

# USMAN BALA USMAN

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## PROFILE

First-class Software Engineering graduate with a strong foundation in core computing principles and industry experience in distributed systems, cloud-native architectures, and AI-driven applications. Skilled in building scalable backend solutions and integrating intelligent components into software systems. Passionate about problem solving and eager to advance expertise in intelligent software engineering through modern AI and large-scale computing approaches.

## RESEARCH INTERESTS

**Data-Intensive Systems Engineering • Distributed Computing & Microservices Architectures • Machine Learning Systems at Scale • Cloud-Native Software Engineering • Intelligent Data Processing Pipelines**

## EDUCATION

**B.Sc. Software Engineering**  
*Bayero University, Kano, Nigeria*

*Mar. 2019 – Jul. 2024*

- **First Class Honours** — CGPA: 4.52/5.00 (3.62/4.00 GPA scale) [\[Certificate\]](#)
- **Class Rank:** Top 3%
- **Thesis Grade:** A
- **Relevant Coursework:** Computer Architecture, Operating Systems, Data Structures & Algorithms, Distributed Systems, Cloud Computing, Artificial Intelligence, Software Engineering, Database Systems, Discrete Mathematics

## RESEARCH EXPERIENCE

### Undergraduate Research Project

*May 2024*

*Bayero University, Kano, Nigeria*

**Supervisors:** Dr. S. Muhammad & S. M. Aliyu

**Thesis:** Development of a Web-Based Python Learning Platform with Integrated Interpreter

[\[Thesis\]](#)

- Architected and implemented a scalable web-based educational platform using Go (Golang) backend with a RESTful API, serving concurrent users with real-time code execution.
- Integrated Skulpt in-browser Python interpreter for client-side execution, reducing server load by 85% compared to traditional server-side architectures.
- Designed a responsive frontend using modern JavaScript, HTML5, and CSS3, with interactive code editors featuring syntax highlighting and real-time feedback.
- Conducted systematic requirements analysis (n=30 stakeholders) and applied HCI principles to optimize user experience and learning effectiveness.
- **Technical Stack:** Go (Golang), JavaScript, HTML/CSS, Skulpt Interpreter, RESTful APIs, User Research.

### Local Deployment of SLMs

*Feb. 2024*

*Bayero University, Kano, Nigeria*

**Supervisor:** Dr. Salisu Musa Borodo

**Task:** Capabilities and Local Deployment of Small Language Models (SLMs)

- Conducted research on the performance, scalability, and deployment feasibility of small language models, focusing on **Microsoft Phi-3**.
- Developed and deployed a **web-based chat interface** to evaluate real-time conversational interaction and latency under local runtime conditions.
- Designed a **local deployment environment**, integrating model inference through an API layer for low-latency communication and efficient memory usage.
- Analyzed model performance trade-offs—latency, memory footprint, and response accuracy—under varying hardware and optimization configurations.
- Documented findings to inform best practices for **lightweight LLM deployment** in constrained computing environments.
- **Technical Stack:** Python, FastAPI, WebSocket, Microsoft Phi-3, PyTorch, Transformers.

### UI/UX Research Design Project

*Dec. 2022*

*Bayero University, Kano, Nigeria*

**Supervisor:** Dr. Ahmad Said

**Task:** Biometrics Attendance System Interface Design

- Conducted user research through stakeholder interviews (n=15) and developed interactive prototypes for a biometric attendance system using human-centered and iterative design methodologies.

## PROFESSIONAL EXPERIENCE

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### Software Engineer

IPI Solution Nig. Ltd., Abuja, Nigeria

Jul. 2022 – Jan. 2024

- Designed and implemented a **microservices-based distributed architecture** for a corporate communications platform using Spring Boot, Spring Cloud, Apache Kafka, and Docker, achieving 99% uptime.
- Engineered an **automated data migration pipeline** for 100,000+ records using OCR and LLMs, achieving a **10x speed improvement** and **70% cost reduction** over manual methods.
- Implemented an **event-driven architecture** with Apache Kafka for real-time processing of 50,000+ messages per day with exactly-once semantics.
- Developed **CI/CD pipelines** and container orchestration workflows using Docker, reducing deployment time by 60%.
- Technical Stack:** Java, Spring Boot, Spring Cloud, Apache Kafka, Docker, PostgreSQL, AWS (EC2, S3).

### Backend Engineering Intern

Flexisaf Edusoft Limited, Abuja, Nigeria

Mar. 2022 – Jul. 2022

- Developed robust backend services using Java and Spring Framework with SQL databases.
- Applied software engineering best practices including version control, code review, and test-driven development.

## TECHNICAL SKILLS

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<b>Programming Languages</b>	Java • Python • Go (Golang) • JavaScript (ES6+) • SQL • HTML5 • CSS3
<b>Frameworks &amp; Libraries</b>	<b>Backend:</b> Spring Boot, Spring Cloud, Flask, Django <b>Frontend:</b> React.js, Vue.js
<b>Distributed Systems &amp; Cloud</b>	<b>ML/AI:</b> TensorFlow, PyTorch (basic), Scikit-learn Apache Kafka • Docker & Docker Compose • Kubernetes • Microservices • RESTful APIs • Event-Driven Architecture • GCP (GKE, Cloud run, Cloud SQL, Big Query) • AWS (EC2, S3, Lambda)
<b>Data &amp; Databases</b>	PostgreSQL • MySQL • MongoDB • Data Pipeline Engineering • ETL • OCR
<b>Dev Tools &amp; Practices</b>	Git/GitHub • CI/CD Pipelines • Linux Administration • Agile • TDD • Technical Docs
<b>Research &amp; Academic</b>	Research Methodology • Academic Writing • Data Analysis • User Research

## CERTIFICATIONS & PROFESSIONAL DEVELOPMENT

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- DevOps with Kubernetes** — University of Helsinki — Oct (2025)
- Google Cloud Digital Leader** — Coursera — Oct (2025)
- DevOps with Docker & Docker Compose** — University of Helsinki — May 2025
- Full Stack Open 2022 (Modern Web Development)** — University of Helsinki — Nov. 2022
- CS50: Intro to AI with Python** — Harvard University (edX) — Dec. 2021
- CS50: Web Programming with Python JavaScript** — Harvard University (edX) — Jan. 2020

[Certificate]

[Certificate]

## PUBLICATIONS & PRESENTATIONS

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- Usman, U.B.** (2024). *Development of a Web-Based Python Learning Platform with Integrated Interpreter*. Undergraduate Thesis, Department of Software Engineering, Bayero University, Kano, Nigeria.

## LEADERSHIP & SERVICE

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- DevOps Mentor** — ElevateHer Training Space Ltd., Kano — Jul. 2024 – Present
- Technical Committee Chairman** — Muslim Students' Society of Nigeria, Bayero University — Sept. 2023 – May 2024
- AI/ML Study Jams Facilitator** — Google Developer Students Club, Bayero University — Jan. 2022 – Jun. 2022
- Software Director** — National Association of Computing Students (NACOS), Kano — Feb. 2021 – Sept. 2021

## STANDARDIZED TEST SCORES

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- IELTS Academic:** 8.0/9.0 (Listening: 8.5, Reading: 7.0, Writing: 7.5, Speaking: 8.0) — Dec. 2024

[Certificate]

## REFERENCES

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Available upon request.

Last Updated: October 2025