Stanford

Bernard Mawuli Cobbinah

Postdoctoral Scholar, Anesthesiology, Perioperative and Pain Medicine

Bio

BIO

Cobbinah Bernard Mawuli is a Postdoctoral Scholar at Stanford University in the Department of Anesthesiology, Perioperative and Pain Medicine, School of Medicine. He is passionate about the intersection of AI and medicine, focusing on developing robust and effective approaches for preventive and predictive healthcare. His research aims to deepen the understanding of high-dimensional multi-omics medical data using advanced machine learning techniques. By exploring innovative ways to analyze this data, his work contributes to improved treatments and enhanced patient care. Through the analysis of large patient datasets, his goal is to create tools that empower clinicians to make more informed decisions, ultimately improving healthcare outcomes for all.

Prior to joining Stanford, he pioneered robust federated learning techniques for evolving data streams and developed methods to reduce multi-center MRI variability in diagnosing brain disorders.

PROFESSIONAL EDUCATION

- Master of Engineering, UniversityofElectronicScienceandTechnologyofChina (2019)
- Bachelor of Science, Kwame Nkrumah University of Science and Technology (2015)
- Doctor of Science, UniversityofElectronicScienceandTechnologyofChina (2023)

STANFORD ADVISORS

- Nima Aghaeepour, Postdoctoral Faculty Sponsor

Publications

PUBLICATIONS

- **Federated Fusion of Magnified Histopathological Images for Breast Tumor Classification in the Internet of Medical Things.** *IEEE journal of biomedical and health informatics*
  Agbley, B. L., Li, J. P., Haq, A. U., Bankas, E. K., Mawuli, C. B., Ahmad, S., Khan, S., Khan, A. R.
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- **FedSULP: A communication-efficient federated learning framework with selective updating and loss penalization** *INFORMATION SCIENCES*
  Ebenezer, N., Mawuli, B., Yang, Q., Shao, J., Christiana, K.
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- **FedStream: Prototype-Based Federated Learning on Distributed Concept-Drifting Data Streams** *IEEE TRANSACTIONS ON SYSTEMS MAN CYBERNETICS-SYSTEMS*
  Mawuli, C. B., Che, L., Kumar, J., Din, S., Qin, Z., Yang, Q., Shao, J.

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- **Semi-supervised federated learning on evolving data streams** *INFORMATION SCIENCES*
  Mawuli, C. B., Kumar, J., Nanor, E., Fu, S., Pan, L., Yang, Q., Zhang, W., Shao, J.
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- **Reducing variations in multi-center Alzheimer's disease classification with convolutional adversarial autoencoder.** *Medical image analysis*
  Cobbinah, B. M., Sorg, C., Yang, Q., Ternblom, A., Zheng, C., Han, W., Che, L., Shao, J.
  2022; 82: 102585

- **Learning High-Dimensional Evolving Data Streams With Limited Labels.** *IEEE transactions on cybernetics*
  Din, S. U., Kumar, J., Shao, J., Mawuli, C. B., Ndiaye, W. D.
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