly, I began building connections and friendships with people who are now some of the closest in my life. Though the journey started quietly, it eventually blossomed into a deeply enriching, social, and academic experience.

Early on, I did well in my courses, but as the curriculum and lessons became more advanced, I sometimes found myself struggling to keep up with everyone else. There were moments when I truly felt like I was being left behind. And began to think to myself, if Computer Science was right for me? Thankfully, the Computer Science department at Bowie State is more than just a place of learning—it's a supportive community. I want to give a special and heartfelt thank you to Dr. Ruth Agada, Dr. Loubna Dali, Dr. Seonho Choi, and Dr. James Stigall. To me, these are the best professors anyone could ever ask for. Dr. Stigall introduced me to the CS program at Bowie learning C++ (my first ever programming language). I had the privilege of learning under him during my first semester. Their dedication, patience, and understanding for teaching me went far beyond the classroom. It was truly an honor to learn from them, and their belief in me played a major role in helping me push through challenging times and rediscover my confidence.

Beyond the classroom, I took every chance I could to grow and apply what I was learning. Through the Summer Undergraduate Research Institute (SURI), I worked on exciting projects—first with Dr. Avijoy Chakma on Investigating the Feasibility of Wearable Acoustic Sensors Towards Creating a Smart Environment, and then with Dr. Ruth Agada and Dr. Sriraman Srinivasan on The Study of Alzheimer's Disease Detection Using Machine Learning. These opportunities not only strengthened my skills in data collection, research analysis, and public speaking but also taught me the value of patience, adaptability, and collaboration in a research setting. I gained hands-on experience working with real-world datasets, presenting technical material to academic audiences, and contributing to problem-solving in meaningful, research-driven environments. It helped me better understand the research process from proposal to presentation and showed me how innovation can truly be driven by inquiry and teamwork.

I also joined the Cybersecurity Club and competed in various Capture the Flag competitions, including Cyber Skyline's NCL and most memorably, the Consortium for Computing Sciences in Colleges (CCSC) competition at Mount St. Mary's University in October 2024, where our team finished 2nd Place. An achievement I will always be proud of. For my Senior Seminar class, I completed a project titled Enhancing Education through AI: A Personalized Learning Approach, where I developed and tested a recommendation-based learning system aimed at tailoring education to the needs of individual students.

As I reflect on the last four years, I'm deeply grateful for the people and opportunities that have shaped my journey. A special thank you to Dr. Rosemary Shumba, Chair of the CS Department, for her leadership and commitment to student success. I'm proud to have represented Bowie State University during this transformative time and to have worn the Black and Gold with pride. Thank you to everyone who's been part of my story—I look forward to the next chapter, carrying with me the resilience, passion, and community spirit that BSU instilled in me. I am excited to continue to see what the Computer Science Department at Bowie State University grows into!

I'm deeply grateful for the people and opportunities that have shaped my journey.

Anh Phan

Being able to study at Bowie State University sometimes feels magical. I would never imagine how I am standing here, being on campus in my Senior year, waiting for my memorable graduation and living up to the expectations that I will carry all of my learning experience to prepare for my future career and education.

The story began when I was first admitted to BSU as a junior in 2022. As an international student, not only was I excited to pursue my Bachelor's in Computer Science in BSU, but I had also imagined where I can learn about culture-fit studying and collaborating. However, not until my late Junior year did I fully immerse myself in activities and events that greatly supported my technical development and communicational skills.

I was proud to be awarded a Merit Scholarship with the amount of $10,000 in 2023 and William S. Joe private scholarship with the amount of $5,000 in 2024 for good academic standing. I felt honored to be a part of the Dean list in Fall 2023 since I knew that all of my studying and efforts being put into long-term knowledge has been paid. These scholarship funds have greatly aided me financially and emotionally as well – just as a dopamine you need to pursue what you desire to be in elevating my Bachelor's degree to a higher level, which is Upper Division Certificate in Cyber Security.

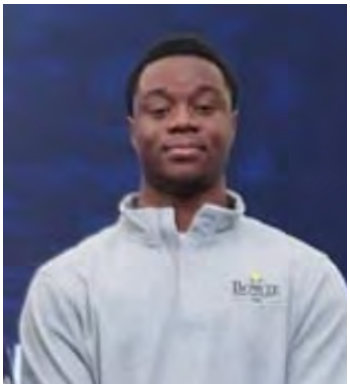
During my rising senior year, I served as a SURI researcher under Dr. Agada and Dr. Srinivasan mentorship, and so far, this was one of the most crucial, valuable and beneficial exposure that I have ever received because of its advanced requirements with in-depth understanding of deep learning models, specifically Convolutional Neural Networks (CNN). If I had something that I would regret, I just wished that I could have spent more time and resources researching AI models and learn more about Machine Learning.

I also have a chance to participate in Cyber Warrior Program, where I am able to take CompTIA Security+ as my first industrial certification in Cyber Security. Not only the program covered the certification, I learnt that every minutes I spent on the materials and practice quizzes is worth the effort to step into my early career.

Not to mention, I worked on a lot of projects and research papers during my late junior year and senior year. In my Seminar class, I was working on a research paper emphasizing the use of Gaussian algorithm – a type of algorithm that reduces the noises in an MRI scan image. I went in depth of the statistics to experiment on the image using Python modules such as scikit-learn, matplotlib and dicomtojpg to preprocess on the image before inputting them to a deep learning model for training. I also worked on multiple projects with my peers related to Data Structures and Algorithm, System Engineering, Web Development and Pen Testing. Those projects are one part away from real-world experience – you learned most of the required skills that will be applied to your career path, plus they will populate your experience. I wouldn't know React, Docker, Git and other software developing applications without doing these projects, and I also knew how important it was to collaborate and communicate to ensure what we have been working on is accurate and satisfying the requirements.

Those key moments mentioned with my work, my efforts and the support of the Department of Computer Science, my peers, my professors and especially mentors that I have encountered along the way have forged a solid background that allows me to thrive in the future swiftly. I would like to specifically send my appreciation to Dr. Ruth Agada, who has supported me over the years with her expertise and wise, and Dr. Sriram Srinivasan, who has given me an opportunity to expose me to GPT, Multimodal and CNN model learning. I hope the department, in particular, and BSU, in general will grow more in the future to guide students for well-prepared pre-career development.

Calvincaleb Ayooluwa Amiolemen



The past four years at Bowie State University have been some of the most rewarding and challenging moments of my life. I always dreamed of becoming a mechanical or electrical engineer, but I wasn't able to secure scholarships to schools that offered those programs. So, I chose to attend Bowie State University to study Computer Science. At first, I had no clear idea of what I wanted to do with the degree, but with the guidance of amazing professors like Dr. Agada and Dr. Dali, I discovered my passion for cybersecurity.

I arrived at Bowie in August 2021 and began working in the university's IT department to gain hands-on experience. During the summer following my first year, I worked as a Software Engineer at Trust Fund Registry. It was during that time that I realized software engineering wasn't the right path for me. I then enrolled in cybersecurity courses taught by Dr. Dali, and that experience sparked my interest in the field. I joined the Cybersecurity Club, where I met many individuals who influenced my journey, including Lloyd, Emmanuel, Dr. Agada, and Dr. Yan. They encouraged me to participate in cyber competitions such as the National Cyber League and Hivestorm, where I developed a strong foundation in offensive security.

In my sophomore year, I reached out to Dr. Shumba to share my growing passion for cybersecurity. She introduced me to HR at Cvent, which led to my first security role as a Security Engineer. I remained in that position for 2 years and 4 months, gaining invaluable experience I couldn't have obtained elsewhere.

During my junior year, I landed a Cyber Threat Intelligence internship at Adobe through their partnership with Bowie State. This experience introduced me to a network of brilliant professionals who inspired me to further my cybersecurity journey. As a result, I founded the Competitive Cyber Team at Bowie State, composed of talented individuals who went on to

win numerous competitions, including the CCSC CTF, National Cyber League, Hack the Box, and BSides Philly CTF.

Beyond internships, I've had the opportunity to win several internal and external competitions such as MorganHacks 2023, Third Place in the Bowie State Winter Workshop, and $10,000 in the Bulldog Pitch Competition.

One of my favorite classroom experiences was my senior capstone project. My team developed an AI therapist integrated into video games to support veterans through VR-based experiences. It was a meaningful and enjoyable challenge.

I'm also a proud Private Scholar, which has played a significant role in shaping who I am today. I received a $10,000 scholarship from Baltimore Gas and Electric Company, which has covered my tuition throughout my college years. The Private Scholars Program also equipped me with essential soft skills such as dining etiquette, networking, and professional communication, which have been vital in my growth. I am excited to be have joined Sony last summer as part of their Red Team.

It has truly been an honor to be a student at Bowie State, surrounded by the unwavering support of professors and fellow students. I look forward to what the future holds.

Carlos Oyindamola Sanni

My time at Bowie has been defined by growth, innovation, and a relentless pursuit of knowledge. From the classroom to real-world applications, I've embraced every opportunity to push boundaries and make an impact—both in academia and industry.

One of my most rewarding experiences was interning at Graham Tech, a DoD-partnered company, where I developed an AI-powered bot to streamline the HR department's hiring process. This project not only improved efficiency but also gave me firsthand insight into how technology can solve critical operational challenges. My work there reinforced my passion for leveraging automation to drive meaningful change.

Beyond internships, I dedicated a summer to conducting cutting-edge research as part of the Summer Undergraduate Research Initiative (SURI). This experience sharpened my analytical skills and deepened my appreciation for rigorous, inquiry-driven problem-solving.

Competing in hackathons has also been a highlight of my journey. Placing in the top 10 in one such event was a testament to my ability to think creatively under pressure and collaborate effectively with teammates.

Another milestone was developing an anomaly detection device alongside two peers for Booz Allen Hamilton. Tackling a real-world problem with a small team taught me the value of adaptability, clear communication, and iterative design—skills I know will serve me well in my future career.

As I look back, I'm grateful for the mentors, challenges, and victories that have shaped me. Bowie has been more than just an institution—it's been the foundation for my growth as a technologist, leader, and lifelong learner.

Wherever the next chapter takes me, I'll carry these lessons forward.

Ruth Abidemi Olusegun

My Ph.D. journey at Bowie State University has been an inspiring and transformative expedition, marked by intellectual growth, impactful research, and a deep commitment to advancing the fields of Artificial Intelligence and Blockchain.

With a solid academic foundation in computer science and a passion for solving complex real-world problems, I have specialized in leveraging machine learning, deep learning, and blockchain technologies to address pressing financial security, healthcare, and smart systems challenges.

During my doctoral studies, I have been privileged to lead and contribute to pioneering research in explainable AI (XAI), generative models, and blockchain technology. One of my most notable achievements includes developing an Explainable Tabular Transformer Model for enhancing fraud detection in Ethereum and cryptocurrency networks, which was recognized and published in IEEE Access. This model strengthens digital asset security and promotes trust and transparency.

I have also explored novel blockchain scalability solutions, such as rollup techniques and parallelized architectures, to improve throughput and reduce latency in real-world applications. I also had the opportunity to collaborate with federal agencies such as the FDA and NSA, where I applied AI to critical health and national security challenges, including geospatial intelligence and protection of cyber-physical systems. In addition to publishing multiple peer-reviewed papers, I have taught and mentored undergraduate students, significantly boosting the department's research engagement.

My academic journey at Bowie State University has deepened my technical expertise and reinforced my passion for creating real-world solutions through advanced technologies. I am deeply grateful for the support and opportunities provided by the Computer Science Department. If I can do this, you can. I hope my story will inspire future scholars to pursue their goals with dedication and impact.

Alexis Akunna Osueke

My time at Bowie State University has been nothing short of transformative. When I first arrived on campus in the Fall of 2022, I was eager to explore the world of technology and carve a path that reflected my passion for innovation and commitment to the community.

Pursuing a Bachelor of Science in Computer Science with a 3.90 GPA has deepened my technical understanding and helped me discover my capacity for leadership, adaptability, and impact.

One of the most defining aspects of my college journey was the opportunity to apply classroom concepts to real-world projects. From developing inclusive applications at the Google Hackathon to improving neural network-driven vehicle safety systems at HackUMBC, I learned to think critically and create with purpose. These experiences helped me understand how technology can empower communities when approached with empathy and intention.

My internships with Allstate, Northrop Grumman, and Sankofatech solidified my passion for full-stack development and project management. I've had the privilege of leading cross-functional teams, mentoring others, and contributing to systems that enhance operational efficiency and user experience. These experiences not only honed my technical toolkit—spanning tools like VueJS, Apache Kafka, and Kali Linux—but also taught me the importance of clear communication and strategic thinking in tech environments. Beyond the classroom and internships, I found a strong sense of belonging through organizations like the National Society of Black Engineers and the Women in Computer Science Club. These communities helped me grow personally and professionally, connecting me with mentors and peers who share a commitment to excellence and representation in STEM.

As I reflect on my time at Bowie State, I am filled with gratitude for the challenges that pushed me, the mentors who guided me, and the peers who inspired mAe. My experience here has laid a solid foundation for a fulfilling career in technology—one where I aim to lead, uplift, and innovate with integrity

Miles Tyler Richardsgriswold

The past four years at Bowie State University have been nothing short of extraordinary. I entered Bowie in 2021 as a freshman football player, initially undecided on a major. I aspired to pursue engineering, but when I discovered that Bowie no longer offered that program, I began exploring other options. That journey led me to computer science – a field that immediately resonated with me. The moment I stepped into the computer science building, I felt welcomed and at home. One defining moment was a conversation I had with Dr. Shumba, where we talked for nearly an hour about the programC and the path ahead. That meeting – along with the opportunity to speak with the Dean of the Computer Science department – reassured me that I was in a place where faculty truly cared about their students.

Bowie has instilled in me perseverance, ingenuity, and the drive to be the best version of myself. As a sophomore starter on the football team, my responsibilities grew – not just on the field but also in the classroom. Balancing academics and athletics were challenging, but I was met with support and understanding from both my professors and classmates. For that, I'm incredibly grateful. By junior year, I had found a rhythm with football and school, and I decided to take on another challenge: joining the greatest fraternity on campus, Omega Psi Phi Fraternity, Inc. My journey through Omega, football, and academics taught me valuable lessons about time management, efficiency, and focus. I learned to prioritize what truly mattered, becoming more dependable, resilient, and prepared for adulthood.

During my junior year, I began applying for internships – a tiring and sometimes overwhelming process – in search of a role that aligned with my long-term goal of becoming an entrepreneur. Fortunately, my hard work paid off. The summer before my senior year, I was offered an internship at Adobe as a Product Manager. My role involved analyzing data and generating reports on the usage of key Adobe platforms such as Acrobat, Creative Cloud, Photoshop, and Illustrator. This experience was eye-opening and affirmed my interest in product management and tech. Now, as I prepare to graduate, I reflect with pride. I've been a three-year starter on Bowie State's football team, maintained a 3.0 GPA as a computer science major, joined Omega Psi Phi Fraternity, Inc., and accepted a full-time offer from Adobe as a Product Manager, starting this August.

My time at Bowie State has been truly remarkable. I'm thankful for every classmate, professor, coach, and staff member who supported me on this journey. I leave here not only with a degree but with lifelong lessons, lasting relationships, and a future full of promise.

Taj Smith

As a freshman, I had the honor of having Dr.Shumba as my first professor. During the course, she spoke about the importance of being a self-starter and taking a vested interest in computer science.

The Department Chair, being my first instructor and having a great support system at home, inspired me to strive for more knowledge, experience, and impact in my field and at Bowie State.

During my sophomore summer, I worked my first job in tech for Apple Inc. as a Home Advisor, where I learned how to fix technical problems quickly and effectively. I also learned that being well-rounded socially is just as important as being technically gifted. With that in mind, I became a Resident Assistant, helping my campus community the same year. While being a Resident Assistant, I looked for opportunities to improve my technical skills. I provided technical support for the Office of Residence Life by offering networking assistance and troubleshooting hardware. I even set up new servers, phones, and computers.

During my Junior year, I became a fellow of the 2023 Adobe + HBCU 20x20 HBCU Fellowship Cohort II program. The Cohort helps HBCU students gain a solid understanding of the essential skills and knowledge necessary for a successful career at Adobe as a Software Engineer, Product Engineer, UI/UX designer, or SOC Analyst. At the end of the Cohort, fellows receive a stipend and the opportunity to apply for a Software Engineering intern position at Adobe. After completing the program and applying for the position at Adobe, I was denied.

After being denied, I continued to look for ways to elevate my career. I improved my resume at the writing center and attended every tech conference hosted at the school. Adobe hosted one conference. At the conference, I networked and made lasting impressions on the people there. Later, the people I met at the conference advised me to apply again for a position at Adobe. I applied for a Cyber Security Intern position at Adobe and was accepted.

During the summer of my senior year, I moved to San Jose, California, to work for Adobe as a Cyber Security Intern- Enterprise Security. There, I created SQL queries in Azure Databricks to analyze data to create new security policies, analyzed trends in data using Splunk and PowerBI, assisted with the development and implementation of security policies and procedures within OKTA, and monitored and analyzed security systems and tools to identify potential threats and vulnerabilities. By doing everything listed at the end of my internship, I received an offer to return full-time as an Adobe Security Engineer.

During my senior year, after moving back from California and learning a lot from Adobe, I worked for the Office of Enrollment Management as an Oracle Analytics BI Developer—Student Assistant, further helping my campus community. My responsibilities included designing, developing, modifying, and maintaining data reports and dashboards within Oracle Analytics (Student Financial Planning) and transforming raw data into meaningful insights that support financial aid business decision-making and data required for federal and state financial aid reconciliations.

Being a part of the organizations and activities listed below established a foundation of excellence for me:
Kappa Alpha Psi Fraternity Inc. SP22
Future Business Leaders of America (FBLA)
Honda Campus All-Star Challenge 2023-2024
Founder of BSU Swim Team 2023
Bowie State University Ambassador 2021
Brother of IGNITE, Bowie Men 2023
Resident Assistant 2021 – 2025

Be excellent, be well-rounded, and do not be denied.

Hanaa Salim

Transferring to Bowie State University from Prince George's Community College became a defining shift in my academic journey. While I initially struggled to find direction, Bowie State's computer science program grounded me. Through rigorous coursework, collaborative projects, and mentorship, I discovered a passion for problem-solving and innovation.

A turning point came when a classmate and I formed a team for the NASA MITTIC competition. After winning the first round, I earned a software engineering internship at NASA, where I honed my technical skills. The following year, we returned to the competition, securing first place, $20,000 in funding, and a functional prototype we plan to develop further.

As a senior, I balanced multiple leadership roles. As a student Athlete I captained Bowie State's inaugural eSports team, establishing its structure, coordinating practices, and guiding teammates through competitions. Beyond gaming, I served as treasurer for the Women in Computer Science Club, fostering a supportive community for aspiring technologists, and joined the executive board of the university's cooking club to explore creative collaboration. Additionally, I collaborated with a team to compete in the Mastercard Data Challenge, winning a cash prize for our data-driven solution. I was also able to work with the Autonomous Technologies lab, which improved my technical expertise and directly helped with the NASA MITTIC competition.

Academically, these two projects shaped my senior year:
- Capstone Project: Selected vulnerability research to improve upon, and modified existing technologies to be more efficient and presented to Booz Allen. .
- Senior Seminar: Developed machine learning algorithms for cognitive and emotional detection, deepening my interest in AI ethics.

Bowie State's community—dedicated faculty, driven peers, and organizations like WiCS—equipped me with resilience, leadership, and technical expertise. As I prepare for my next chapter, I carry forward the confidence to innovate and the drive to make meaningful contributions in tech.

Devine Chinemere

My four years at Bowie State have been some of the most interesting of my life. I started out as someone who knew absolutely nothing about computer science, and now I know a lot, from networking to distributed systems to operating systems and much more.

I'm leaving Bowie State well equipped to apply all that I've learned to my full-time job and even to a master's in Computer Science, specializing in distributed systems. My early career started at Bowie State through the internship program in 2022. It gave me the opportunity to learn what working in tech is really like. Without such an amazing opportunity and the support of the Computer Science department, I would never have had the chance to grow into the person I am today. It truly served as a stepping stone to where I am now.

Through my classes, I discovered what I wanted to do within my field and the types of problems I'm most interested in solving. I especially enjoyed courses like Operating Systems, Systems Programming, Networking, Databases, Computer Architecture and Organization, and Programming Languages, to name a few. I also learned a lot from those around me. Without many of my computer science alumni, I wouldn't have gained some of the knowledge and deeper interest in the things I care about today.

I've had so much fun learning about Linux, Vim, networking, books, different programming paradigms, TV shows, and more, all thanks to the friends I made in the lab. They really opened my eyes to what is possible in the world of software engineering and the many fields within it. Overall, I'm very happy with my experience at Bowie State University, and I genuinely can't thank everyone enough for all the fun times, events, teachings, experiences, and friendships I've gained here. I'm excited to see what comes next, especially for the Department of Computer Science.

Jared Robinson

Pursuing a higher education has been a long road filled with numerous obstacles and lessons that have shaped the student I am today. I'm proud to say that a month from now, that journey will lead to a Bachelor of Science in Computer Science with a Cybersecurity focus. From my 7 years in the fire safety industry to my choice of returning to school post-COVID, I can say wholeheartedly that my best decision was to continue pursuing my degree at Bowie State University. The abundance of guidance from faculty, staff, and peers cannot be understated, as it has allowed me to thrive as a student and make way for many opportunities. Our department's proper ideal set of circumstances has cultivated an environment for critical thinkers to thrive, and I am forever grateful for that experience.

Since joining Bowie State in the fall of 2022, I have been selected to the Dean's List for my academic achievements in all semesters of my enrollment. The ability to succeed academically made way for the life-changing opportunity of becoming an SFS (Scholarship for Service) recipient in August of 2023. My introduction to the SFS program has opened many doors to opportunities and allowed me to improve my technical and professional skills. In addition to the SFS program, I have also been an active member in the BSU Cyber Club, aiding in planning events and competitions throughout the year. I have participated in numerous cyber competitions, including the National Cyber League (NCL) competition in the fall of 2024 (and the upcoming spring of 2025), the Consortium for Computing Sciences in Colleges (CCSC) competition, and the CIA hackathon in the spring of 2024. In addition to cyber competitions, I have also had the luxury of participating in hands-on cyber training led by some of the brightest minds in the industry. All of which have allowed me to further my technical skills in the vast cybersecurity landscape while gaining valuable knowledge I will use long after leaving Bowie State.

My favorite class in the program was Computer Architecture and Organization with Dr. El-Sayed. The course challenged me to learn numerous foundational concepts I will never forget, as they have shown themselves in the material of all the classes I've taken since then. I applied these skills to my past summer internship with Battelle Memorial Institute in Columbus, OH. There, I worked on the Cyber Trust and Analytics team, learning about the microchips and semiconductors' verification and validation process. This fantastic opportunity allowed me to work in a specialized field uncommon in the tech world. My time in Ohio over the summer was special and allowed me to network and learn from some of the most brilliant minds in research and development.

My time at Bowie State is ending, and while I know I'll miss seeing those familiar faces in the hallways, I am also so excited to apply my skills in the workforce. Thanks to Dr. Shumba and her incredible leadership in the department, I feel well-equipped to handle whatever life throws at me. The Information Technology industry constantly evolves and introduces new concepts to master, which only build upon our titles as lifelong learners. I look forward to my impact on the cyber industry's private and federal sectors with the valuable skills I've gained. I am so proud to call myself a bulldog for life, but more importantly, I'm blessed to be a part of the computer science family here at Bowie State. I've seen such growth in my short time here and cannot wait to see what heights are reached in the future.

CJ Obizuo

My time at Bowie State University has been nothing short of transformational. Starting my academic journey at Prince George's Community College and transferring to Bowie State, I've had the opportunity to achieve things I never imagined possible. Bowie gave me a foundation to explore new ideas, break personal boundaries, and grow in ways that reshaped my goals. Through the past two and a half years, I've come to understand what it truly means to be Bowie Bold.

Transferring from a community college gave my "senior year" a unique structure. In Spring 2024, I competed in a NASA competition that took me to Houston. While there, I explored Space Center Houston and deepened my appreciation for NASA's innovation and its influence on entrepreneurship. Returning in Fall 2024, my team and I won first place, cementing Bowie State into the NASA MITTIC history books.

In Summer 2024, I interned with Battelle, a science research company based in Ohio. My focus was on cybersecurity, diving into cyber policy, risk evaluation, and the heart of Governance, Risk, and Compliance. This experience built upon lessons from my first internship at MITRE, where I embraced the principle of "solving problems for a safer world." These internships not only shaped my professional values but helped me earn my first major industry certification: the GIAC Cybersecurity Foundational Technologies Certification. With this, I confidently stepped into the cyber world as a practitioner.

During my final moments with Bowie, I worked on my senior capstone, a project that allowed me to make genuine contributions to the open-source cybersecurity community. I developed a CLI function to improve the runtime of the Clang-Tidy tool by enabling the exclusion of header files from static analysis, bringing my skills to a public and broad stage once again.

On campus, I actively contributed to Bulldog Coders and the Women in Computer Science (WiCS) clubs. Through tutoring and support, I aimed to uplift the CS community. A highlight with Bulldog Coders was traveling to compete in the International Collegiate Programming Competition, testing my skills on a global stage. With WiCS, I was proud to support the department's first annual Miss WiCS pageant, which helped establish a powerful identity for women in CS and STEM at large.

In closing, Bowie State is a place of transformation and necessary discomfort. That discomfort can either humble or inspire, but for those who lean into it, it becomes the catalyst for growth. Looking back on these two and a half years, I'm proud of the journey I've taken and the lessons I've learned. I now understand, fully and personally, what it means to be Bowie Bold.

Congratulations to Our Outstanding Students!

On April 17, 2025, the College proudly recognized Dr. Staphord Bengesi, Chevean Richards, Ashanti Boone, and Brionna Nunn for their exceptional achievements.

Congratulations on this well-deserved honor!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Dr Staphord Bengesi

My journey at Bowie State University has been one of growth, resilience, and fulfillment. I initially joined BSU as a master's student, but after discovering the opportunity to transition into the doctoral program, I made the decision to pursue a Ph.D. in Computer Science. The road wasn't always easy—there were ups and downs—but the strength of the BSU community made all the difference. Today, as I prepare to graduate, I see my journey as a true testament to perseverance, faith, and support.

I came to BSU with a deep passion for Artificial Intelligence and a vision to make meaningful contributions, especially in the healthcare space. What I found here exceeded all expectations—BSU offered not just academic opportunities, but a thriving environment that fostered innovation, intellectual growth, and leadership.

I was fortunate to learn from a group of remarkable professors who played a pivotal role in shaping my academic journey. I am sincerely grateful to **Dr. Langdon, Dr. Jisyula, Dr. Gil, Dr. Mareboyana, Dr. Bo Yang, and Dr. Yan** for their mentorship and encouragement. Under the guidance of my advisor, **Dr. El-Sayed**, and co-advisor, **Dr. Sarker**, I developed and refined my research in Artificial Intelligence, transitioning from foundational concepts to cutting-edge innovations. This work has led to **over seven published papers**, which have collectively received **more than 290 citations** to date.

I also had the privilege of coordinating several successful academic programs under the mentorship of our esteemed department chair, **Dr. Shumba**. Her leadership, vision, and unwavering commitment to excellence taught me what it truly means to lead with purpose. I am, and will always be, proud to call her my department chair.

In addition to my research, I've had the honor of serving as an adjunct professor since 2021. Teaching and mentoring undergraduate students has been one of the most meaningful parts of my BSU experience. Helping them grow both academically and professionally has only deepened my own understanding and love for this field.

As I look ahead, I carry with me more than a doctoral degree—I carry the spirit of BSU, the lessons I've learned, the mentors who believed in me, and the enduring pride of being a Bulldog. This chapter of my life has been transformative, and I look forward to paying it forward in the years to come

FACULTY AWARDS AND RECOGNITION

University System of Maryland 2025 Awards Ceremony

Honoring Excellence: Dr. Soo Yeon Ji, Dr. Rosemary Shumba, Dr. Jie Yan, and Dr. Sreenivasan Ramasamy Ramamurthy Recognized at Bowie State University's 160th Founders Day

CS Faculty Spotlight: Dr. Sarker Selected for Prestigious Department Of Energy Fellowship at ORNL

Dr. Md. Kamruzzaman Sarker, Assistant Professor of Computer Science at Bowie State University, has received an offer to serve as a Visiting Faculty at Oak Ridge National Laboratory (ORNL) during the Summer of 2025 under the U.S. Department of Energy Fellowship Program.

During this two-month appointment, from May 27 to August 1, 2025, Dr. Sarker will collaborate with scientists at ORNL to conduct research focused on reliable epidemic prediction. He will work closely with Dr. Sifat Afrooz Moon, a scientist at ORNL, to advance the development of trustworthy AI models in the public health domain.

As part of this collaborative research, Dr. Sarker

- Conducted a comprehensive literature review to identify and compile reliable sources on existing knowledge graphs and domain ontologies used in deep learning-based epidemic prediction.
- Developed a public health-specific knowledge graph by extracting, organizing, and structuring environmental, behavioral, and location-specific knowledge relevant to epidemic dynamics.
- Integrated the domain-specific knowledge graph into deep learning models for epidemic prediction to enhance their contextualization and interpretability.

This project aimed to improve the reliability and transparency of epidemic forecasting models, thereby supporting the development of more effective and informed public health strategies.

2025 ABET SYMPOSIUM

The 2025 ABET Symposium, held April 3–4 in San Diego, California, revolved around the theme “Endless Discovery: Navigating the Path of Lifelong Learning.”

ABET 2025 Symposium Overview:
The ABET 2025 Symposium focused on advancing quality and innovation in STEM education through accreditation. The event brought together educators, industry leaders, and accreditation professionals to explore how accreditation can evolve to meet the demands of a rapidly changing world, particularly in engineering and technology disciplines.

Highlights

- **Keynote Address by Dr. Rodney K. Rogers**: As the president of Bowling Green State University, Dr. Rogers shared insights on fostering continuous education initiatives and professional growth opportunities, aligning with the symposium's theme.
- **Sustainability Initiatives**: In partnership with Evertreen, a tree was planted for every attendee to support reforestation projects in California. The symposium also minimized waste by eliminating traditional souvenirs and printed materials, encouraging the use of digital resources and reusable items.
- **Diverse Sessions and Networking**: Attendees engaged in sessions covering accreditation, assessment, and innovative strategies in STEM education. The event provided ample opportunities for networking among faculty members, students, industry leaders, and government representatives.
- **Workshops**: Two workshops were conducted: Fundamentals of Program Assessment Workshop and Advanced Program Assessment Workshop

Personal Perspective

The symposium was a profound reminder of the significance of lifelong learning in today's rapidly evolving educational landscape. Engaging with professionals dedicated to continuous improvement and innovation was both inspiring and motivating.

Closing Thought

For those passionate about advancing STEM education and embracing continuous learning, the ABET Symposium offers a valuable platform to gain insights, share experiences, and contribute to shaping the future of education. Participation in such events not only enriches personal growth but also strengthens the collective effort towards building a more inclusive and sustainable educational environment.

FACULTY CONFERENCE PRESENTATIONS AND PUBLICATIONS

Avijoy Chakma ,The Good, The Bad and The Ugly: The Opportunities, Challenges and the Mitigation Strategies of the Young Indigenous Social Media Users of the Chittagong Hill Tracts in Bangladesh, Youth and Society, ACM CHI, Conference, April 30, 2025

B. Yang and S. Johnson-Shapoval, "Exploring Social Media Sentiment Polarity: A Case Study Utilizing Language Models," *2024 IEEE 4th International Conference on Software Engineering and Artificial Intelligence (SEAI)*, Xiamen, China, 2024, pp. 215-219, doi: 10.1109/SEAI62072.2024.10674171.

R. Olusegun and B. Yang, "Improved Ethereum Fraud Detection Mechanism with Explainable Tabular Transformer Model," *2024 IEEE 6th International Conference on Trust, Privacy and Security in Intelligent Systems, and Applications (TPS-ISA)*, Washington, DC, USA, 2024, pp. 59-68, doi: 10.1109/TPS-ISA62245.2024.00017.

Michael Abobor* and Darsana Josyula, Multi-View Approach with Transformer Models and Augmented Embeddings for Tackling Imbalanced Multi-Label Datasets, Computer Science & Information Technology (CS & IT) ISSN : 2231 - 5403 Volume 14, Number 25, November 2024

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Tariq Alluhaidan* and Darsana Josyula, Weight aggregation methods for federated learning in healthcare - A comparatcomparative empirical analysis, 24th Annual IEEE International Conference On Electro Information Technology (EIT2024)

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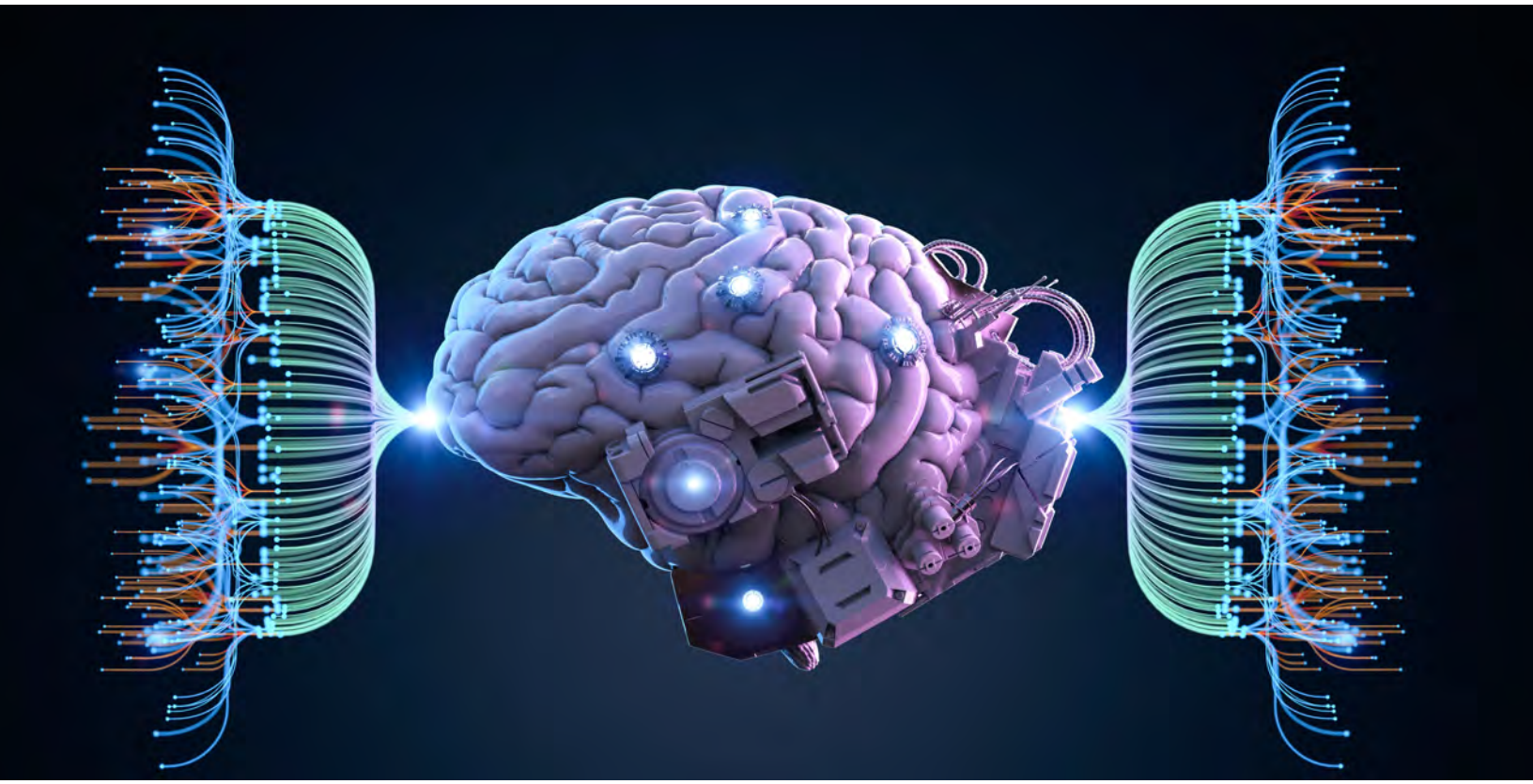

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GALA NIGHTS
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02
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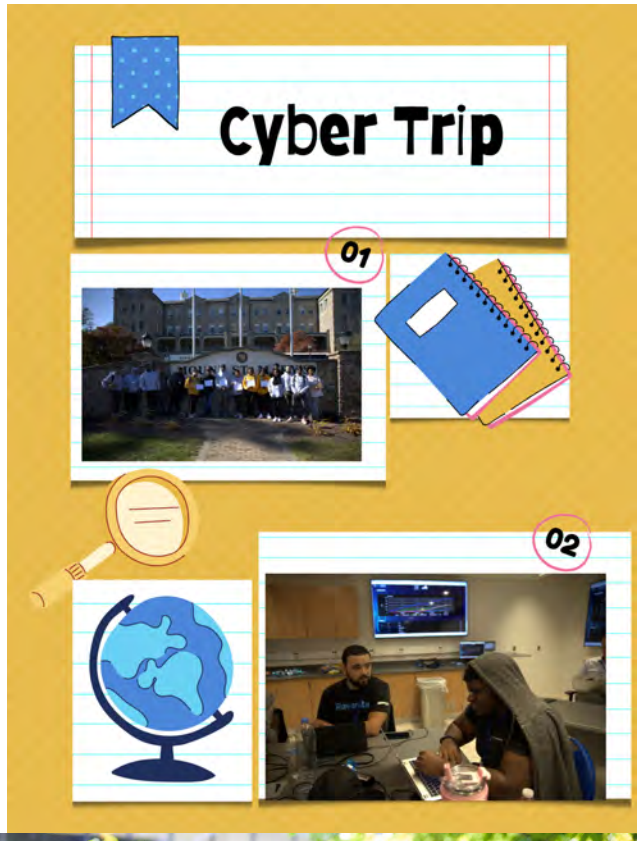
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Theus Berrios
Devontae Berry
Jordan Boone
Amani Booth
Avry Bowling
Trinity Bowling
Alex Boyd

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Kamar Gray
Malachi Gray
Nehemiah Gray
Perry Green
Jaden Hanley
Joshua Harrell
Dakotah Harris
Darrian Harris
Jahvon Harrison
Jayden Hayman
Chrissie Hena Tcheugoue
Asiah Hill
Devante Hooper
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Lavontae Howard
Titorian Huggins
Tobiloba Ifenikalo
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Antonio Jackson
Oluwabukunmi Jaiyeola
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Brian Jamison
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Rosa Scotland James
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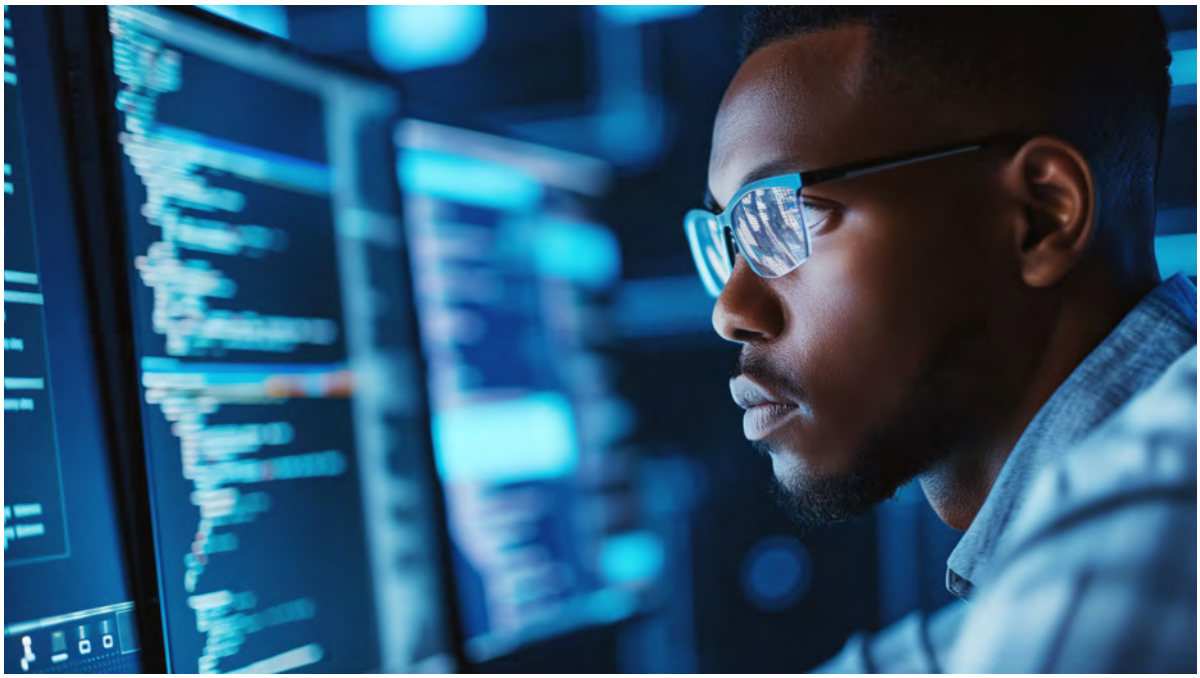

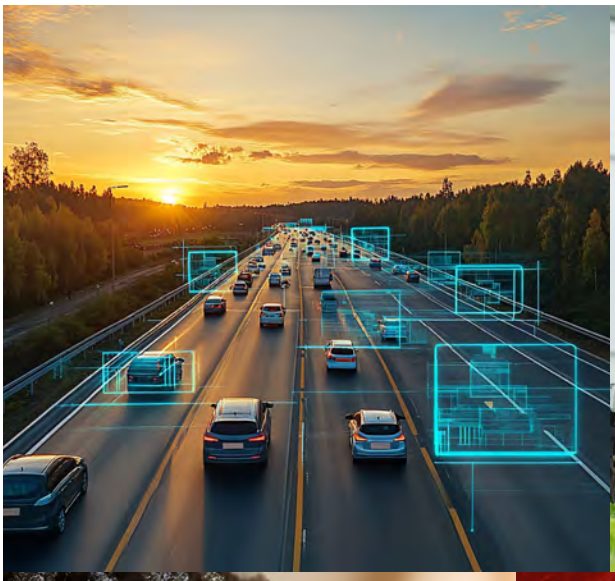

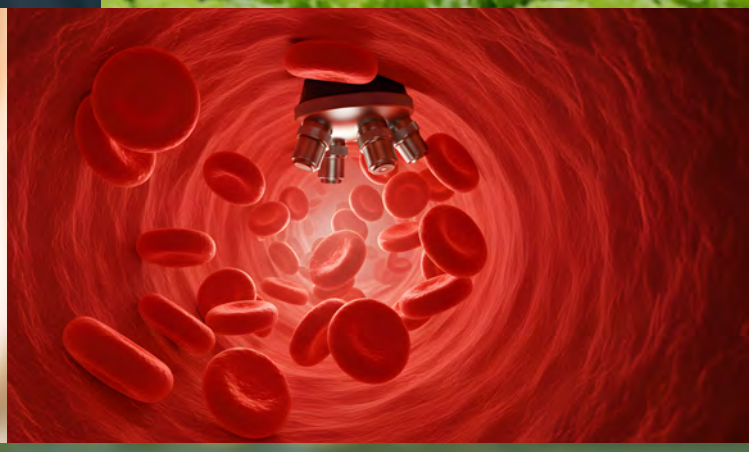

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