

NAYA, JAMES MBABILA

Biomedical Engineering || Ghana || 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-β 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-β 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

Nov 2024 – Sep 2025

- **Speaker of Parliament**

- 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.

Sep 2023 – Aug 2024

- **Electoral Commission Chair**

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

Jun 2023 – Aug 2023

- **2nd Deputy Electoral Commissioner**

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

Street Fund Global Foundation

Ghana

Jan 2025 – Present

Head, Project Department

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

Ghana Society of Biomedical Engineers – University of Ghana

Legon, Accra

Aug 2023 – Aug 2024

President, GSBE- UG

- 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 GHC 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)