

NAYA, JAMES MBABILA

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CAREER HIGHLIGHTS

Biomedical Engineering graduate (First Class Honours, CGPA 3.8/4.0) from University of Ghana. Founder of INNOGEN, former President of Ghana Society of Biomedical Engineers-UG, current Teaching Assistant for Biophysics, Medical Physics, and Bioelectronics, and Editorial Board Member for School of Engineering Sciences. 2024 OBED Fellow and fully-funded delegate at Future Action Summit 2025 in Malaysia. Presented at ICAST 2025 and Medical Innovation Expo 2025. Proficient in engineering design, CAD, Python, MATLAB, medical equipment maintenance. I leverage STEM and leadership to transform the African Medical Technology landscape. Kindly find further details below.

EDUCATION

University of Ghana

Legon, Ghana

Bachelor of Science, Biomedical Engineering | First Class Honours (Completed Sep 2025; Congregation Feb 2026)

Final GPA [3.8 / 4.0]

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

Relevant Coursework: Medical Imaging, Medical Signal & Image Processing, Biophotonics, Bioinstrumentation, Biomedical Engineering Systems, Telemetry and Telemedicine, Medical Physics, Bioinformatics, Tissue Engineering

Honors & Leadership: Dean's Honor List; OBED Fellow; President, GSBE-UG; Speaker of Parliament; Electoral Commission Chair, ESUG

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); Health Prefect (2020/2021)

EXPERIENCE

Institute for Innovation and Next-Generation Engineering (INNOGEN)

Accra, Ghana

Founder & Operations Manager

Oct 2025 – Present

- Co-founded INNOGEN to deliver technical training, research opportunities, and innovation initiatives in biomedical engineering and accessible healthcare technology across Africa.
- Spearheaded the inaugural multi-day virtual workshop "Building Low-Cost X-Ray Machines" (Dec 2025), guiding participants through medical imaging physics, component design, open-source modeling, and local fabrication strategies to reduce costs and enable Ghana's entry into the medical device value chain.

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 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

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-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 Student Conference on Advanced Science and Technology Satellite**
(Satellite/Online Session) / Co-organized by Kumamoto University (Japan) and National Chiayi University (Taiwan)
Oral Presentation | Dec 11, 2025 | *"Design of Novel Medical Aspirator Connector for Cesarean Sections: Enhancing Efficiencies and Reducing Surgical Risks"* | **Awarded Certificate of Presentation**
- **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"* | **Awarded Certificate of Presentation**
- **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." | **Best Project Presentation.**

ACADEMIC & EDITORIAL ROLES

University of Ghana

Legon, Accra

Editorial Board Member – School of Engineering Sciences

Nov 2025 – Present

- Contribute to school-wide communications, newsletters, and promotional content to enhance visibility of engineering initiatives.
- Support planning, organization, and promotion of school conferences, seminars, and student engagement activities.

Teaching Assistant – Department of Biomedical Engineering

Jan 2026 – Present

- Deliver tutorials, conduct laboratory sessions, and demonstrate practical experiments for **Medical Physics**, **Bioelectronics**, and **Biophysics** courses.
- Assist lecturers with material preparation, student mentoring, grading, and feedback to improve learning outcomes.

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 18th ESUG Administration

- **2nd Deputy Electoral Commissioner** *Jun 2023 – Aug 2023*
 - Assisted in conducting free and fair elections to select new executive members to replace the 17th 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 GHC 40,000.00 (\$3,600.00 equivalent)
- Overall Best Student, Nandom Senior High School (2018/19 and 2019/20 Academic Years)

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)

Additional certifications (39 total) available upon request or via LinkedIn/portfolio.

SKILLS, CERTIFICATES & INTERESTS

Technical

- Engineering & Design
- CAD (SolidWorks, Autodesk Fusion)
- Medical Equipment Maintenance & Calibration
- Engineering Design & Research
- Laboratory Equipment Operation

Programming & Technology

- Python (Web Development, Computer Vision, Data Science & Machine Learning)
- MATLAB
- Arduino & Proteus Design Suite
- Web & Application Development
- SIEM & Cybersecurity Fundamentals

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 | Fellow and Teaching Assistant, (2022-Present)

MEDIA APPEARANCES & FEATURES

- 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, Mentorship

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