Sunday Amatare

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EDUCATION

The University of Texas at Arlington — *Arlington, Texas*
Ph.D. Computer Engineering — Aug. 2023 – May. 2028 (Expected)

The University of Ibadan — *Ibadan, Oyo, Nigeria*
MSc. Computer Science — April. 2018 – Jan. 2021

The University of Ilorin — *Ilorin, Kwara, Nigeria*
BSc. Computer Science — Oct. 2012 – Oct. 2016

RESEARCH INTEREST

Wireless Digital Twins | Wireless Communications | Networked Robotics | Satellite Communications | Wireless Sensing | Applied Machine Learning

PUBLICATIONS

- **S. Amatare,** G. Singh, R. Shakya, A. Kharel, Alkhateeb, A., & D. Roy, "DT-RaDaR: Digital Twin Assisted Robot Navigation using Differential Ray-Tracing," *IEEE Transactions on Intelligent Transportation Systems* [*In Review*]
- G. Singh, **S. Amatare**, E. Natalizio, D. Roy, "6G Communications for Networked Robotics," *IEEE Internet of Things Magazine* [*In Review*]
- Al Noman, A., T. T. Sari, **S. Amatare,** G. Secinti, & D. Roy, "Space-Air-Ground Network for Direct-to-Cell Communication," *IEEE Military Communications Conference (MILCOM), 2025*.
- **S. Amatare**, J. Meng and D. Roy, "Digital Twins for Identifying Jamming-prone Areas in Smart Cities," *IEEE Conference on Computer Communications Workshops (INFOCOM WKSHPS)*, 2025, pp. 1-6, DOI: 10.1109/INFOCOMWKSHPS65812.2025.11152922.
- G. Singh, **S. Amatare** & D. Roy, "SauRON: Smart Surveillance using Robotic Swarms with Optimized Networks," *IEEE Conference on Computer Communications Workshops (INFOCOM WKSHPS)*, 2025, pp. 1-6, DOI: 10.1109/INFOCOMWKSHPS65812.2025.11152894**. [Best Paper Award]**
- **S. Amatare**, W. Gao, M.H. Rahman, A. Kharel, R. Shakya, X. Shang, "RF-Vision: Object Characterization Using Radio Frequency Propagation in Wireless Digital Twin," *ICC 2025 - IEEE International Conference on Communications*, pp. 5646-5651, DOI: 10.1109/ICC52391.2025.11160847.
- **S. Amatare**, G. Singh, M. Samson & D. Roy, "RagNAR: Ray-tracing based Navigation for Autonomous Robot in Unstructured Environment," *GLOBECOM 2024 - 2024 IEEE Global Communications Conference*, pp. 3631-3636, DOI: 10.1109/GLOBECOM52923.2024.10901133.
- **S. Amatare**, G. Singh, A. Kharel & D. Roy, "Real-Time Localization of Objects using Radio Frequency Propagation in Digital Twin," *MILCOM 2024 - 2024 IEEE Military Communications Conference (MILCOM)*, pp. 653-654, DOI: 10.1109/MILCOM61039.2024.10774060.
- **S. Amatare**, M. Samson & D. Roy, "Testbed Design for Robot Navigation through Differential Ray Tracing," *2024 IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN)*, pp. 173-174, DOI: 10.1109/DySPAN60163.2024.10632751.
- **S. Amatare**, & A. K. Ojo, "Predicting customer churn in telecommunication industry using convolutional neural network model," *IOSR Journal of Computer Engineering*, *22*(3), 54-59, 2021

SOFT & TECHNICAL SKILLS

- **Soft Skills:** Leadership, collaboration, agile communication, mentoring, strategic decision-making.
- **Programming Languages:** Python, C, C++, Java.
- **Simulation tools**: Sionna RT, Wireless Insite, Gazebo, Simulink, Blender.
- **AI/ML Frameworks & Libraries:** TensorFlow, PyTorch, Scikit-learn, Pandas, NumPy.
- **Database management**: MySQL, Oracle, MongoDB, MS Access
- **Data visualization:** Power BI, Matplotlib, Seaborn, Plotly.
- **Web Development:** HTML, CSS, Bootstrap, JavaScript, WordPress.

RESEARCH EXPERIENCE

The University of Texas at Arlington *Arlington, Texas*

Transformative Wireless Systems & Technology (TWiST) Lab Aug. 2023 – Present

Research Assistant and Project Lead

Privacy-Preservation for Robot Navigation

- Developed a fully integrated testbed using our laboratory's setup and smart-city infrastructure to evaluate and validate autonomous robot navigation strategies.
- Designed communication strategies for these environments using radio propagation and data generation techniques.
- Implemented autonomous robot navigation strategies leveraging the generated datasets for training, evaluation, and performance optimization.

Radio Frequency-based Object Characterization

- Designed a high-fidelity digital twin modeling approach that captures real-world indoor features using open-source Blender tools.
- Designed a methodology to accurately configure simulation scenes and compute RF propagation characteristics using transceivers deployed at multiple positions within the environment.
- Built an ML model that uses RT-generated coverage maps to classify LoS objects and infer detailed scene characteristics.

The University of Ibadan *Ibadan, Oyo, Nigeria*

Department of Computer Science *April.* 2018 – January 2021

Machine Learning for Prediction

- Performed exploratory data analysis on telecommunications customer data and cryptocurrencies using data manipulation and visualization tools such as Pandas, NumPy, Matplotlib, Plotly, and Seaborn.
- Built robust models, including ANN, CNN, and LSTM, to predict customer churn and cryptocurrency prices.

TEACHING EXPERIENCE

The University of Texas at Arlington *Arlington, Texas*

Graduate Teaching Assistant Aug. 2023 – Present

- Led lab sessions independently, including preparation of lab materials, instruction, and student supervision.
- Designed and administered lab assignments aligned with course objectives.
- Provided technical guidance and one-on-one support to students during lab sessions.
- Graded lab submissions, homework, and exams with detailed feedback to support learning outcomes.

Courses:

- CSE 4322: Software Project Management — Fall '25, Fall '23
- CSE 5344: Computer Networks — Spring '24
- CSE 1310: Introduction to Computers & Programming — Fall '24
- CSE 5334: Data Mining — Summer '24
- CSE 1320: Intermediate Programming — Spring '24
- CSE 4322: Software Project Management — Fall '23, Fall '25

Federal Cooperative College — *Kaduna, Nigeria*
Graduate Teaching Assistant — *Dec.* 2016 – March 2018

- Taught computer science courses (Python and Operating System) to a class of 65.
- Prepared lecture notes and handouts.
- Tested and graded students' work and offered feedback.
- Delivery of initiatives to solve students' challenges and reduce learning difficulties.

International Secondary School — *Ilorin, Kwara, Nigeria*
ICT Teacher — *Feb.* 2014 – Oct. 2016

- Taught computer studies and mathematics in a class of 55
- Coordination of hands-on laboratory exercises on various concepts in ICT
- Invigilated tests and examinations.

WORK EXPERIENCE

High Grade Communications Limited — *Ibadan, Oyo, Nigeria*
Information Technology Manager — *Mar. 2021 – June 2023*

- Provided operational support for network infrastructure implementations including switching, load balancing, routing, and monitoring.
- Performed installation, configuration, and testing of LAN device.
- Directed and managed the organization's communication and network infrastructure to ensure efficient and reliable operations.
- Performed interviews and facilitated the recruitment of interns.

AWARDS AND RECOGNITIONS

- Best Paper Award – IEEE INFOCOM (NetRobiCS), 2025
- John S. Schuchman Outstanding Doctoral Award - University Award, UT Arlington, 2025
- Travel Grant Recipient – IEEE INFOCOM 2025
- Travel Grant Recipient – UT Arlington Graduate School, 2025
- Travel Grant Recipient – IEEE MILCOM, 2024
- Travel Grant Recipient – NSF Sponsored OAIC & EdgeRIC Workshop, 2024
- Dean's Summer Research Award – University Award, UT Arlington, 2024
- Jeff and Lisa Smith Outstanding Graduate Researcher – University Award, UT Arlington, 2024
- Honorable Mention – SCFR PhD Lightning Talk, 2024
- Represented CSE Department – College of Engineering Annual Banquet, 2024
- STEM Tuition Support – University Award, UT Arlington, 2023 – Present
- Most Outstanding IT Management Professional of the Year – Nigeria Technology Awards, 2022

PROFESSIONAL AFFILIATIONS

- IEEE Graduate Student Member
- ACM Graduate Student Member
- IEEE Communications Society Member
- IEEE Young Professionals

CONFERENCE PRESENTATIONS AND TALKS

- DT-RaDaR: Digital Twin Assisted Robot Navigation using Differential Ray-Tracing at SCFR, UTA, 2025.
- RagNAR: Ray-Tracing based Navigation for Autonomous Robot in Unstructured Environments at GLOBECOM, Cape Town, South Africa, 2024.
- Testbed Design for Robot Navigation Through Differential Raytracing at *IEEE DySPAN Conference* Washington, DC, 2024
- Real-Time Localization of Objects using Radio Frequency Propagation in Digital Twin at *IEEE MILCOM Conference*, Washington, DC, 2024
- RagNAR: Ray-Tracing based Navigation for Autonomous Robot in Unstructured Environments at OAIC Workshop, Starkville, MS, 2024
- Testbed Design for Robot Navigation Through Differential Raytracing at SCFR, UTA, 2024.
- Predicting Customer Churn in Telecommunications Industry using Convolutional Neural Network Model at UI, Nigeria, 2021.

PROFESSIONAL DEVELOPMENT

Organizing Committee

- Publicity/Web Chair: The First Digital Twins over NextG Wireless Networks (DTwin) 2025.
- Technical Program Committee: International Workshop on SENET 2024.

Reviewer Role

- **Conferences & Workshops:** IEEE CCNC 2026, EuCNC & 6G Summit 2025, IEEE ICC 2025, IEEE INFOCOM (DTwin25), WiMOB 2025, ICCN 2025, IEEE GLOBECOM 2024, IEEE WONS 2024, SENET 2024, IEEE LANMAN 2024, IEEE DCOSS-IoT 2024
- **Journals:** IEEE Transactions on Mobile Computing, Elsevier Computer Communications

Volunteer Experience

- Student Volunteer – OurCS Student Computing Research Festival (SCFR) 2025
- Student Volunteer – OurCS Student Computing Research Festival (SCFR) 2024