

# 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. **Final CGPA [3.82 / 4.00]**

*Completed: 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 | Nov 27 – 30, 2025

- Selected as one of the top ten fully-funded participants from a global pool of thousands of applicants.
- Led working group on Medical Technology and Policy, contributing to the development of the Post-2030 Youth Charter for Global Development.
- Engaged in discussions on Sustainable Development Goals (SDGs) with international changemakers and leaders.
- Participated in workshops, simulations, and cultural exchanges to advance youth-driven solutions for sustainability.

### 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 Thiyagarajan (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** Suame Magazine, Kumasi, Ghana  
**Paint Technician Apprentice** 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), 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)

### **Featured in Media Outlets**

- NSMQ Superstar Spotlight by Prof. Elsie Effah Kaufmann for excellence. → [LinkedIn Post](#)
- Life Studying Biomedical Engineering in Africa → [The Field Engineer Article](#)
- GSBE-UG Healthcare Revolution → [Elevate HTM Post](#)
- Hybrid Power Plant Presentation at the SHS Renewable Energy Challenge → [Home Radio Post](#)
- Quantum Computing Capstone Project Showcase → [YouTube Video](#)

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

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