

# NAYA, JAMES MBABILA

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Biomedical Engineering || Ghana || [nayajames2002@gmail.com](mailto:nayajames2002@gmail.com) || +233594434741 || <https://nayajames.site>

## EDUCATION

### University of Ghana

Legon, Ghana

Bachelor of Science, Biomedical Engineering. **CGPA [3.80 / 4.00]**

*Completion: Sep, 2025*

Capstone Project: Design of Novel Aspirator Connector for Fluid Evacuation during Cesarean Sections

Relevant Coursework: *Bioinstrumentation, Biophotonics, Biomaterials, Biophysics, Biomechanics, Biomedical Engineering Systems, Medical Physics, Nanotechnology, Bioinformatics, Medical Imaging, Calculus I & II, Mechanics I & II, Anatomy & Physiology, Thermodynamics, Bioinformatics, Programming, Fluid Mechanics, Law for Engineers*

Highlights: President, GSBE-UG; OBED Fellow; Speaker, ESUG; Dean's Honor List

### Nandom Senior High School

UWR, Ghana

General Science Program | WASSCE Aggregate: 9

2018 - 2021

Highlights: School Principal Contestant, National Science & Maths Quiz (NSMQ 2021); Contestant, Senior High School Renewable Energy Challenge (SHSREC 2021).

## EXPERIENCE

### Echo Change

Kuala Lumpur, Malaysia

Fully-Funded Global Delegate, Future Action Summit Malaysia 2025 | (Forthcoming) Nov 27, 2025

- Selected as one of the top ten fully-funded participants from a global pool of thousands of applicants.
- Will engage in high-level discussions on Sustainable Development Goals (SDGs) with international change-makers and leaders.

### OBED Fellowship

Korle Bu Teaching Hospital, Accra

**2024 Fellow**, Global Health Design Initiative, University of Michigan & University of Ghana Aug 2024 – Sep 2024

- Conducted a comprehensive needs assessment within the Obstetrics and Gynecology Department through ethnographic observation of surgeries and clinician ward rounds, complemented by interviews and stakeholder engagements to identify medical and engineering challenges.
- Assessed 60 unique problems, developed design specifications, and selected one for a capstone project.
- Supervised by Ing. Prof. Elsie Effah Kaufmann, Dr. Claude Fiifi Hayford, Dr. Dhanalakshmi Thiagarajan (University of Michigan), Prof. Julia Kramer (University of Michigan)

### Komfo Anokye Teaching Hospital

Kumasi, Ghana

#### Biomedical Engineering Intern

May 2023 - Aug 2023 & Feb 2024 – Apr 2024

- Participated in calibrating, troubleshooting, servicing, repairing, and maintaining medical equipment including X-ray, MRI, ventilators, dialysis and anesthesia machines.
- Programmed and deployed a medical equipment inventory software (EquiBase) for the Biomedical Engineering Department to assist in device inventory management.

### Powerhouse Hospital

Kumasi, Ghana

#### Medical Laboratory Intern

Oct 2022 – Dec 2022

- Performed laboratory analyses on biological samples (hematology, clinical chemistry, microbiology, serology) and conducted procedures such as blood cross-matching and microscopic examinations using diagnostic equipment to support patient diagnoses.

**Lumba Vehicle Spraying Shop**  
**Paint Technician Apprentice**

Suame Magazine, Kumasi, Ghana  
2013 - 2021

- Progressed from preparation tasks to independently executing vehicle painting projects and customer engagement.

### **RESEARCH**

- Computer Vision-Based Health Status Assessment and Transmission of Ocular Images: The Na- $\beta$  iPlatform (Course Project, BMEN 416, Telemetry and Telemedicine, *Jun 2025 – Oct, 2025*)
- Design of Novel Aspirator Connector for Fluid Evacuation during Cesarean Sections (Course Project, BMEN 400, Capstone Design, *Nov 2024 – Aug 2025*)
- Using Generative AI to Study the Molecular Structure of Plant Metabolites Present in Locally Produced Herbal Medicines used for treating malaria (Mini-Ph.D. Program, ReachSci, USA, *Nov 2023 – Jul 2024*)
- Evaluating Antimicrobial and Pharmacokinetic Effect of Using Cyanogenic Glycosides from Cassava for Potential Applications in Human-Machine Interface (HMI) Infections (Course Project, BMEN 315, Research Methods, *Oct 2022 - Dec 2023*)
- Design of a Biosand Filter for Water Purification and Sustainability (Course Project, BMEN 306, Design and Selection of Biomaterials, *May 2024 - Aug 2024*)
- Design of an Elbow Splint for Patients with Cerebral Palsy (Course Project, BMEN 306, Design of Mechanical Systems, *May 2024 - Aug 2024*)
- Design of an Echolocation Glasses for the Blind (Course Project, BMEN 202, Introduction to Biomedical Engineering, *March 2023 - Jun 2023*)

### **CONFERENCES & PRESENTATIONS**

- **ICAST 2025 – 20th International Conference on Advanced Science and Technology | Online Oral Presentation** (Forthcoming, Accepted) | Dec 11, 2025  
*"Design of Novel Medical Aspirator Connector for Cesarean Sections."*
- **Medical Innovation Expo 2025** | Academic City University, Accra, Ghana  
**Poster Presentation** | Oct 2025  
*"Computer Vision-Based Health Status Assessment and Transmission of Ocular Images: The Na- $\beta$  iPlatform."*
- **Advancing Computational Neuroscience Through Collaborative Learning** | Global Webinar Series  
**Moderator** | Apr 2025
  - Moderated Days 4 & 5 of a 5-day international webinar series featuring speakers from University College London, University of Ghana, and Yale School of Medicine.
  - Supported by Allen Institute, Ghana Society of Biomedical Engineers, Ghana Neuroscience Society, and University of Amsterdam.
- **4th National Ghana Society of Biomedical Engineers Conference** | Accra, Ghana  
**Poster Presentation** | Oct 2024  
*"Design of an Echolocation Glasses for the Blind." | Awarded Best Project Presentation.*

## LEADERSHIP & ACTIVITIES

### Engineering Students Association of University of Ghana (ESUG)

Legon, Accra

#### • Speaker of Parliament

Nov 2024 – Sep 2025

- Presided over parliamentary sessions for the 19th ESUG Administration during General Assemblies to facilitate productive legislative discourse and adherence to constitutional procedures.
- Facilitated policy approvals and resolutions for 1,000+ engineering students.

#### • Electoral Commission Chair

Sep 2023 – Aug 2024

- Successfully conducted free, fair, and incident-free elections to select new executive members to replace the 18<sup>th</sup> ESUG Administration

#### • 2<sup>nd</sup> Deputy Electoral Commissioner

Jun 2023 – Aug 2023

- Assisted in conducting free and fair elections to select new executive members to replace the 17<sup>th</sup> ESUG Administration

### Street Fund Global Foundation

Ghana

#### Head, Project Department

Jan 2025 – Present

- Lead strategic planning, implementation, and oversight of community-focused social impact initiatives.

### Ghana Society of Biomedical Engineers – University of Ghana

Legon, Accra

#### President, GSBE- UG

Aug 2023 – Aug 2024

- Spearheaded the Ghana Society of Biomedical Engineers – University of Ghana (GSBE-UG) as its 2nd President and enhanced member engagement and organizational reach over a 1-year tenure.
- Designed and implemented diverse programs, including a peer mentorship initiative, Learning Space, 3 industrial field trips, multiple professional development seminars and pioneered the maiden Nationwide BME Webinar through a remarkable collaboration across 7 universities.

### Science and Maths Club, Nandom Senior High School

Nandom, UWR, Ghana

#### Overseer

2020 – 2021

- Coordinated activities of the club including preparation for competitions and organizing internal competitions.

### Nandom Senior High School

Nandom, UWR, Ghana

#### Health Prefect

Mar 2020 – March 2021

- Led health policies and coordinated student welfare initiatives.

### Nandom Senior High School

Nandom, UWR, Ghana

#### Multicultural Group Roles

2019 – 2021

- Vice President of the Southern Students Union
- Financial Secretary of the Upper East Students Union

## AWARDS, FELLOWSHIPS & RECOGNITIONS

- Head of Department Recognition Award for Distinguished Leadership (July, 2025)
- Best Project Presentation Award, 4th National GSBE Conference (Oct, 2024) | Topic: "*Design of Echolocation Glasses for Visually Impaired Individuals*"
- Dean's Honor List (2023/2024 Academic Year) | CGPA: 3.80/4.00, School of Engineering Sciences

- Educational Pathways International Scholarship (Jan 2022, Jan 2023, Oct 2023, Oct 2024) | approximately GH₵ 40,000.00 (\$3,600.00 equivalent)
- Overall Best Student, Nandom Senior High School (2018/19 and 2019/20 Academic Years)

## **SKILLS, CERTIFICATES & INTERESTS**

### **Technical:**

Engineering: CAD (SolidWorks, Autodesk Fusion), Medical Equipment Maintenance, Engineering Design, Research, Laboratory Equipment Operation,

Technology: Python (Django, Scikit-learn, OpenCV, Data Science), MATLAB, Arduino, Proteus Design Suite, Machine Learning, SIEM, Cyber Security

### **Certificates:**

- Google Advanced Data Analytics Certificate Badge (Coursera & Google, 2025)
- Google Project Management Professional Certificate Badge (Coursera & Google, 2024)
- Hospital Planning & Design and Equipment Management (Hospital Engineering Academy, November 2024)
- Particle Physics: An Introduction (Coursera & Université de Genève, Nov 2023)
- Quantum Computing (Qubit by Qubit, The Coding School & IBM, Oct 2022 - Apr 2023)
- Virtual Immersion in Biomedical Engineering (Worcester Polytechnic Institute, Summer Program 2022)

### **Membership in Professional Associations**

- Ghana Institution of Engineering | Student Member (2024-Present)
- The Field Engineer | Student Member (2023-Present)
- Elsie Effah Kaufmann Foundation | Volunteer (2023-Present)
- Vispad Institute of Technology, Ghana | Member and Teaching Assistant, (2022-Present)

**Interests:** STEM documentaries, Leadership, History, Poetry, Reading

**Language:** English (Official Language), Local Languages: Nabdam (fluent), Twi (fluent)