Wisdom O. Ikezogwo

Contact Information	+(1) 206-532-9139 — wisdomik@cs.washington.edu — wisdomikezogwo.github.io
Research Interests	Multimodal Representation Learning, Computer Vision, Medical Image Analysis and .
Auxiliary interests	ML Explainability, Control theory, and Robotic systems.

Education

University of Washington, Seattle, USA   2021-Present

Ph.D. Paul G. Allen School of Computer Science and Engineering. — GPA 3.96
Advisor: Prof. Linda Shapiro

Obafemi Awolowo University, Ile-Ife, Nigeria   2013-2019

B.Sc. Electronic & Electrical Engr. — GPA 4.73/5.00 — Class rank 2/120.
- Dissertation Topic: "Development of an application for combining disparate EEG seizure datasets into a single dataset" — Supervisor: Dr. Kayode P. Ayodele

Academic Experience

University of Washington, Seattle, USA.

Research Assistant—*Graphics and Imaging Laboratory (GRAIL)*   September, 2021 - Present
- Worked on predicting the behaviour of a class of cancerous tumours called solitary fibrous tumours using multi-scale ultra-high resolution histopathology whole slide images and clinical metadata.
- Working on developing self-supervised objectives using domain histopathology knowledge on whole slide images.
- Working on curating histopathology image-text pair dataset toward multi-modal learning tasks such as image captioning and scene graph parsing for model explainability through language.

Teaching Assistant   September 2021 - Present
Introduction to computer programming. Assignments solve real data manipulation tasks from science, engineering, business, and the humanities. Python programming, control and data abstraction, file processing, and data visualization.
- CSE 160: Data Programming — Fall 2021 & Winter 2022 & Fall 2022
- CSE 473: Introduction to Artificial Intelligence — Spring 2023 & Fall 2023

Obafemi Awolowo University, Ile-Ife, Osun Nigeria.

UG. Research Asst.—*Biosignal Processing, Inst. & Control Lab*   March, 2017 - September 2021
- Worked on embedded systems for Brain-computer Interfacing (BCI) using Emotive Epoc+
- Worked on data integration process for disparate multivariate time series datasets, Characterizing spectral components of said data towards building dynamical dimensionality reduction methods.
- Working on using Artificial neural networks for classification tasks on brain EEG signals and projects promoting the robustness of clinically deployable models.

Co-Instructor   April - August, 2017
Outreach: teaching basic robotics–structure building and programming. Shared responsibility for lecture sessions and outreach proposals to high schools and colleges.

Professional Experience

Mayo Clinic, Rochester, MN, USA.
Ph.D. Quantitative Health Sciences Internship   June, 2023 - December 2023
Working on research toward developing a foundational model for histopathology. This involves millions of giga-pixel sized histology images and scaled-up computing on the Argonne National Lab computing cluster to train and clinically evaluate our models.

Okra, Inc., Lagos, Nigeria.

ML Engineer   October, 2020 - September 2021

Worked on Transformer models for named entity recognition and other natural language tasks, that feed into services as an API which includes Predicted Income, Spending pattern, and Reconciliations.

Demz Analytics Limited, Lagos, Nigeria.

Data Scientist / ML Engineer   October, 2019 - October 2020

Developed various models, and systems from data processing model to recommendation systems leveraging transformer models and epsilon-greedy bandit strategy, Deploying these into production.

CONFERENCE PAPERS	Google Scholar

W. O. Ikezogwo, Mehmet S. Seyfioglu, Fatemeh Ghezloo, Dylan Geva, Fatwir S. Mohammed, Pavan K. Anand, Ranjay Khrishna, Linda Shapiro. "Quilt-1M: One Million Image-Text Pairs for Histopathology.". NeurIPS. 2023 [ORAL]

W. O. Ikezogwo, M. S. Seyfioglu, Ranjay Krishna, Linda Shapiro. "Quilt-LLaVA: Leveraging Educational Localized Narratives in Histopathology Videos for Dense Visual Grounding and Instruction Tuning." **In Submission**. CVPR 2024.

W. O. Ikezogwo, M. S. Seyfioglu, Linda Shapiro. "Multi-modal Masked Autoencoders Learn Compositional Histopathological Representations." Extended Abstract: *Machine Learning for Health (ML4H) 2022.*

JOURNAL PUBLICATIONS

K. P. Ayodele, **W. O. Ikezogwo**, M. A. Komolafe, and Philip Ogunbona. 2020. "Supervised domain generalization for integration of disparate scalp EEG datasets for automatic epileptic seizure detection." *Computers in Biology and Medicine* 120: 103757.

K. P. Ayodele, **W. O. Ikezogwo**, and A. A. Osuntuyi. 2020. "Empirical Characterization of the Temporal Dynamics of EEG Spectral Components." *International Journal of Online and Biomedical Engineering (IJOE).*

SUBMITTED (PRE-PRINT)

W. O. Ikezogwo, C. Chandler, J. S. Gandhi, A. Garcia, C. Daum, E. Loggers, J. G. Mantilla, A. Bandhlish, R. W. Ricciotti. "Risk Stratification of Solitary Fibrous Tumor Using Whole Slide Image Analysis." **Accepted**. USCAP:*United States and Canadian Academy of Pathology*

IN PREPARATION

W. O. Ikezogwo, M. S. Seyfioglu, Ranjay Krishna, Linda Shapiro. "QUILT-Medical: Connecting Medical Vision and Language with Procedural and Localized Narratives across all medical imaging domains." **In Preparation**. Nature Medicine.

W. O. Ikezogwo, M. S. Seyfioglu, Melissa Mitchell, Ranjay Krishna, Linda Shapiro. "MediEval: Can AI diagnose retrospective patients from intake to discharge with tools." **In Preparation**. ECCV 2024.

CONFERENCES

International Conference on Machine Learning (ICML)   2020

- Participated in the conference and several of its workshops on health care majorly focusing on Model interpretabilty, Explainability, Clinician-in-the-loop and Domain shift.

Conference on Neural Information Processing Systems (NeurIPS)   2022

- Participated in the conference and several of its workshops on health care majorly focusing on Multimodal representation learning, Explainability and Clinician-in-the-loop topics.

PRESENTATIONS	Black In Neuro Mini-Conference K. P. Ayodele, **W. O. Ikezogwo**, M. A. Komolafe, and Philip Ogunbona. 2020. "Supervised domain generalization for integration of disparate scalp EEG datasets for automatic epileptic seizure detection."	2020
	Seattle Central College Stem-B Blacks in Tech	June, 2023
	AI Institute in Dynamic Systems CTF Workshop	February, 2023

HONORS AND AWARDS	Microsoft's Accelerate Foundation Models Research Grant — value: $20,000	2023
	IBRO-Simons Computational neuroscience Summer School travel grant, Cape Town.	2020
	Prof. L.O. Kehinde prize for the Best Graduating Student in the Instrumentation and Control option, OAU Ile-Ife, Nigeria.	2019
	Pa Simeon Ladipo Oyebolu & Mrs Emily Olabopo Oyebolu prize for Best Male Graduating Student, OAU Ile-Ife, Nigeria.	2019
	Federal Government Scholarship Award, Nigeria. — cumm. value: $1500	2017-2019
	Total/NNPC National Merit Scholarship. — cumm. value: $1500	2016-2019
	Etisalat Nigeria Merit Scholarship. — value: $250	2015

SOFTWARE PROGRAMMING & LANGUAGES

- Computer Languages: Python, Bash (Slurm), LaTeX, Arduino C.
- Software: Pytorch, OpenCV, Docker, Singularity(on HPC resource), Flask.
- Human Languages: English (native), Igbo (native), Yoruba (Fluent), Pidgin (Fluent).

EXTRACURRICULAR

- Basketball — K-12 Volunteering

SOCIETIES

- Black in AI (BAI), Black in Neuro (BiN), IEEE, AVELA

REFERENCES

- Available on request