**CURRICULUM VITAE**

# WAKWANYEMBO ELOGE LWAMBA

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## EDUCATION:

- Auburn University (AU, Auburn, USA) 2022-Present

PhD Chemistry and Biochemistry (in progress), Auburn University (USA

- Cape Peninsula University of Technology (CPUT), Cape Town, South Africa). 2017-2022

Master of Science (Chemistry), Cape Peninsula University of Technology (RSA)

- Cape Peninsula University of Technology, Cape Town, South Africa 2016-2016

Bachelor of Technology, Cape Peninsula University of Technology (RSA)

- Cape Peninsula University of Technology, Cape Town, South Africa 2013-2015
- University of Lubumbashi, Lubumbashi, Democratic Republic of Congo (DRC) 2009-2011
- College du Sacre Coeur: Nursery, Primary School and High School, Likasi, (DRC 2008-1995

## AWARDS

- First position for best poster presentation at the American Chemical Society (ACS) Local Section conference in Columbus, Georgia**.** ACS Regional conference (Spring 2024).
- Leadership Development Program Scholarship, General Board of Global Ministries (**2014-2019**)
- Dean Merit Award Certificate, CPUT, **2015** (ID APPDML 000825) Leadership development scholarship 2014 – 2022

## PERSONAL STATEMENT:

My current Ph.D. research work at Auburn University involves developing a novel biosensor for continuous monitoring of biological molecules. My interest in health science is central to my values, as it reflects my commitment to well-being for all. In the future, I envision joining a research institute focused on developing new biosensors to improve lives and volunteering some of my time to educating young scientists. I believe knowledge should be gathered and shared to ensure the long-term survival of civilization. I see this as a moral obligation for everyone.

## DUTIES AND RESPONSIBILITIES:

### Auburn University (2022–Present)

- Research Assistant (Fall 2026 to Spring 2027)
- Laboratory Technician: Assisting the department pending the Laboratory Technician position filling. Training of incoming teaching assistant (Auburn University, Summer 2025).
- Teaching Assistant: Teaching Advanced Analytical Chemistry class and laboratory solution preparation (2024–2025),
- Researching under Professor Easley (2022 – Present)
- Analytical Chemistry seminar (Spring 2025): "*Active-reset protein sensors enable continuous in vivo monitoring of inflammation*," A paper by Dr Shanah Kelley,
- Analytical Chemistry seminar (Fall 2024): "*Beyond the Gold-Thiol Paradigm: Exploring Alternative Interfaces for Electrochemical Nucleic Acid-Based Sensing*," A paper by Dr Arroyo-Currás,
- Graduate courses (Advanced Biochemistry, Physical Organic Chemistry, Advanced Analytical
- Chemistry, Synthetic Organic Chemistry, Molecular Spectroscopy, Chemical Kinetics, Photo- and-Electrochemistry) (Fall 2022– Fall 2023)

- Poster presentation at the ACS local section research symposium at Auburn University. Auburn. Alabama: "Advances in method development to achieve reusability of a DNA-based electrochemical bowtie sensor integrating physical and chemical means". March 21st, 2026
- Poster presentation at the American chemical society, SERMACS/SWRM 2025 in Orlando, Florida
- Poster presentation at the American Chemical Society, local section conference in Columbus, Georgia, 2025. First position for best poster presentation (Spring 2024): "*Toward reversible antibody binding: An approach to continuous analyte monitoring with an electrochemical DNA-based biosensor*."
- Poster presentation at the American Chemical Society, local section conference at Troy University, Georgia, 2024 (Fall 2024)

**Cape Peninsula University of Technology, CPUT (2017–2022)**

- Research fellow, Natural Product and Nanotechnology Research Group (2017-2021)
  Perform research under a research supervisor, write a thesis, and publish articles. Support and mentor new colleagues.
- Retention Officer (RO), CPUT, Cape Town (2018-2021)
  Identify 'at-risk students' and implement an early alert system to provide meaningful intervention. Provide timely feedback to students about their academic progress and support students who show signs of disengagement with mentors, tutors, and counseling.
- Teaching Assistant (TA), CPUT, Cape Town (2017-2018)
  Teaching analytical chemistry classes during winter school, supporting students with knowledge gaps under a lecturer's supervision (2017).
- Work Integrated Learning or Internship, Chemistry lab, CPUT, Cape Town (2015)
  Wet chemistry, instrumentation (spectroscopy and other analytical techniques), and weekly calibration of instruments (balances, pH meters, conductometers), and polarimeter experiments.
- Process Analyst, Edelweiss Pharmaceutical, Cape Town (2015-2016)
- **FT-IR ATR,** development of a validation method for analyzing lab consumables on delivery and production.
  Tutor (Science Subjects),
- Part-Time (Self-Employed Mathematics Tutor), CPUT, 2015-2018
- Financial data processor, Masangu Shabangi Transport, Likasi (2008-2012)
  Monitor and record business transactions for monthly reporting (return on investment, savings, planning of new fleet purchases, and stock-taking).
- Student at the University of Lubumbashi, Polytechnique (2009-2011)
  (Industrial engineering, understanding of mineral processing in mining companies, visits)

**THESIS**

- Bioengineering of gold nanoparticles using selected South African plants' extracts. A dissertation submitted to the Department of Chemistry in fulfilment of the award Master of Science in Chemistry (2021, CPUT, master's thesis).
- Toward the synthesis of ursolic acid morpholide. A dissertation submitted to the Chemistry
- Department in fulfillment of the Award Bachelor of Technology in Chemistry (2016, CPUT, Undergraduate thesis)
- Exploration of Bioactive Pentacyclic Triterpenes from *Melaleuca Salicina* and *Lavender Augustifolia*. A dissertation submitted to the Department in fulfilment of the award National Diploma in Analytical Chemistry (2015, CPUT, undergraduate thesis).

## CERTIFICATE AND TRAINING

- Biosafety, Auburn University
- Bloodborne pathogens, Auburn University
- Bloodborne pathogen training certificate, Auburn University
- Laser-cutter safety training certificate, Auburn University
- Managing Regulated Waste Certificate, Auburn University
- NIH Recombinant DNA training certificate, Auburn University
- Safe handling of cryogenic liquids certificate, Auburn University
- Waste management training certificate, Auburn University
- Certificate of Competence in Laboratory Quality Management System, ISO17025: 2017 IEC. (SIKHULA KUNYE PROJECTS, MiChem Dynamics (PTY), 2021),
- Teaching Assistant Certificate (CPUT, 2016),
- Retention Officer and mentor's certificate (CPUT, 2018),
- YALI Certificate: Fundamentals of starting a business, Fundamentals of business extension, Focus on understanding climate change (US Department of State: Bureau of International Programs, 2016),
- Earth Keepers Course: Community development, Climate Change: General Board of Global Ministries (GBGM), Atlanta, USA 2016),
- SLU Annual Teaching & Learning symposium (CPUT, 2018),
- South African Chemical Institute (SACI) member (11410),

## CONFERENCE PRESENTATIONS

- Analytical seminar oral presentation, *Active-reset protein sensors enable continuous in vivo monitoring of inflammation*, Shanah Kelley
- Paper presentation in Advanced Bioanalytical Chemistry and Advanced Analytical Chemistry, 2025 & 2023,
- Poster presentation, ACS, South-east Georgia conference: "*Toward reversible antibody binding: An approach to continuous analyte monitoring with an electrochemical DNA-based biosensor". March 1st, 2025*
- Poster Presentation at Pittcon conference, San Diego, Miami, February 24 – 28th, 2024, titled: "*Development of an efficient cleaning procedure for reuse of gold-on-glass electrodes embedded within polydimethylsiloxane chambers and validation by electrochemical biosensing of labelled DNA*"**.**
- Poster presenter at the NH Cape Town, The Lord Charles Hotels, 19-23 Nov 2018 (Nanosmat-Africa, "International Conference on Surfaces, Coatings and Nanostructured Materials"); "*Bioengineering of gold nanoparticles using selected South African plant extracts".*
- Oral presentation at UCT, Young Chemist Symposium conference (SACI) on 6 April 2018, CPUT departmental presentation, *Bioengineering of gold nanoparticles using selected South African plant extracts".*
- Poster presentation at SEMACS, Orlando, Florida. Oct 26 – 29th. Towards enhancement of reusability and real-time sensing with the electrochemical bowtie sensor Eloge W. Lwamba, Mainul Islam Mazumder, and Christopher J. Easley* (SEMACS)

## SKILLS

- **Analytical chemistry instrument data processing** (UV, XRD, Chromatography).
  **Electrochemistry software skills**: Garmy 600 series software: Data acquisition, instrument handling, and maintenance
- Inductively Coupled Plasma and Atomic absorption spectroscopy for metal (sample preparation, software, and data handling)
- Photolithography: Gold electrode treatment for electrode fabrication, Polydimethyl siloxane fabrication, and curing into molded electrochemical cells
- High Pressure Liquid Chromatography preparatory mode for compound isolation, and troubleshooting, good understanding of chromatographic columns and solvent ratio for separation.
- Nanodrops (concentration measurement of proteins)
- ZETA Sizer for metal gold nanoparticle size measurement

- Ion Chromatography (IC) analysis.
- Gold nanoparticle synthesis and compound purification from plant extracts.
- Teaching skills
- Analytical chemistry Course (CPUT, Cape Town), Analytical Chemistry Laboratory (Senior student, Auburn University).
- Entrepreneurial skills (startup), presentation skills, care and customer management (French and English), and scientific presentation.
- Cosam Inventor group
- Good understanding of the Bible: teaching and elucidating scripture (bible study orator)
- Leadership skills (Verma Leadership Workshop 2026).

**SOFTWARES**

- MATLAB for data analysis (faradaic current extraction, data analysis), etc.
- Nuclear Magnetic Resonance processing software (Topspin software for data handling),
- Origin data processing, ImageJ
- Infrared (solid and liquid sample analysis
- Gamry 600 Software (Square wave voltammetry, Cyclic voltammetry)

**MEMBERSHIP**

American Chemical Society member ACS
Nobbche (Since Jan 2025)
YCC (Since Jan 2024)
SCLA (Society of Collegiate Leadership and Achievement)
Society of Electroanalytical Chemistry (SEAC), USA, 2026

**LEADERSHIP ROLES**

- **Policy council member/Board Member at the ACHR** (Alabama Council on Human Relations): Policy adjudication and vote. Program performance assessment in meetings, and implementation 2024 – 2025
- **Board member at Multiply, adjudicate** the missionaries' needs and budget. Provide biblical and bible-based wisdom in the running of Multiply (NGO) as it oversees the care of underprivileged children in Uganda
- **Mentor** to junior PhD student in mathematics department Karine (Auburn University, 2025)
- **Retention officer:** Heading the mentoring and tutoring program under Dr Le Roux supervision, Cape Peninsula University of Technology
- Verma Leadership training
- (Kai score : https://kai.foundation/kaionline/KAIfeedback.php?CODE=VkVSTUE0NTUwODQ0)

**REFERENCES**

Christopher J. Easley, PhD, C. Dent Williams Professor, Department of Chemistry and Biochemistry, Auburn University; Cell: +1 615-498-0798; chris.easley@auburn.edu

Dr Hills, Lecturer, Chemistry Department, Auburn University/Cell: 334-844-5575; eah113@ayuburn.edu