

JOEL OSEI-ASAMOAH

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EDUCATION

Ashesi University
BSc. Computer Engineering
Cumulative GPA: 3.72 /4.00 (Magna Cum Laude)

Berekuso, Eastern Region
Date of Graduation: Aug 2024

ACHIEVEMENTS/AWARDS

Dean's List, Ashesi University **2021 - 2024**
Ashesi Health Initiative Participant, Africa Higher Education Health Collaborative **2024 - 2025**

WORK EXPERIENCE

Department of Computer Science and Information Systems – Ashesi University, Berekuso **Sept 2025 – present**
Research Assistant

- Migrated fleet of Limo Cobot robots from ROS2 Foxy to ROS2 Humble by resolving package dependencies and API breaking changes, providing students access to industry-standard LTS distributions.
- Designed and built an indoor drone positioning system integrating motion capture and control for *Introduction to AI & Robotics (CS353)* lab exercise, enabling hands-on student experience with aerial robotics.

Department of Engineering – Ashesi University, Berekuso **Sept 2024 – present**
Teaching Assistant

- Held one-on-one tutoring sessions that increased struggling students' academic by 10% and saw an improvement in their understanding.
- Prepared and graded coursework, to assess students' performances, identify common difficulties and adapting teaching strategies accordingly.

Ashesi Innovation Experience (AIX) – Ashesi University, Berekuso **June 2025 – Aug 2025**
Program Assistant (Robotics)

- Trained Robotics coaches on the VEX V5 kit through one-on-one sessions and lectures, enhancing their technical expertise.
- Designed and implemented the Escape Room Challenge, creating the mat layout and programming communication between robots, a central VEX brain and a custom website.
- Assisted faculty lead in teaching robotics by preparing learning materials, answering student questions, and guiding participants through hands-on activities.

PROJECTS AND RESEARCH

Ashesi Robot Assistant Platform **Sept 2025 – present**
Software Team - Co-Lead

- Designed a high-fidelity Gazebo simulation world that accurately replicates Ashesi University's forecourt, enabling comprehensive testing and validation before physical deployment
- Created an autonomous navigation system using ROS2 Nav2 stack, implementing SLAM for real-time mapping, AMCL for localization, and DWB planner for dynamic obstacle avoidance and path planning.
- Developed perception pipeline integrating LiDAR and camera fusion with custom ROS2 nodes for object recognition.

Recognition of Walking Terrain Using Embedded ML **Jan 2024 – Aug 2025**
Developer

- Built a machine learning model to classify walking terrain, which can improve the accuracy of calorie burn estimation, providing users with more reliable fitness data.
- Deployed the ML model on an Arduino Nano 33 BLE to reduce communication latency, delivering quicker and more responsive fitness data to users.
- Prototyped a low-fidelity fitness band housing the ML model, enabling user testing and feedback on functionality and usability.

PUBLICATIONS AND PRESENTATIONS

J. Osei-Asamoah and **N. Amanquah**, "Recognition of Walking Terrain Using Machine Learning," *2024 IEEE 9th International Conference on Adaptive Science and Technology (ICAST)*, Accra, Ghana, 2024, pp. 1-6, doi: 10.1109/ICAST61769.2024.10856487.

CO-CURRICULAR ACTIVITIES

Ashesi University, Automations, Control and Robotics Lab **Jan 2023 – May 2025**
Member

- Contributed to the perception and controls sub-teams for the F1Tenth Autonomous Racing Competition; the team placed 3rd in qualifying and 7th overall.

Content Creator

- Designed practical learning activities for high school students based on the Liberia and Ghana curricula, to enhance their understanding of key concepts.

SKILLS

- **Programming Languages:** Python, C/C++, Java
- **Operating Systems & Tools:** Ubuntu, Git, Docker
- **Robotics & Simulations:** ROS 2 (Nav2, MoveIt2, SLAM Toolbox), Gazebo, RViz
- **Hardware Platforms:** Arduino, Raspberry Pi, ESP32
- **Design & Modelling:** CAD, MATLAB