

ABDULAI YAKUBU

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Objective Statement

To contribute to the advancement of healthcare through the application of AI and the Internet of Medical Things (IoMT), and cutting-edge techniques in Federated Learning, utilizing my expertise in computer science and research to develop innovative solutions that improve patient outcomes and healthcare efficiency.

Education

Zhejiang Normal University

Sep. 2022 – June 2025 (Expected)

Master's in Electronic Information (Software Engineering)

Relevant Coursework: Advanced Software Engineering, Software Project Management, Advanced Database, Network and Information Security, Internet of Things

Zhejiang Normal University

Sep. 2018 – June 2022

Bachelor of Engineering in Computer Science and Technology

Relevant Coursework: Advanced Mathematics, Statistics and Probability, Java, Linear Algebra, Data Structures & Algorithms, Software Architecture and Design Patterns, Python, Operating System

Research Experience

Graduate Researcher, UbiSmart Lab, Zhejiang Normal University

- Conducted research on the application of AI and the Internet of Medical Things (IoMT) to enhance healthcare systems, focusing on secure and efficient data management.
- Developed a quantum-resilient mutual authentication protocol for IoMT devices, utilizing Ring Learning with Errors (RLWE) and Boneh-Boyen signatures to ensure secure communication in healthcare environments.
- Collaborated with a with peers and advisors on the project "QRMA-IoMT: Quantum-Resilient Mutual Authentication for IoMT Using RLWE and Boneh-Boyen Signatures," which is currently under review for publication.
- Investigated the implementation of Federated Learning in IoMT, enabling decentralized and privacy-preserving machine learning across medical devices, improving data security and patient confidentiality.

Publications

Abdulai Y., Ma M., Wang Hu. "QRMA-IoMT: Quantum-Resilient Mutual Authentication for IoMT Using RLWE and Boneh-Boyen Signatures" (under review)

Conference Presentations

Abdulai Y., Ma M., Wang Hu. ESMA-IoMT: Efficient and Secure Mutual Authentication in IoMT with RLWE-Based Encryption and Boneh-Boyen Signatures – HEALTHCOM 2024 (under review)

Awards and Honors

- Winner of the College of Computer Science and Technology International Students Hackathon Competition, April 2024: My two team members and I developed a housing app to help students find verified off-campus listings.
- 2 Consecutive Zhejiang Provincial Government Scholarship Graduate Awards (30,000 RMB): Academic years 2023–2024, 2024–2025.
- 3 Consecutive Excellent International Student in China awards, Zhejiang Normal University: Academic years 2023–2024, 2020–2021, 2019–2020.
- Outstanding New International Students Scholarship Type A (30,000 RMB): 2022–2023.
- 3 Consecutive Zhejiang Provincial Government Scholarship Undergraduate awards (20,000 RMB): Academic years 2021–2022, 2020–2021, 2019–2020.
- College of Mathematics and Computer Science Top 10 Learning Pacesetters - Excellent Award: Academic year 2019–2020.
- The 6th College Students Innovation and Entrepreneurship Competition - Bronze Award: June 2020.
- Second International Students Laboratory Knowledge Competition - 1st Prize: May 2019.
- The First 'Making Efforts in MC' International Students Experience Sharing Session - Excellent Speaker: September 2019.
- My Story about China - Essay Competition - 2nd Position: March 2019.
- Excellent Cadre of International Students in China, Zhejiang Normal University: Academic year 2018–2019.
- 5km Campus Marathon, Zhejiang Normal University - 2nd Position: December 2018.
- International Students Handbook Competition - 2nd Position: November 2018.

ONLINE COURSES

- AI for Everyone by Andrew Ng , DeepMind.AI – Coursera May 2024

Skills

- **Fields of Interest:** Internet of Medical Things, AI for Healthcare, Federated Learning
- **Technical Skills:** Python, Dart, Java, React, JavaScript, MySQL, PostgreSQL, Git
- **Tools and Frameworks:** TensorFlow, PyTorch, Scikit-learn, Arduino
- **Languages:** English, Dagbani, Chinese (Fluent)

Community Service and Leadership

President of CST International Student Association April 2023 – present
 College of Computer Science and Technology, Zhejiang Normal University,

- Enhanced academic, social, and cultural experiences for a diverse community
- Advocated for inclusivity, addressed concerns, and increased participation and support network strength among international students

International Student Assistant Oct. 2022 – Jun. 2024
 Student Affairs Office, College of Computer Science and Technology, Zhejiang Normal University

- Assisted the Student Affairs Office with international students' daily tasks and life, resulting in a 20% improvement in communication

Class Representative Oct. 2018 – Jun. 2022
Zhejiang Normal University,

- Facilitated communication between students and faculty, organized class activities and events, resulting in a 30% increase in work output

Internship at China Unicom Ltd, Jinhua, China Oct. 2021 – Dec. 2021

- Assisted in debugging backend systems and improving code readability using Python and Java.

International Student Assistant Sept. 2020 – May 2022
College of Mathematics and Computer Science,

- Assisted international students with academic and campus life matters, including visa-related issues and cultural adaptation, leading to a 20% increase in work output

Academic Department President, MC Shining Team Sept. 2019 – Aug. 2020
College of Mathematics and Computer Science,

- Hosted academic events, conferences, and seminars, collaborating with the activities department on event logistics, resulting in a 20% increase in work output

Official WeChat Editor/Manager Sept. 2019 – Aug. 2021
International Student Office, Zhejiang Normal University,

- Managed and curated content for the university WeChat account, created engaging posts and news updates, resulting in a 25% increase in engagement

Jinhua Homestay Project – African Session Nov. 2019
Host and Participant,

- Served as the program host and participant

World Young Scientist Summit Oct. 2019
Participant, Wenzhou, China

Summer Camp of MC Shining Team July 2019
Yafan Town, Jinhua

- Taught English to children aged 5-12

International Students Dormitory Management Assistant Dec. 2018 – Aug. 2019
Zhejiang Normal University,

- Assisted in managing international students' dormitories