

SMAILA AMOANU

Backend / Full-Stack Software Engineer | SaaS Product Builder | Statistics PhD Researcher

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Portfolio: arkosmaila.arkosdatateks.com | Live Products: [AttendPro](#) · [SchoolPro](#) · [Acadelyn](#)

PROFESSIONAL SUMMARY

Software engineer and product builder who takes systems from a client's requirements to a deployed, paying product. I build secure web applications and database systems in Python, Flask, and SQL, with role-based access and reporting built in from the start. As the founder behind Arkos DataTeks and DataTechsTutorials, I have shipped attendance, school administration, church operations, HR and payroll, and academic discovery platforms for real organizations. My statistics PhD training shapes how I evaluate these systems: I lean on simulation and data integrity checks rather than assuming a feature works because it compiles.

TECHNICAL SKILLS

Languages & Frameworks	Python, Flask, JavaScript, TypeScript, React, Node.js/Express, PHP, R, SQL, HTML, CSS, VBA/Microsoft Access, Bash
Backend & Security	SQLAlchemy, REST APIs, authentication, role-based access control, CSRF protection, signed tokens, session lifecycle, validation, audit logging, file uploads, reporting endpoints
Databases	PostgreSQL, MySQL, SQLite, Microsoft Access, relational schema design, ERDs, joins, transactions, constraints, migrations, imports/exports, backups
Frontend & Product UI	Responsive web design, mobile portals, admin dashboards, camera/QR workflows, form validation, JavaScript interactivity, information architecture, usability-focused workflow design
Deployment & Operations	Linux VPS, Nginx, Unicorn, domains/subdomains, SSL/HTTPS, environment configuration, production deployment, health checks, backup/restore workflows, local-network deployment
Research Computing	Simulation, Monte Carlo studies, time series, ARMA/QMLE, robust inference, geofence evaluation, reproducible analysis, visualization, R Markdown, LaTeX

SELECTED SOFTWARE ENGINEERING & PRODUCT PROJECTS

Arkos AttendPro - Secure Attendance and Workforce Operations Platform

- Designed and deployed a full-stack attendance platform in Python, Flask, and SQLAlchemy, with separate administrator and employee portals, camera-based QR scanning, and schedule-aware reporting.
- Engineered a server-authoritative protocol with short-lived session-bound rotating QR tokens, token versioning and revocation, schedule/scope eligibility, uncertainty-aware geofencing, valid check-in/check-out state transitions, duplicate prevention, and structured audit evidence.
- Built controlled evaluation workflows covering 8,800 protocol observations, 8,000 token-lifetime observations, 75,000 geofence simulations, and a SQLite duplicate-integrity stress pilot.

Arkos SchoolPro - Commercial School Management Platform

- Designed and developed a modular school platform covering admissions, student records, academics, examinations, attendance, and finance, with reporting and communication tools for staff and role-based access underneath all of it.
- Engineered examination workflow integrity with authoritative score sheets, lifecycle/version controls, submission and approval gates, result-status handling, teacher and guardian release controls, remarks workflows, and audit trails.
- Delivered online and offline deployments, including VPS hosting and a secure local-network installation with multi-user access, automated backups, permissions, and machine-bound activation.

Arkos ChurchPro - Church Management and Ministry Operations Platform

- Built a church operations platform covering the full member lifecycle: ministries and groups, attendance, communication, spiritual milestones, certificates, and pastoral reporting, with role-based access for staff.
- Developed check-in through four paths (rotating QR, kiosk, member pass, and manual fallback) feeding a single attendance dashboard, plus notifications and a mobile portal. Each church runs its own deployment, so one congregation's data never touches another's.

SELECTED SOFTWARE ENGINEERING & PRODUCT PROJECTS (CONTINUED)

Arkos HR Pro - Payroll, Payslip, HR and Employee Management System

- Built the core HR loop: employee registration, payroll processing, and payslips staff can preview, print, or download individually or in bulk. Attendance, leave, departments, and bank details all feed into the same reports.
- Developed a staff self-registration portal, and built the system to run either offline on a local machine or online, since clients like schools, churches, and clinics don't all have the same IT setup.

Acadelyn.com - Academic Opportunity Discovery Platform

- Built and launched a platform that helps students find faculty, conferences, and academic opportunities they would otherwise miss, with search and a saved-items list to track what matters to them.
- Launched with UNR faculty and conference data, working authentication and search, and a roadmap toward ML and NLP-based recommendations.

DataTechsTutorials / Arkos DataTeks Software Store

- Built and sell database-driven software through a digital store, from payroll and inventory systems to receipt and student-record tools. I price, market, and support every product myself, so I have seen firsthand what it takes to turn code into something a stranger will pay for.
- Produced product demonstrations, tutorials, documentation, delivery packages, and post-sale support workflows for users and clients.

PROFESSIONAL EXPERIENCE

Founder & Product Builder - Arkos DataTeks / DataTechsTutorials | 2019-Present

- Build, deploy, and support database-driven products for schools, churches, HR and payroll operations, and academic communities.
- Handle the full delivery cycle myself: VPS or local-network hosting, data migration, client configuration, training, and support after launch.
- Translate how an organization actually works, not how I assume it works, into the software that runs its attendance, payroll, billing, and records.

Database Developer & Systems Consultant - Independent Client Projects | 2019-Present

- Designed Microsoft Access and SQL systems from requirements gathering through schema design, ERDs, forms, queries, dashboards, automated reports, user training, and handover.
- Served clients in Ghana and internationally, including projects connected to Kuwait, Mauritius, Sierra Leone, Ethiopia, and Guinea.

Database Developer & Consultant - PEKO Plaza, Kumasi, Ghana | Jun 2020-Apr 2021

- Designed multi-division relational database systems, migrated legacy spreadsheets, implemented reporting and backup workflows, and trained users for operational continuity.

Data Entry & Claims Analytics Intern - Awutu Bawjiase Polyclinic, Ghana | Jul 2021-Sep 2021

- Consolidated insurance claims, cleaned anomalies, and produced monthly earnings summaries and operational dashboards.

RESEARCH & QUANTITATIVE COMPUTING

Secure Attendance Protocol Research - Arkos AttendPro | 2026 | Submitted to JISA

- Full-length article submitted to the Journal of Information Security and Applications (Elsevier): "Design, Implementation, and Controlled Evaluation of a Session-Bound Attendance Protocol with Rotating QR Codes and Uncertainty-Aware Geofencing."
- Formulated and evaluated a protocol binding authenticated identity, short-lived tokens, attendance sessions, authorized time windows, schedules, state transitions, and location uncertainty under server-side authority.
- Analyzed token-forwarding exposure, false-acceptance/false-rejection trade-offs, auditability, and database duplicate integrity; prepared reproducible LaTeX sources, figures, tables, and the journal submission package.

JSM 2026 Accepted Presenter - Time Series, Weak Dependence & Statistical Computing | Aug 4, 2026 | Boston, MA

- Presenting ARMA quasi-maximum likelihood estimation under innovation-level weak dependence in the session "Inference Under Dependence: Time Series, Panels, and Networks."
- Research covers mixing conditions, asymptotic normality, sandwich covariance, robust standard errors, and Monte Carlo evaluation in R/Python.

MSc Thesis - Malaria Intervention Modeling & Public Health Analytics | AIMS Rwanda | 2023-2024

- Thesis: "Retrospective Impact Quantification of Malaria Interventions in Ghana."
- Evaluated the effects of indoor residual spraying in northern Ghana using district-level malaria data, deterministic and stochastic transmission models, counterfactual intervention analysis, and reproducible simulation workflows.

TEACHING, TECHNICAL COMMUNICATION & COMMUNITY ENGAGEMENT

Technical Education - DataTechsTutorials / Arkos DataTeks | Ongoing

- Create software and database tutorials for a technical learning audience of 14K+ subscribers, covering Microsoft Access, SQL, Excel, database design, business systems, and software product workflows.

- Produce product demonstrations, documentation, proposals, and explanations for users, clients, students, and technical audiences.

Graduate Teaching Assistant / Instructor - University of Nevada, Reno | 2024-Present

- Teach and support Precalculus, Calculus, and introductory statistics/probability through lectures, recitations, quizzes, worksheets, group problem solving, grading, office hours, Canvas, and Pearson MyLab.

Teaching Assistant / Instructor - KNUST, Department of Statistics and Actuarial Science | Nov 2022-Aug 2023

- Supported Regression Analysis, Differential Equations, and Algebra; prepared notes and slides, guided student research, supported grading, and helped organize weekly departmental research seminars.

EDUCATION

PhD in Statistics and Data Science - University of Nevada, Reno | 2024-Present | Reno, Nevada, USA

- Focus: probability, mathematical statistics, statistical inference, time series, weak dependence, and statistical computing.
- Passed Probability/Statistics qualifying examinations in 2025 and the Mathematical Statistics qualifying examination in 2026.

MSc in Mathematical Sciences - African Institute for Mathematical Sciences, Rwanda | 2023-2024

- Graduate training in mathematical sciences, statistical modeling, public health analytics, geospatial analysis, simulation, and applied quantitative methods.

BSc in Statistics - Kwame Nkrumah University of Science and Technology, Ghana | 2018-2022 | First Class Honours

- Undergraduate thesis: "Impacts of Government Expenditure on Economic Growth in Ghana."

SELECTED DATA SCIENCE PROJECTS

- Built VAR/VECM models of government expenditure and GDP growth in Ghana and developed forecasting/econometric analysis workflows.
- Developed insurance technical-pricing models using KNN, Random Forest, and XGBoost, with RMSE, R-squared, partial dependence, and SHAP-based interpretation.

AWARDS & LEADERSHIP

- Scholarship of Merit, University of Nevada, Reno (2024); Scholarship of Merit, AIMS Rwanda (2023-2024); Top 5 ranked PhD applicant, UNR cohort (2024).
- Academic Board Head, Science Students Association, KNUST (2021-2022); Deputy Electoral Commissioner, Ghana Association of Statistics Students, KNUST (2020-2021).
- Organizer of weekly departmental research seminars, KNUST; Men's Ministry Leader, PIWC Reno (2025-Present).