Suleiman Sabo Muhammad

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Research interests: Cyber-Physical Systems Security, Adversarial Machine Learning, real-time anomaly detection and classification.

EDUCATION

PhD Computer Science **2025 – Present**
Newcastle University *Newcastle, United Kingdom*
- Researching real-time anomaly detection and attribution in Industrial CPS using AI-driven approaches.

MSc Cyber Security – Distinction **2023 – 2024**
Newcastle University *Newcastle, United Kingdom*
- Dissertation: Evaluated risk assessment strategies using the SWaT CPS testbed.

BSc Computer Science (Software Engineering) – 1st Class Honours **2020 – 2023**
Newcastle University *Newcastle, United Kingdom*
- Dissertation: Studied digital signatures for secure, accessible e-voting in Nigeria.

Foundation in Science, Computing, Engineering and Mathematics **2020**
INTO Newcastle University *Newcastle, United Kingdom*
- Completed with 84%. Met direct-entry requirements for undergraduate study.

PUBLICATIONS

Published

- A. Abadi, B. Aldali, B. Vincent, E. A. J. Hurley, H. Aljazaeri, J. Hedley-Cook, J.-L. Bell, L. Uwuigbusun, M. Ahmed, R. Umar, S. Nagaraja, **S. Sabo**, and W. Alrbeiqi, "Decentralized Weather Forecasting via Distributed Machine Learning and Blockchain-Based Model Validation," in *Proc. FLTA 2025*, IEEE, 2025. DOI: 10.1109/FLTA67013.2025.11336686

Submitted

- **S. Sabo**, C. M. Ahmed, and R. Ranjan, "Physical Processes, Digital Risks: Component-Level STRIDE Risk Assessment for an Industrial CPS," *DCS-CI 2026*, Springer CCIS. (Submitted)
- W. Ding *et al.* (incl. **S. Sabo**), "Adaptive Joint Compression and Synchronisation in Federated Split Learning for IoT Rainfall Prediction," *arXiv preprint*, 2026. arXiv:2606.25003
- **S. Sabo**, H. Alghamdi, P. Li, C. M. Ahmed, A. Abadi, S. Nagaraja, and R. Ranjan, "Chained Attacks on Drone-Based Federated Learning: From Network Disruption to Device Impersonation," *RAID 2026*. (Under Review)
- H. Alghamdi, A. Abadi, J. Szelag, **S. Sabo**, and I. Beno, "SoK: When FL Clients Cannot Train – Delegated Federated Learning for IoT," *IEEE S&P 2027*. (Submitted)

EXPERIENCE

Newcastle University **2026 – Present**
Student Ambassador *Newcastle, United Kingdom*
- Representing Newcastle University at outreach, recruitment, and engagement events for prospective students.
- Providing peer-to-peer guidance on academic life, research culture, and student experience.

Secure and Resilient Systems (SRS) Group **2025 – Present**
Research Assistant *Newcastle, United Kingdom*
- Contributing to experimental design, data analysis, and implementation of CPS security and AI-driven research projects.
- Assisting with literature reviews, technical reporting, and prototype development for funded research initiatives.

National Edge Artificial Intelligence Hub **2025 – Present**
Researcher *United Kingdom*

- Conducting research on Federated Learning, Edge AI, and secure distributed intelligence.
- Evaluating robustness of edge-based AI systems under adversarial, communication, and system-level threats.

LightGate Solutions Ltd **2025 – Present**
Co-Founder & Cyber Security Analyst *Nigeria*
- Leading information security strategy, governance, and risk management across enterprise digital platforms.
- Designing secure system architectures and overseeing secure software development practices.

KEY PROJECTS

Secure Chat Platform **2024**
React, Firebase, AES, Steganography
- Built an encrypted messaging platform applying AES encryption and steganography to embed messages within image files.
- Led threat modelling and security policy design; achieved 100% on technical report and 90.4% overall.

Predictive Analysis of Weather Trends **2023**
Python, Raspberry Pi, LSTM, ARIMA
- Designed a time-series forecasting system comparing LSTM and ARIMA models; optimised LSTM to $R^2 = 0.9675$.
- Automated data collection and preprocessing using Raspberry Pi edge computing.

Rubbish App – UN Sustainable Development Goals **2022**
Mobile App, Community Mapping
- Developed a community mapping mobile app for reporting unclean areas, aligned with UN SDG targets on environmental hygiene.

Retention Dashboard for Accenture **2026**
National Innovation Centre for Data – Spring Internship *Newcastle, United Kingdom*
- Developed a data-driven retention dashboard translating complex workforce data into actionable HR insights, featuring multi-tab views covering Campaign Effectiveness, Local Retention, and Overview.
- Applied the Business Model Canvas and Value Proposition Canvas to align the solution with Accenture's business objectives; conducted risk analysis and scoped an MVP within the sprint timeline.

TECHNICAL SKILLS

- **Development:** Python (pandas, NumPy, scikit-learn, Matplotlib, PyTorch), Java, C/C++, JavaScript, SQL, PostgreSQL, Django, React, Firebase, REST APIs, Docker, Git
- **Machine Learning & Security:** GCN, LSTM, ARIMA, Federated Learning, anomaly detection, threat modelling, STRIDE, NIST SP 800-30r1/800-53
- **Systems & Analysis:** Linux/Unix, Windows, Bash, SonarQube, Wireshark, Burp Suite, Nmap

CERTIFICATIONS

- **ISC² Certified in Cybersecurity (CC)** – Security Principles, Incident Response, Business Continuity/Disaster Recovery (2024).
- **London School of Business and Finance (LSBF)** – Certificate in Global Policy (2023).
- **Government College of Engineering (India)** – Python for Data Science (2023).

AWARDS & FUNDING

- **ncl+ Award (2026):** Awarded by Newcastle University Careers Service for outstanding extracurricular engagement and professional development.
- **Sage & School Prize (2024):** Top MSc Cyber Security student in the School of Computing, Newcastle University.
- **CISPA Summer School 2024:** Funded to attend the Usable Security summer school in Saarbrücken, Germany.
- **PTDF Scholarship (2023):** Fully funded postgraduate scholarship (tuition, accommodation, living expenses, and travel).
- **Top Academic Performance in Principles of Computing (2022):** Highest score in module, 95%.