ABDULAI YAKUBU

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Education

Zhejiang Normal University
Sep. 2022 – June 2025
Master in Electronic Information (Software Engineering)
Relevant Coursework: Advanced Software Engineering, Software Project Management, Advanced Database, Network & Information Security, IoT

Zhejiang Normal University
Sep. 2018 – June 2022
Bachelor of Engineering in Computer Science and Technology
Relevant Coursework: Data Structures & Algorithms, Software Architecture, Java, Python, OS, Probability & Statistics

Research Experience

Cybersecurity and AI for IoT Systems

Zhejiang Normal University

- Designed evasion-based adversarial attacks on ML models for IIoT intrusion detection. Proposed a robust evaluation framework using white-box (PGD) and black-box methods. Models: Logistic Regression, KNN, Random Forest, MLP.
- Developed a secure, quantum-resilient mutual authentication protocol (QRMA-IOMT) for IoMT devices using RLWE encryption and Boneh-Boyen signatures.
- Investigated Federated Learning for privacy-preserving, decentralized AI in IoMT to enhance patient data confidentiality and model performance.
- Built a ML-based DDoS detection framework for IoT using the TON_IoT dataset. Applied KNN, CNN, Naive Bayes, Logistic Regression, Decision Trees; used SMOTE and Information Gain Ratio for feature selection; achieved 94% accuracy.

Publications

1. Y. Abdulai, M. Ma and H. Wang. "QRMA-IOMT: Quantum-Resilient Mutual Authentication for IoMT Using RLWE and Boneh-Boyen Signatures". Journal of Peer-to-Peer Networking and Application, 2025. DOI: 10.1007/s12083-025-01990-1 (Accepted).
2. Y. Abdulai, M. Ma and H. Wang, "ESMA-IOMT: Efficient and Secure Mutual Authentication in IoMT with RLWE-Based Encryption and Boneh-Boyen Signatures," 2024 IEEE International Conference on E-health Networking, Application & Services (HealthCom), Nara, Japan, 2024, pp. 1-6, doi: 10.1109/HealthCom60970.2024.10880814.

Teaching Experience

Teaching Assistant (TA) - Linear Algeria (Fall 2024)

- Supported undergraduate instruction in Linear Algebra, led tutorials, graded assignments, and assisted students with problem-solving.

Awards & Honors

- Winner, CST Hackathon (Apr 2024): Developed a housing app for verified off-campus listings.
- Zhejiang Provincial Government Scholarship (Graduate) – 2023–2025
- Excellent International Student, ZJNU – 2019, 2020, 2023
- Outstanding New International Students Scholarship (Type A) – 2022–2023
- Zhejiang Government Scholarship (Undergraduate) – 2019–2022
- Top 10 Learning Pacesetters, College of Math & CS – 2020
- Excellent Cadre, Intl Students in China – 2019

Technical Skills

- **Research Areas**: AI for Cybersecurity, Federated Learning, IoT/IIoT Security, Quantum-Resilient Protocols
- **Languages & Tools**: Python, Java, TensorFlow, PyTorch, Scikit-learn, OMNeT++, YOLO, MySQL/PostgreSQL, Arduino, MATLAB
- **Security Tools**: Scyther, Wireshark, Burp Suite (basic)
- **Languages**: English (Fluent), Dagbani (Native), Chinese (Fluent)

Service & Leadership

President, CST International Student Association | *Apr 2023 – May 2025*

- Strengthened cultural and academic support systems for diverse student body. Led initiatives for inclusion, academic mentoring, and community engagement.

International Student Assistant, ZJNU | *Oct 2022 – Jun 2024*

- Helped bridge communication between international students and school authorities. Supported logistics, integration, and campus life improvement.

Industry Experience

Intern, China Unicom Ltd., Jinhua | *Oct 2021 – Dec 2021*

- Assisted with backend system debugging and improved code quality in Python and Java-based services.

Invited Panels & Talks

Youth in AI Series - Redefining Healthcare with AI: An African Youth Perspective
October 2024