Lawal Olarotimi Badru (Preferred Name: Awwal)

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Summary

My research focuses on developing and evaluating personalized, adaptive delivery systems for supplementary learning materials to support diverse student knowledge levels and preferences in Software Engineering Education, a method termed AI-driven Adaptive Learning Platform.

Education

2023 – present — **Ph.D. Candidate, University of Alabama** Computer Science
Advisor: Dr. Jeffrey Carver
Thesis title: *Learning Beyond the Lecture: Rethinking Software Engineering Education with Supplementary Materials in the Generative AI Era.*

2023 – 2025 — **M.S., University of Alabama** in Computer Science.
Comprehensive Exam: *Effective Methods for Teaching Software Engineering.*

2020 – 2023 — **M.Sc. by Research, University of the South Pacific** in Computing Science.
Advisor: Dr. Vani Vasudevan
Thesis title: *Intelligent Education Management Information System (IEMIS) for Fiji.*

2024 – 2008 — **B.Sc(Ed), University of Ibadan** in Computer Science with minor in Mathematics.

Research Publications

Journal Articles

1. **L. Badru** and J. Carver, "Personalizing supplementary materials in software engineering: Impact of preferences, learning styles, and gender," *ACM Transactions on Computing Education*, 2025, In Review.

2. **L. Badru**, V. Vasudevan, M. Khan, and G. Lingam, "Mern stack web-based education management information systems for pacific island countries," *SN Computer Science*, vol. 4, no. 1, p. 70, 2022. 🔗 DOI: 10.1007/s42979-022-01437-0.

3. **L. Badru**, V. Vasudevan, M. Khan, and G. Lingam, "State of education management information system (emis) in pacific melanesia small island developing states (sids)," *Directions: Journal of Educational Studies*, vol. 35, no. 2, pp. 107–118, 2021.

Conference Proceedings

1. **L. Badru**, M. An, J. Stamper, and J. Carver, "Optimizing learning: A comparative study of adaptive experiments and randomization in a software engineering course," in *Palermo '25: Sixth Annual Workshop on A/B Testing and Platform-Enabled Learning Engineering (PELE), Learning@Scale 2025*, Palermo, Italy, Jul. 2025.

Work-in-progress

1. **L. Badru** and J. Carver, *Personalized support: Evaluating a digital platform for supplementary materials in software engineering education*, Work in progress, 2026.

2. **L. Badru** and J. Carver, *What do students really want? a comprehensive survey of learning preferences and supplementary material use in software engineering education*, Work in progress, 2026.

Employment History

2023 – present	🔖 **Research Assistant.** Computer Science Department, University of Alabama.
2014 – 2022	🔖 **Senior Education Officer / Acting Head, State EMIS**
	Ministry of Education, Science and Technology, Abeokuta, Nigeria

- Led the design and maintenance of the Education Management Information System (EMIS) for 1,500+ schools and 500,000 students.

- Implemented an automated Result Analyzer for the Unified Promotion Examination, enhancing data integrity and efficiency.

- Contributed to the Education Policy & Strategy Simulation and State Education Sector Plan (2017–2030).

- Trained 1,000+ personnel as a UNICEF Master Trainer on school record-keeping and census data management.

2016 – 2018	🔖 **Assistant Lecturer (on secondment).** D.S Adegbenro ICT Polytechnic, Itori, Ogun State, Nigeria.
2014 – 2016	🔖 **Computer Instructor (on secondment).** Staff Development Center, Bureau of Establishment & Trainings, Nigeria.
2010 – 2014	🔖 **Master Grade II / Program Analyst.** Teaching Service Commission, Abeokuta, Nigeria.

Skills

Programming Languages	🔖 Python, JavaScript, PHP
Frameworks	🔖 React, Node.js, Express, MOOClet Framework (Adaptive Learning)
Artificial Intelligence	🔖 OpenAI API, Prompt Engineering, AI-generated Assessments, ChatGPT-based Content Creation
Data & Research Tools	🔖 Alteryx, Tableau, Pandas, NumPy, SciPy, Statistical Analysis of Survey Data
Databases	🔖 MySQL, PostgreSQL, MongoDB
Software Engineering Education	🔖 Design of Adaptive Experimentation Platforms, Learning Analytics, A/B Testing for Educational Content

Miscellaneous Experience

Scholarly Contribution

2022	🔖 **Reviewer**, Education and Information Technologies, Springer Nature .

Awards and Scholarships

2021	🔖 **Research Grant**, Queen Elizabeth Commonwealth Scholarship, United Kingdom (3,000 USD)
2020 – 2021	🔖 **Commonwealth Scholarship**, United Kingdom (value-over 50,000 USD), The University of South Pacific, Fiji
2019	🔖 **Recipient, The Dean's Award for Academic Excellence and Global Leader Scholarship** (value-£10,000), University of Bath, United Kingdom

Miscellaneous Experience (continued)

2009   🔖 **Best Graduating Student, Computer Science Department**(value-500 USD), Tai Solarin University of Education, Nigeria

Certification

2021a   🔖 **Predictive Analytics for Business with Alteryx and Tableau**. Awarded by Udacity.

2021b   🔖 **Azure Fundamentals expert**. Awarded by Microsoft.

2021c   🔖 **Ideas for a Better World: Leading Change Through Policymaking**. Awarded by British Council.

🔖 **Microsoft Certified Professional**. Awarded by Microsoft.

Teaching Experience

2016 – 2018   🔖 **Undergraduate Courses:** Advanced Calculus, Assembly Language, Management Information System, Mathematics Methods I, Mathematics Methods II, Functions and Geometry, Object Oriented Visual Basic Programming

2014 – 2016   🔖 **Continuing Education & Training Services of Confidential Secretaries course:** Computer Application and Appreciation, Advanced Computer Application

Mentorship and Service

2010 – 2025   🔖 Advised and mentored over 100 high school and college students to support their growth into professionals in their respective fields

2024 – 2025   🔖 **Volunteer, Alabama Robotics Contest, University of Alabama:** Supported event logistics, set up the robot navigation field area, and contributed to a smooth competition experience

2017 – 2019   🔖 **Unicef Master Trainer** on School Records Keeping and Process of Filling Annual School Census (ASC) Questionnaire

2017   🔖 Participated in the underwriting of State Education Sector Operational Plan (SESOP) 2017-2021 and 2017-2030 State Education Sector Plan (SESP)

2016   🔖 Served as **Technical expert** and populates Education Policy & Strategy Simulation (EPSSim)

Professional Membership

🔖 **Association for Computing Machinery (ACM)**

🔖 **Institute of Electrical and Electronic Engineers (IEEE)**

References

Dr. Jeffrey Carver
James R. Cudworth Professor,
Associate Department Head for Graduate Studies,
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Dr. Sinan Al-Ani
Assistant Teaching Professor,
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