Wisdom O. Ikezogwo

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RESEARCH INTERESTS

Generative Modeling, Multimodal Representation Learning, Data Curation.

EDUCATION

University of Washington, Seattle, USA   2021-Present

Ph.D. Paul G. Allen School of Computer Science and Engineering. — GPA 3.97
- Advisors: Prof. Ranjay Krishna and 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

- Led research on Multimodal LLMs for medical imaging: built medical multimodal datasets (Quilt-1M and MedNarratives), developed state-of-the-art models for analysis (QuiltNet, Quilt-LLaVA), and created a multi-agent AI framework for clinical diagnosis outperforming human experts (PathFinder), and better benchmarks (MedBlink).

- Currently leading efforts to improve the "physics" in image and video generative models focused on newtonian physics and generating large-scale video scene graph dataset and pipeline.

Teaching Assistant   September 2021 - Present
- CSE 160: Data Programming — Fall 2021 & Winter 2022 & Fall 2022
- CSE 473: Introduction to Artificial Intelligence — Spring 2023, Fall 2023 & Winter 2024

Obafemi Awolowo University, Ile-Ife, Osun Nigeria.

***UG. Research Asst.**—Biosignal Processing, Inst. & Control Lab* March, 2017 - September 2021
Worked on integrating disparate multivariate time series data by characterizing spectral components for dynamical dimensionality reduction, trained neural networks for classification of brain EEG signals, and characterization of EEG spectral components.

INDUSTRY EXPERIENCE

Apple, Cupertino, CA, USA.
Ph.D. Machine Learning Research Internship   March - September 2024
Led research on efficient multimodal representations for Egocentric data including video, text, audio, IMU, and hands. Perceive-Predict leverages predictive coding between co-occurring modalities to reconstruct missing modalities, with the practical application of reducing the capture (hence cost) of expensive modalities like video.

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

Okra, Inc., Lagos, Nigeria.
ML Engineer   October, 2020 - September 2021
Worked on models for customer financial information from unstructured banking data, and extracted key customer earning and spending data to feed into downstream lending including predicting income, spending patterns, and reconciliations.

Demz Analytics Limited, Lagos, Nigeria.
Data Scientist / ML Engineer   October, 2019 - October 2020
Developed production recommendation systems using attention and epsilon-greedy bandit strategy.

CONFERENCE PAPERS

Google Scholar

Seyfioglu, Mehmet Saygin, **Wisdom O. Ikezogwo**, Fatemeh Ghezloo, Ranjay Krishna, and Linda Shapiro. "Quilt-LLaVA: Visual Instruction Tuning by Extracting Localized Narratives from Open-Source Histopathology Videos." In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition, pp. 13183-13192. 2024.

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

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." LABORATORY INVESTIGATION, Vol. 103. ELSEVIER SCIENCE INC, 2023.

Stefan Hegselmann, Helen Zhou, Yuyin Zhou, Jennifer Chien, Sujay Nagaraj, Neha Hulkund, Shreyas Bhave, Michael Oberst, Amruta Pai, Caleb Ellington, **W. O. Ikezogwo**, et. al. "Recent Advances, Applications and Open Challenges in Machine Learning for Health: Reflections from Research Roundtables" at ML4H 2022 Symposium

UNDER REVIEW (PRE-PRINT, ABSTRACTS)

W. O. Ikezogwo, Fatemeh Ghezloo, Mehmet S. Seyfioglu, Rustin Soraki, Beibin Li, Ranjay Krishna, Linda Shapiro. "PathFinder: A Multi-Modal Multi-Agent Framework for Diagnostic Decision-Making in Histopathology." **In Submission**. ICCV 2025.

W. O. Ikezogwo, Kevin Zhang, M. S. Seyfioglu, Ranjay Krishna, Linda Shapiro. "MedicalNarratives: Connecting Medical Vision and Language with Procedural and Localized Narratives across all medical imaging domains." **In Submission**. ICCV 2025.

W. O. Ikezogwo, Mahtab Bigverdi, Kevin Zhang, Hyewong Jeong, Mingyu Lu, Sungjae Cho, Ranjay Krishna, Linda Shapiro. "MedBlink: Probing the Fundamental Medical Imaging Knowledge of Multimodal Language Models." **In Submission**. ICCV 2025.

IN PREPARATION

W. O. Ikezogwo, Anshul Shah, Rick Chang, Karren Yang, Chung Liang Li, Ranjay Krishna, Oncel Tuzel. "Percieve-Predict: Modality and Time-Aware Egocentric Efficient Multi-Modal Representations." for NeurIPS. 2025.

W. O. Ikezogwo, Xiang Fan, Chung Liang Li, Ranjay Krishna. "VPhysics: Temporally consistent Physics in Video (multiframe) Generation via Alignment" for NeurIPS. 2025.

W. O. Ikezogwo, Jieyu Zhang, Chenhao Zheng, James Park, Ranjay Krishna. "Synthetic Video Scene Graph Generation" for NeurIPS D&B. 2025.

JOURNAL
PUBLICATIONS

Wisdom Oluchi Ikezogwo, Yongjun Liu, Kareem Hosny, Jonathan Henriksen, Robert W Ricciotti, Meenal Rawlani, Paul E Swanson, Patrick C. Mathias, Noah Hoffman, Geoffrey S Baird, Luis F Gonzalez-Cuyar, Linda G Shapiro, Deepti M Reddi. "Multi-Scale Cross-Attention Multiple Instance Learning (MsCAMIL) Network for Automated Triage of Colorectal Polyps." United States and Canadian Academy of Pathology's (USCAP) 114th Annual Meeting, March 22-27, 2025.

Wisdom Oluchi Ikezogwo, Sasha M Ortiz, Yongjun Liu, Jamie Garrett, Carol Rizkalla, Lindsey K Durowoju, Ritika Walia, Jonathan Henriksen, Luis F Gonzalez-Cuyar, Deepti M Reddi. "Comparative Performance of Multi-Scale Cross-Attention Multiple Instance Learning (MsCAMIL) and Pathology Trainees in Colorectal Polyp Diagnosis." , United States and Canadian Academy of Pathology's (USCAP) 114th Annual Meeting, March 22-27, 2025.

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)*.

HONORS AND
AWARDS

Population Health Initiative — AI Pilot Research Grant Award — value: $100,000	2024
Microsoft's Accelerate Foundation Models Research Grant — value: $20,000	2023
IBRO-Simons Computational neuroscience Summer School travel grant, Cape Town.	2020
Prof. Kehinde prize for the Best Graduating Student in the Control option, OAU, Nigeria.	2019
Oyebolu Prize for Best Male Graduating Student, OAU, 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