

# Debaleen Das Spandan

[debaleen0010@missouristate.edu](mailto:debaleen0010@missouristate.edu) — [Google Scholar](#) — [Portfolio](#)

Research Interests: Human Computer Interaction, Computer Vision, Cybersecurity

## Education

**Missouri State University**, Springfield, MO

*Aug 2022 – Jul 2024*

Master of Science in Computer Science

GPA: 4.0/4.0

Thesis: *Scene Understanding and Spatial Analysis Using Scene Graph Enhanced by Hall's Proxemics Zones in Smart Homes*

**Bengal College of Engineering and Technology**, India

*2017 – 2021*

Bachelor of Technology in Computer Science and Engineering

GPA: 8.94/10.0 (3.68/4.0)

## Professional Experience

### Software Engineer

Digital Monitoring Products

*Aug 2024 – Present*

- Maintain and enhance Android applications for enterprise security systems, improving reliability, streamlining feature integration, and supporting business growth through timely releases
- Reduced technical debt by 30% by removing legacy dependencies and introducing reusable architecture
- Took ownership of complex, undefined initiatives, proactively researching new tools, identifying design flaws, implementing improved solutions aligned with product management priorities

### Graduate Research Assistant (UDE CODERS & NSF ROSE)

Missouri State University

*Jun 2023 – Aug 2023; Jun 2024 – Jul 2024*

- Trained high school teachers on IoT and network security vulnerabilities, covering Wireshark, aircrack-ng, nmap, Wi-Fi phishing, WPS attacks, OSINT, and techniques for cyberattack prevention
- Co-created interactive workshops with drones, robot dogs, and sensor-based robots (Cutebot) in the CODERS project
- Guided development of lesson plans that integrated research methodologies and CS principles for the ROSE project

### Graduate Assistant

Missouri State University

*Aug 2022 – Jul 2024*

- Led labs in Python, C, and C++; graded coursework in Database Management Systems, Computer Security, Operating Systems, Algorithms, and Data Structures
- Supported students via office hours, troubleshooting code and clarifying CS concepts

### Research Engineer

National Institute of Technology Durgapur

*Jun 2022 – Jul 2022*

- Conducted research and development of a multi-modal accessibility interface integrating audio and visual inputs for enhanced accessibility
- Built a prototype with JavaScript, React.js, Node.js, TensorFlow.js, and Python, contributing to securing industry funding
- Mentored a team of four in research methodologies, programming practices, and coding techniques

## Programmer Analyst Trainee & Intern

Cognizant

Jan 2021 – Jun 2022

- Revamped configuration management, reducing cloud costs, and integrated ETL processes using AWS and Python
- Optimized workflow efficiency and delivered solutions from ideation to release in finance and supply-chain domains

## Research Intern

National Institute of Technology Durgapur

Feb 2020 – Aug 2020

- Built data preprocessing and analysis modules for an ML project using Matplotlib, NumPy, Pandas, and Scikit-Learn
- Created visualization tools to represent processed data using Python and JavaScript

## Publications & Theses

1. *ProxeGraph: Scene Graph Generation Utilizing Proxemics for Smart Homes.*  
**Debaleen Das Spandan**, Razib Iqbal. IEEE MIPR 2024. DOI: [10.1109/MIPR62202.2024.00024](https://doi.org/10.1109/MIPR62202.2024.00024)
2. *Metamorphic Testing for Investigation of Context Recognition from Smart Home Voice Commands.*  
Fahima Hasan Athina, Jeniya Sultana, **Debaleen Das Spandan**, Razib Iqbal. IEEE CloT 2024. DOI: [10.1109/CIoT63799.2024.10757078](https://doi.org/10.1109/CIoT63799.2024.10757078)
3. *To Hack or Not to Hack? Connecting Cybersecurity, the IoT, and Smart Environments to K12 Learning Experiences.*  
Shusmoy Chowdhury, **Debaleen Das Spandan**, Tara Bonebrake, Zachary Frantsen, Ajay Katangur. In: *Foundations of Computer Science and Frontiers in Education: Computer Science and Computer Engineering*, Springer, 2025. DOI: [10.1007/978-3-031-85930-4\\_28](https://doi.org/10.1007/978-3-031-85930-4_28)
4. *Exploiting Multi-modal Contextual Sensing for City-bus's Stay Location Characterization: Towards Sub-60 Seconds Accurate Arrival Time Prediction.*  
Ratna Mandal, Prasenjit Karmakar, Soumyajit Chatterjee, **Debaleen Das Spandan**, Shouvit Pradhan, Sujoy Saha, Sandip Chakraborty, Subrata Nandi. *ACM Transactions on Internet of Things*, vol. 4, no. 1, Feb 2023, Article 1. DOI: [10.1145/3549548](https://doi.org/10.1145/3549548)
5. *Can I Take Class in That Classroom Now? In the Perspective of Air Quality.*  
Praveen Kumar Sharma, Debjit Chatterjee, **Debaleen Das Spandan**, Sujoy Saha. Proc. 24th International Conference on Distributed Computing and Networking (ICDCN 2023). DOI: [10.1145/3571306.3571442](https://doi.org/10.1145/3571306.3571442)
6. *Scene Understanding and Spatial Analysis Using Scene Graph Enhanced by Hall's Proxemics Zones in Smart Homes.*  
**Debaleen Das Spandan**. Master's Thesis, Missouri State University, 2024. BearWorks: [3989](https://bearworks.missouristate.edu/works/3989)

## Awards

- IEEE TCMC Student Travel Support — IEEE, Aug 2024
- Graduate Student Travel Fund — Graduate College, Missouri State University, Jul 2024
- Outstanding Poster Presentation — 31st Annual Frank Einhellig Graduate Interdisciplinary Forum, Missouri State University, Apr 2024
- CS-CNAS Thesis Research Funding — Graduate College, Missouri State University, Spring 2023