

# Paul Yaw Nti

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## Executive Summary

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MSc Systems Engineering for IoT student at University College London with hands-on experience in autonomous multi-agent robotics systems. Proven expertise in implementing path planning algorithms (A\*, CBS), computer vision (YOLOv8, ArUco), and ROS-based autonomous navigation. Proficient in Python and deep learning frameworks (TensorFlow, PyTorch) with experience deploying ML models in real-world robotic systems. Strong foundation in C++ development and autonomous systems design.

## Experience

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**Multi-Agent Robotics Researcher**, UCL September 2024 – Present

- Developed autonomous target search and retrieval system using TurtleBot3 robots with ROS 2 Humble, achieving zero-collision performance in real-world deployment.
- Implemented A\* path planning algorithm for optimal navigation and Conflict-Based Search (CBS) for multi-robot coordination, successfully coordinating 3+ robots simultaneously.
- Integrated computer vision pipeline using YOLOv8 for object detection and ArUco markers for precise localization when motion capture systems failed.
- Designed and deployed autonomous agent node architecture in Python/C++ handling sensor fusion (LIDAR, camera, odometry), real-time path planning, and obstacle avoidance.
- Successfully transitioned project from PyBullet simulation to real-world TurtleBot3 deployment, demonstrating robust sim-to-real transfer.

**Software Engineer**, theSOFTtribe, Ghana October 2024 – Oct 2025

- Built and deployed software infrastructure for a nationwide digital agriculture system supporting 3,500+ users with low-latency performance.
- Integrated connectivity and backend pipelines with Vodafone/MTN, optimising reliability and throughput.
- Collaborated with engineers and business teams to deliver high-impact, data-driven features.

**Software Engineer**, Bornbalanced+, Ghana January 2025 – Oct 2025

- Designed and implemented a scalable backend using Django, PostgreSQL, and GCP-based infrastructure.
- Improved onboarding flow by 2.5× through optimisation and clean API architecture.
- Built data pipelines for user analytics and behaviour tracking.

**Software Engineer Intern**, theSOFTtribe, Ghana September 2022 – Jan 2023

- Contributed to system requirement design, backend workflows, and software implementation for the AgriConnect platform.
- Built geolocation and tracking software for Nsoroma GPS fleet system.
- Delivered Beta payroll system (Akatua DB) with 80% satisfaction.

## Education

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**University College London**, MS in Systems Engineering for the Internet of Things Sept 2025 – Sept 2026

- GPA: 1 (Expected)
- **Coursework:** Sensor Systems, Real-world Multi-agent Systems, ML for Robotics, Embedded Systems

**University of Oxford - LMH Summer Programme**, Advanced AI/ML - NLP Aug 2025

- Grade: 73/A
- **Coursework:** Text Classification with Neural Networks, Transformers scratch for Text Summarization, BART fine-tuning for Text Summarization, Asthma Detection with Wavenet, RAG System Implementation Baseline

**Kwame Nkrumah University of Science and Technology**, BS in Computer Science Jan 2021 – Nov 2024

- GPA: 2:1
- **Coursework:** Data Structures & Algorithms, Computer Architecture, Networks, Software Engineering.

## Professional Associations and Community Service

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<b>Deeper Life Campus Fellowship</b> , Data Science Tutor	Jul 2025
• Teaching ML fundamentals, Python programming, and data analysis to students, fostering next generation of AI/ML practitioners.	
<b>TechDrive Africa</b> , Deputy Director	Jan 2025 - Present
<b>Orphan Art (fka. Hues and Stencils)</b> , Ambassador	Jul 2025 - Present

## Projects

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<b>Maizester</b>	<a href="https://github.com/paulntitemi/Maizester">github.com/paulntitemi/M</a>
• Developed CNN-based computer vision model for real-time maize disease detection using image classification	
• Built cross-platform mobile application with Flutter frontend and ML model integration for field deployment	
<b>PulseBreak+</b>	<a href="https://github.com/paulntitemi/pb">github.com/paulntitemi/pb</a>
• Developed health tracking application with ML-powered mood analysis and personalized AI chatbot for wellness recommendations.	
• Implemented intelligent notification system using behavioral pattern recognition and predictive analytics.	

## Skills

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**Programming Languages:** Python, C++ , C, Java, SQL, JavaScript

**AI/ML:** TensorFlow, PyTorch, JAX, Transformers (BART, GPT), CNNs, Computer Vision (YOLOv8, OpenCV, ArUco markers), Neural Network training & evaluation

**Robotics:** ROS 2 Humble, ROS Noetic, Path Planning (A\*, Dijkstra), Multi-robot coordination (CBS), SLAM, Sensor Fusion, LIDAR processing, Odometry

**Simulation/Testing:** PyBullet, Gazebo, TurtleBot3 simulation, Real-world robot deployment

**Cloud & DevOps:** GCP, AWS, Docker, Git/GitHub, CI/CD (Jenkins), Linux

**Dev Tools:** Django, Flask, Flutter, Jira, Agile methodologies

**Soft:** Analytical thinking, Clear communication, Team collaboration, Problem-solving, Fast learner