**Katende Chris Marvin**

Kampala, Uganda

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# **SUMMARY**

Seeking an IT position in the software engineering field that leverages my expertise in Requirements Gathering, Quality Assurance, Project Management, AI/ML, mobile & web development, and IoT solutions to deliver impactful technological solutions. Committed to continuous learning and delivering exceptional results through a blend of technical excellence and creative problem-solving.

# **EXPERIENCE**

**IMPACT OUTSOURCING| Kampala, Uganda**

Software Developer

March 2025 –Date

* Responsible in maintaining the current software the company has
* Evaluate and see through how the company can monetise the current software
* Come up with unique solutions that scale to client needs
* Manage and scale the company’s Online Resources such as servers

**NETLABS UG | Kampala, Uganda**

*Python Tutor*

*May 2025 – August 2025*

* Taught the netlabs interns python programming
* Evaluate them by assigning them a hands-on project
* Introduced networking concepts
* Taught web application development with flask with a simple portfolio project
* Taught embedded systems and introduced to them Printed Circuit Board(PCB) designs

**FEYTI MEDICAL GROUP | Kampala, Uganda**  
*Full Stack Developer Intern*  
*Oct 2024 - Mar 2025*

* Developed a responsive and interactive web app for health regulations with next js
* Monitored and tested the Health Management System
* Worked with project manager in documentation of the system
* Built and tested Django APIs
* Implemented OCR module with misastralAi

**NETLABS UG | Kampala, Uganda**  
*Software Engineering Intern*  
*Jun 2024 – Nov 2024*

* Led development of IoT-based automatic irrigation system project with ML at the edge
* Collaborated with senior engineers on system architecture and implementation
* Designed and implemented embedded systems solutions using Arduino platform
* Created a scalable web monitoring system for agricultural applications with Flask
* Integrated IoT sensors and developed real-time data collection systems
* Presented project progress to stakeholders and management team
* Worked effectively in an agile development environment with cross-functional teams
* Was awarded Internee of the year

**FREELANCE**  
*Mobile Developer*  
*Jan 2023 - Present*

* Developed and deployed mobile applications using Flutter framework for Android and web platforms
* Integrated Firebase for authentication, real-time databases, and cloud storage solutions
* Implemented push notifications and user authentication
* Created responsive UI designs using Flutter widgets and Material Design principles
* Utilized Firebase Cloud Functions for serverless backend operations
* Performed app performance optimization and debugging
* Collaborated with clients to gather requirements and deliver solutions meeting business needs

**RESEARCH & PROJECT EXPERIENCE**

**Preeclampsia Monitoring Device (PMD) System**

**IoT & Mobile Health Developer | Final Year Capstone Project  
*Nov 2024 - May 2025***

**Developed an integrated wearable health monitoring system for early detection of preeclampsia in pregnant women, addressing maternal mortality challenges in Uganda. Led the IoT device development and AI integration components of the three-module system.**

**Key Achievements:**

* **Designed ESP32-based wearable device achieving clinical-grade accuracy: ±2.8 mmHg (blood pressure), ±1.5 BPM (heart rate), ±0.08°C (temperature)**
* **Integrated OpenAI API for intelligent pattern recognition and personalized health risk assessment with 95% sensitivity**
* **Implemented real-time data transmission to Firebase cloud with <2-minute latency and 99.95% reliability**
* **Developed Flutter mobile application with intuitive UI for continuous vital signs monitoring**
* **Created comprehensive testing framework achieving 98% measurement accuracy across all sensors**
* **Established end-to-end encryption and HIPAA-compliant data security protocols**

**Technologies: ESP32-C3, MAX30102, MPU6050, Firebase, Flutter, OpenAI API, Arduino IDE, TLS encryption  
Impact: System demonstrates potential to reduce maternal mortality through 24/7 continuous monitoring  
Supervisor: Dr. Sansa Juliane Otim, Makerere University**

**Sickle Cell Detection Project**  
*AI Researcher*

* Developed a transfer learning-based model for detecting sickle cells in low-resolution microscopic images
* Achieved 12% improvement from Inceptionv3 in classification accuracy using Res2Net50 architecture
* Processed and analyzed dataset of over 1000 medical images from Eastern Uganda hospitals
* Implemented data augmentation techniques to enhance model performance
* Collaborated with medical professionals to validate model accuracy
* Authored research paper documenting methodology and results (accepted for publication)

**Bird Song Classification Project**  
*ML Engineer*

* Designed and implemented audio classification system for bird species identification
* Utilized deep learning techniques for audio signal processing
* Achieved 65% accuracy in species identification
* Developed a preprocessing pipeline for audio data normalization

**Skin Disease Classification System**  
*ML Engineer*

* Created a computer vision model for identifying various skin conditions utilizing ViTs
* Implemented transfer learning techniques for improved accuracy
* Developed user interface for model deployment
* Achieved 97% classification accuracy across multiple skin condition categories
* Coordinated with dermatologists for expert system validation
* Presented my paper to the International Conference on Research and Innovation (IBTBW-2024 CONFERENCE).

# **EDUCATION**

**Bachelor of Science in Software Engineering**  
*College of Science in Information Systems (COSIS), Makerere University*  
*Expected Graduation: 2026*

Relevant Coursework: Machine Learning, Data Structures, Algorithms, Software Engineering, Database Systems, Embedded Systems, Software Testing, DevOps, PCB designs  
Work Done: Flutter Development, Firebase, Next.js and Django APIs, PCB design

# **SKILLS**

**Programming Languages:** Python, Java, C++, C (for embedded systems),PHP  
**AI/ML Frameworks:** TensorFlow, PyTorch, Res2Net  
**Development Tools:** Git, ClickUp, VS Code, Trello, Firebase, EasyEDA,Google Playstore  
**Hardware:** Arduino, IoT, Embedded Systems  
**Cloud Platforms:** Google Cloud, Heroku, Grafana, AWS EC2  
**Soft Skills:** Team Collaboration, Project Management, Problem-Solving

# **Professional References**

**Eng. Mutyaba Brian**  
School of Engineering and Technology, Soroti University, Uganda

District Engineer

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