

PRINCE SAMUEL KYEREMANTENG

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PROFILE SUMMARY

Motivated computer scientist specializing in software engineering, AI, and data analytics. Experienced in academic research and peer-reviewed publication, with a proven ability to design and implement large-scale software systems. Skilled at bridging theory and practice through teaching, leadership, and collaborative projects across academia and industry.

EDUCATION

University of Ghana, Legon Accra, Ghana
Master of Philosophy in Computer Science (in progress, expected completion: 2026)
Relevant Coursework: *Advanced Software Engineering, Distributed Systems, Advanced Data Structures and Algorithms, Advanced Database Systems, Data Visualization, Research Method, Bioinformatics, Information Systems Security.*
Thesis: *A Hybrid Data Imputation Technique for Handling Missing Data in IoT Sensor Data Using LSTM and VAEs*

University of Ghana, Legon Accra, Ghana
Bachelor of Science in Computer Science September 2019 - September 2023
CGPA: 3.45/4.0
Relevant Coursework: *Artificial Intelligence, Software Engineering, Programming Fundamentals, Digital and Logic Systems Design, Multimedia and Web Design, Computer Organization & Architecture, Mobile Application Development, Systems Administration, Operating Systems, Human Computer Interaction*
Project: *SmartFlow: An IoT-Based Smart Irrigation and Environmental Data Gathering System*

RESEARCH EXPERIENCE

Co-Author – Book Chapter on Federated Learning at the Edge June 2025
Book Title: *Edge Computing – Latest Advancements, Challenges, and Applications* (IntechOpen)
Chapter: *Enhancing Privacy and Efficiency in Distributed AI Systems*
Status: Published, Online First | DOI: 10.5772/intechopen.1011986

- Contributed to the research and writing of a peer-reviewed book chapter exploring the integration of Federated Learning (FL) with edge computing.

Co-Author – Journal Manuscript June 2025
Title: *AP2-AODV: A Predictive and Context-Aware Probabilistic Route Discovery Mechanism for Dynamic Wireless Networks*
Journal: *Concurrency and Computation: Practice and Experience* (Wiley)
Manuscript ID: CPE-25-2585
Status: Under Review

- Designed an adaptive route discovery protocol for dynamic wireless networks, integrating predictive mobility modeling with probabilistic routing to enhance stability and reduce latency.
- Contributed to simulation, Architectural Drawing, performance evaluation, and results interpretation.

Main-Author – Journal Manuscript September 2025
Title: *Missing Data Imputation Techniques, Applications, Challenges and Innovations: A Review*
Journal: *International Journal of Information Technology & Decision Making*
Status: Under Supervisory-Review

Main-Author – Journal Manuscript September 2025
Title: *SWIFT: A Parallel, K-mer Filtered Smith-Waterman Extension for Fast and Accurate Local Sequence Alignment*
Journal: *International Journal of Information Technology & Decision Making*
Status: Under Supervisory-Review

MPhil Thesis Researcher

Title: *A Hybrid Data Imputation Technique for Handling Missing Data in IoT Sensor Data Using LSTM and VAEs*

University of Ghana

February 2025 - Present

- Conducting research on a new hybrid missing data imputation technique for handling missing data in IoT Sensor Data.
- Key tasks: Designing the overall architecture and flow for the hybrid missing data imputation algorithm.
- Focus areas: Exploring how to capture temporal dependence in time series data using LSTM and to reconstruct the overall distribution using VAEs.
- Conducting a review to identify existing techniques, their strengths and limitations, applications and trends and preparing a manuscript for submission to a peer-reviewed journal.

Undergraduate Final Year Project Research

Research Participant

University of Ghana

March 2023

- Conducted mini research as a partial fulfillment of my undergraduate studies.
- Developed a simple IoT-Based smart irrigation and environmental data gathering system

WORK EXPERIENCE

University of Ghana, Legon – Department of Computer Science

Accra, GH

Graduate Teaching and Research Assistant

October 2023 – Present

- Delivered lectures and tutorials in Artificial Intelligence, Advanced Databases, and Distributed Systems, while mentoring final-year students on projects and presentation delivery, contributing to improved performance and research quality.
- Guided final-year students in their final projects and organized a Mock Final Presentation session to mentor them on effective presentation delivery and defense strategies.

PKay Software Consultancy

Accra, GH

Founder and Lead Consultant

2023 – Present

- Architected and delivered large-scale enterprise platforms (admissions, business management, payment systems), demonstrating expertise in scalable software design, distributed systems, and real-world deployment.
- Applied agile methodologies and rigorous testing practices to ensure performance, maintainability, and stakeholder alignment, directly reflecting the goals of the DECODER project.

Iridis Labs

Accra, GH

Software Developer

2023 – Present

- Developed scalable web and mobile applications using React, Node.js, PostgreSQL, and Python, reducing frontend load times through code optimization.
- Collaborated in Agile teams to deliver client projects on time, conducting sprint planning and code reviews to ensure adherence to SOLID principles.

Payhub Ghana Limited

Accra, GH

Software Developer

2021 – Present

- Designed and deployed a USSD platform for low-bandwidth financial transactions, enabling users to send money, purchase airtime, and trade vouchers securely.
- Reduced transaction latency through optimized session management and Redis caching.
- Integrated with mobile network operators via RESTful APIs, ensuring interoperability.

Bricksky Software Development Company

Accra, GH

Lead Software Developer

2021 – 2024

- Oversaw end-to-end development and maintenance, of the Oysloe Marketplace App, a marketplace application for managing buying and selling on the platform.
- Automated price updates and inventory synchronization using Python scripting and third-party API integrations, reducing manual errors and ensuring real-time accuracy across product listings.

SYMPOSIUM/HACKATHON/WORKSHOP

The 2025 Post-Graduate Students' Research Workshop

Department of Computer Science-UG

Participant/Presenter

July 2025

- Presented research titled *Missing Data Imputation Techniques, Challenges, Applications and Innovations: A Review*.
- Presented findings on my review to faculty members and students at the conference. ***I won the 3rd Best Paper award***

Nyansapo AI Symposium on Sustainable Development

French Embassy Ghana

Participant

October 2023

- Participated in a multidisciplinary AI symposium jointly organized by the Ghana Atomic Energy Commission and Université Paris-Saclay, with support from the French Embassy and AFD.
- The symposium focused on the responsible use of AI across sectors such as health, energy, and education, and emphasized international collaboration for sustainable development in Africa.
- Presented a proof of concept on how AI can be used to address the issue of electricity outages in the country.

SKILLS

TECHNICAL SKILLS	LANGUAGES	FRAMEWORKS
1. Programming	1. Python	1. Django
2. System Design and Architecture	2. Javascript	2. FastAPI
3. Database Design	3. SQL	3. Flutter
4. DSA	4. Dart	4. React
5. Technical Writing		

VOLUNTEER/LEADERSHIP EXPERIENCE

Department of Computer Science

University of Ghana

Students' Mentor

September 2024 – Present

- Mentored students in various fields in technology such as Programming, UI/UX design and Project Management.
- I gave students the chance to do their internship with my company.

Bridge IT

Biakoye District, Oti Region - Ghana

Trainer/Tutor

September 2020 – December 2020

- Delivered foundational IT training to basic-level students across the district.
- Over 500 students reached in a four-month workshop, significantly improving digital literacy.

REFEREES

Available upon request.