Nchofon Tagha Ghogomu MSc.

Research portfolio | GitHub | LinkedIn | ntaghagh@alumni.cmu.edu

Education

Carnegie Mellon University May 2026
MSc Information Technology – Concentration: Applied Machine Learning *Pittsburgh PA, USA*
Relevant Courses: Machine Learning | Deep Learning | Applied Stochastic Processes | Computational Material Science | Data Structures | Mobile Big Data Analytics & Management | ICT Business Economics and Finance

Ecole Nationale Supérieure Polytechnique de Douala July 2022
MEng Industrial Robotics – Concentration: Automation and Industrial System Control *Douala, Cameroon*

Experience

Carnegie Mellon University – Wood Neuro Research Group Jan 2026 – Present
Research Assistant *Pittsburgh PA, USA*

- Investigated the impact of sickle cell disease on cognition using neurophysiological signals and machine learning.
- Collected neurophysiological time-series (ECG, Pulse, Respiration) and fMRI data at the CMU-Pitt BRIDGE Center.
- Preprocessed neurophysiological data for analysis and machine learning pipelines.

Carnegie Mellon University – Dabo Research Group Jan 2026 – May 2026
Research Assistant *Pittsburgh PA, USA*

- Studied equivariant representations of interatomic potentials, focusing on the Allegro model, to identify optimization strategies for more robust models.
- Investigated coupling of spherical harmonic features via Clebsch-Gordan/Wigner 3-j symbols to construct higher-order equivariant tensor representations for interatomic potential modeling.

Carnegie Mellon University – AI Healthcare Research Lab Feb 2025 – Aug 2025
Research Assistant *Kigali, Rwanda*

- Developed an explainable arrhythmia classification model using gradient-based signal attribution on ECG time-series data from the MIT-BIH Dataset.
- Contributed to scoping review of machine learning-based analysis of ECG and PCG signals for rheumatic heart disease detection.

Carnegie Mellon University Aug 2025 – Dec 2025
Teaching Assistant – Research Methods for Engineers *Kigali, Rwanda*

- Led recitations and lab sessions for graduate engineering students and graded research projects. Held weekly office hours to support independent research methodology development.

Orange Cameroon – Orange Money Cameroon (OMCM) May 2023 – May 2024
Data Manager *Douala, Cameroon*

- Delivered 4 data products improving access, storage conformity, and reporting across OMCM's big data ecosystem.
- Led near-real-time data access [MOOD V2], cutting reporting latency from 24 hours to near-instant for operational decisions across OMCM's base of about 17 million Cameroonians.
- Analyzed Bank-to-Wallet and Wallet-to-Bank transactions in Python, identifying technical faults and inefficiencies across partner banks. Presented findings through weekly reports and presentations.
- Led first-phase financial reconciliation automation pipeline to improve accuracy, reduce manual transaction-tracking workload, and cut down latency from hours to minutes.

Technical Skills

Languages: Python | SQL | MATLAB | C++ | JavaScript

Developer Tools: Git | Google Cloud Platform | Jupyter Notebook | LaTeX

Technologies & Frameworks: PyTorch | TensorFlow | Keras | Scikit-learn | Pandas | NumPy | Matplotlib | Apache Spark | Snowflake | BigQuery | ETL/ELT Pipelines

Publications and Preprints

Zero-Shot Neural Priors for Generalizable Cross-Subject and Cross-Task EEG Decoding – *arXiv* June 2026
BB Jean Jacques, Brandone Fonya, ***Nchofon T Ghogomu***, Pauline Nyaboe, Kipngeno Koech

Bridging the Trust Gap: Interpretable AI for Clinical Decision Support in Arrhythmia Diagnostics – *WACV 2026 Workshop, Arizona* March 2026
Nchofon T Ghogomu, DE Olatunji, CP Mukamakuza

ML-Based Analysis of ECG and PCG Signals for Rheumatic Heart Disease Detection: A Scoping Review – *Comp. Methods and Programs in Biomedicine Update* May 2025
DE Olatunji, JD Zannu, CP Mukamakuza, GN Uiso, MMM Aman, JB Thuo, C Buol, ***Nchofon T Ghogomu***, E Umubyeyi

Projects

Crop Quality Grading for Lima-Aja | *Computer Vision, YOLOv12, RoboFlow Dataset* Fall 2025

- Collected and instance-segmented an open-source dataset of 8K+ images across 5 Rwandan staple crops.
- Trained 5 grading models (custom architectures, YOLOv12) reaching 89% average accuracy, deployed into Lima-Aja's mobile app by the engineering team.

Healthcare Facility Distribution and Disease Prevalence in Rwanda | *Python, Machine Learning, GIS* Spring 2025

- Combined 4 geospatial data sources (DHS, census, OpenStreetMap, GeoPortal) to map healthcare access across all 30 Rwandan districts.
- Built an XGBoost–Random Forest ensemble (96% accuracy) with SHAP interpretability to rank districts by healthcare resource priority.

Advancing Digital Twins for Urban Mobility in Sub-Saharan Africa: Feature-Based RoadClassification | *Deep Learning, Computer Vision* Spring 2025

- Trained a real-time road feature classification model to support a digital representation of Kigali's streets.
- Researched applications of computer vision, and evaluated deep learning as a tool for infrastructure assessment and urban development planning in resource-constrained settings.

The Health Pad – Medical Diagnostic Tablet | *Embedded Systems, IoT, Medical Sensors, Raspberry Pi* Mar – Jul 2022
Douala, Cameroon

- Grounded design in clinical needs through hands-on research across 12 hospital departments (including the OR) at the Cameroon Baptist Health Services, Nkwen Baptist Hospital.
- Engineered a tablet with 5 embedded clinical sensors for real-time patient data acquisition, storage, and consultation follow-up.
- Won the Director's Prize, 1st place at ENSPD's EPI ("Un Étudiant, Un Projet, Une Innovation").