



NWAEZE Cosmas Kelechi

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ABOUT ME

I am a Biomedical and Bioinformatics Engineer with experience and expertise in Tissue and Protein (enzyme) Engineering. I have practical skills in Medical Multi-omics, Genomics and Transcriptomics. I am interested in applying computational and biomedical approaches in the future of healthcare advancement through AI and ML in Health Innovation to solve biomedical related problems.

WORK EXPERIENCE

BIOINFORMATICS ENGINEER (R&D INTERNSHIP) – FEMTO-ST INSTITUTE, UNIVERSITY OF FRANCHE-COMTÉ –

10/12/2025 – Current – BESANCON, FRANCE

- Conducting bioinformatics analysis of gene-gut microbiota interactions in Parkinson's disease
- Performed dataset preprocessing, cleaning, and normalization across heterogeneous transcriptomic datasets
- Applied statistical modeling and descriptive statistical analysis on high-dimensional data (PCA, dimensionality reduction)
- Utilizing machine learning approaches for pattern identification and exploratory data analysis

DATA SCIENTIST – ZEFRA GLOBAL LTD – 09/2024 – Current – OWERRI, NIGERIA

- Engineered data pipelines to clean, preprocess, and transform structured and unstructured datasets using pandas, NumPy, and SQL.
- Implemented feature engineering techniques (mutual information, PCA, target encoding) to optimize model performance.
- Conducted exploratory data analysis (EDA) with Matplotlib and Seaborn, generating insights for stakeholders
- Built and fine-tuned supervised and unsupervised learning models (logistic regression, decision trees, XGBoost, K-means) using scikit-learn.
- Applied cross-validation and hyperparameter tuning to enhance model generalization and prevent overfitting.

E-HEALTH COORDINATOR AND DATA ANALYST – ZEFRA GLOBAL LTD – 02/2021 – 07/2024 – IMO STATE, NIGERIA

- As Telehealth project coordinator, I coordinated healthcare data management, ensuring data quality and integrity, and developed interactive data visualization dashboards for performance tracking.
- Analyzed healthcare datasets to identify community health indicators and chronic disease trends.
- Built data dashboards and visual reports used by healthcare stakeholders to guide community health decisions.
- Cleaned and analyzed 5,000+ healthcare records using Python (Pandas, NumPy) and developed visual insights using Matplotlib and Seaborn for stakeholder reporting.
- Conducted exploratory data analysis to identify chronic disease patterns in community health datasets, optimized analytics workflows, improving client satisfaction by 15%.

GRADUATE AND LABORATORY ASSISTANT – DEPARTMENT OF BIOCHEMISTRY CHUKWUEMEKA ODUMEGWU OJUKWU UNIVERSITY – 03/2018 – 04/2020 – ULI, NIGERIA

- Instructed and tutored biochemistry undergraduates, through the role of a graduate assistant to departmental professors, supervisors, and senior lecturers. Assigned laboratory technician role at the departmental Laboratories for practical research assistantship to undergraduate research supervisors.
- Worked as volunteer research assistant in the biochemical laboratory on various descriptions, assisted the head of department of biochemistry in office duties and assigned assessment grading, scoring and computing of results for over 200 undergraduates biochemistry student.

- Supported departmental research teams in data collection, cleaning, and statistical analysis using SPSS and conducted hypothesis testing, regression analysis, and data validation techniques to support academic research.
- Coordinated students' academic data, managing over 300 GPA complete academic records using advanced Excel techniques.

EDUCATION AND TRAINING

31/07/2026 – CURRENT Dijon, France

MASTERS OF SCIENCE DEGREE IN DRUG INNOVATION AND RADIOPHARMCEUTICALS (M2) Universite Bourgogne Franche-Comte

08/2025 – 28/06/2026 Besancon, France

MASTER OF SCIENCE DEGREE IN BIOMEDICAL ENGINEERING (M1) Marie and Louis Pasteur University

09/2023 – 01/2024 New Orleans, Louisiana, United States

APPLIED DATA SCIENCE WorldQuant University

08/2017 Uli Campus, Anambra State, Nigeria

BACHELOR OF SCIENCE (B.SC.) IN BIOCHEMISTRY Chukwuemeka Odumegwu Ojukwu University

06/2013 Anambra State, Nigeria

WEST AFRICAN SENIOR SECONDARY CERTIFICATE EXAMINATION (WASSCE) City Comprehensive Secondary School

Final grade O' Level Certificate

INTERNSHIP, TEACHING AND VOLUNTEERING EXPERIENCES

Teaching Experiences

03/2018 - 02/2019 | **Graduate Assistant**

Department of Biochemistry Chukwuemeka Odumegwu Ojukwu University Uli, Nigeria.

- Instructed a class of 200 undergraduate students in BCH 201 (General Biochemistry 1), overseeing grading, score assessment, and result computation for both undergraduates and final-year biochemistry students.

09/2017 - 02/2018 | **Class Teacher and Instructor**

Nakowa Secondary School, Kagara, Niger State, Nigeria.

- Provided tutoring and instruction in Integrated Science, Chemistry, and Biology to both Junior and Senior Secondary school students.
- Conducted examinations and assessments in alignment with the prescribed school and educational syllabi, covering Junior Secondary (JSS 1, 2, and 3) as well as Senior Secondary (SS 1, 2, and 3) levels.

3/2016 - 8/2016 | **Medical Laboratory Assistant (Internship)**

Clinical Biochemistry (Chemical Pathology) Department St. Christopher's Hospital and Maternity, Orlu Nigeria.

- Worked under the supervision of the medical laboratory scientist and carried out basic laboratory procedure.
- Assisted in the pre-analytical handling of samples such as checking the details of specimens received for analysis, maintaining analysers, loading reagents, and packaging specimens.
- Conducted routine laboratory examinations, analyzed and evaluated test outcomes for various pathological assessments. Executed specialized clinical biochemical tests, ensuring adherence to stringent quality control measures.

RESEARCH INTERESTS AND EXPERIENCES

Research Interests

Bioinformatics and Genomics, Pharmaceutical Engineering, Biomedical Engineering, Medicinal Chemistry, Applied Data Science, AI & Digital Health, AI and Machine learning-Data in health.

Research Experiences

Research Assistant (Intern) (2018)

Department of Biochemistry Chukwuemeka Odumegwu Ojukwu University.

Advisor Name: Professor Colin L.

- Assisted in vitro experiment on extraction, purification and assessment of enzymes.
- Assisted in the extraction and characterization of antioxidant and antimicrobial activities of essential organisms

Biochemistry Research Thesis (Undergraduate): Evaluation of Aspartate transaminase (AST) and Alanine transaminase (ALT). (2017).

- Assessed metabolic enzyme levels (AST & ALT) in the serum of preeclampsia subjects at the Clinical Pathological Department, Delight Medical Laboratory Centre in Onitsha, Anambra State, Nigeria. Conducted evaluation and measurement of AST and ALT concentration changes in the serum of preeclampsia subjects.

Seminar Research: Report and Presentation on Enzyme Catalysis. (2017).

- Researched, reviewed journal literature and articles on catalytic process of enzymes and it's mechanisms with concise intends of enzymes biological applications in biotechnology.

● PROFESSIONAL AND TRAINING CERTIFICATIONS

Professional Certifications

Bioinformatics Beginner bootcamp(GENOMAC-2026), Level 4 in AI (National Skills Qualification-CPN 2025) AI Fundamentals (IBM & CISCO 2025), Machine Learning (Kaggle 2024), Data Literacy Certificate (2024), National Youth Service Corps (NYSC) Certificate (2018), Nigeria Society of Biochemistry Students Membership Certificate (2017)

● LANGUAGES SKILLS

English: Distinguished levels in Listening, Speaking, Reading and Writing

● ACADEMIC, PROFESSIONAL SKILLS AND HOBBIES

Skills

- **Biomedical skills:** Cell culture and cytotoxicity assays, biomaterials biocompatibility testing (antibacterial implant surfaces), Immunocytochemistry (cytoskeleton analysis), RNA extraction and quantification, RT-qPCR and electrophoresis for gene expression analysis, fundamental cell and molecular biology laboratory techniques.
- **Computational & Bioinformatics Skills:** Multi-Omics & Transcriptomic Data Analysis (Statistical and ML), Bioinformatics Pipeline Development & Genomic Workflows (NCBI, BLAST & Geneious), Computational Biology, Data-Driven Research Integration, Data Scientific and Statistical Analysis (AI & ML Predictive Modeling, feature engineering using Python, R), Basic computer proficiency (HTML, CSS, JavaScript, Python, SQL, Excel, Power BI)
- **Professional skills:** Leadership abilities, Research skills, Problem-solving and Critical thinking

Hobbies: Research, Reading and Sports

● REFERENCES AND RECOMMENDATIONS

Professional References

Professor Raluca EFTIMIE

Besançon Mathematics Laboratory (for research) & ISIFC (for teaching) Marie & Louis Pasteur University (formerly University of Franche-Comté), Besançon, 25000, France. Email: raluca.eftimie@univ-fcomte.fr

Dr. Celine ELIE-CAILLE (Associate Professor)

HDR, Head of the Nano2BIO team Institute FEMTO-ST, UMR6174-CNRS, 15B Avenue des Montboucons, 25030 BESANCON Cedex, France.

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