Kayode Olumoyin

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Research Interest

Deep Learning, Mathematical Oncology, Mathematical Biology, Agent Based Modeling, Infectious Disease Modeling, Numerical Analysis, Numerical Partial Differential Equations and Fractional Differential Equations.

Education

- Ph.D., Computational Science, Middle Tennessee State University, Murfreesboro, Tennessee, **May, 2022**.
- M.A., Computational and Applied Mathematics, Bowling Green State University, Bowling Green, Ohio, **August, 2016**.
- M.A., Mathematics, Marshall University, Huntington, West Virginia, **May, 2013**.
- B.Sc., Mathematics, University of Agriculture, Abeokuta, Nigeria, **January, 2009**.

Experience

- Applied Postdoctoral Fellow, Integrated Mathematical Oncology, Moffitt Cancer Center, Tampa, FL, **August, 2022 – Present**
- Adjunct Faculty, Mathematics Department, Middle Tennessee State University, Murfreesboro, TN, **Fall, 2021 – Spring, 2022**
- Graduate Teaching Assistant, Mathematics Department, Bowling Green State University, Bowling Green, OH, **Fall, 2013 – Spring, 2016**
- Graduate Teaching Assistant, Mathematics Department, Marshall University, Huntington, WV, **Fall, 2011 – Spring, 2013**

Awards

- Travel award to attend the inaugural Mathematical Oncology meeting in Spring 2023 (MATH-ONC23), April 30 – May 3, 2023, Phoenix, Arizona.
- Best presentation award at CBAS Graduate Research Showcase, February 5, 2021, Middle Tennessee State University, Murfreesboro, Tennessee.
- SIAM student travel award to attend 2020 SIAM conference on Mathematics of Data Science (MDS20), May 5 – 7, 2020, Cincinnati, Ohio.
- Winifred O. Stone Presidential Graduate Scholarship Award for Diversity Enhancement, 2013 & 2014, Bowling Green State University.
- First Position, National Mathematics Competition for University Students (NAMCUS 2008), Abuja, Nigeria.

Publications

- Olumoyin, K.D. Data-driven deep Neural Networks for epidemiological and biochemical models, Ph.D. dissertation, Middle Tennessee State University, **2022**.
- Olumoyin, K.D, Khaliq, A.Q.M., Furati, K.M. Data-driven deep learning algorithm for Asymptomatic COVID-19 model with varying mitigation measures and transmission rate. *Epidemiologia* **2021**, 2, 471 – 489. https://doi.org/10.3390/epidemiologia2040033
- Olumoyin, K.D, Khaliq, A.Q.M., Furati, K.M. Data-driven deep learning algorithms for time-varying infection rates of COVID-19 and mitigation measures. *arXiv:2104.02603v3* **2021**. https://doi.org/10.48550/arXiv.2104.02603
- Olumoyin, K.D. Solutions of Dynamic Equations on Time Scales with Jumps, M.A. thesis, Marshall University, **2013**.

Conferences and Presentations

- *ML-PETIL: A Machine Learning Predictor of the Expansion of Tumor Infiltrating Lymphocytes in Patients' Bladder Tumors.* Inaugural Mathematical Oncology meeting, Spring 2023 (MATHONC23), Phoenix, Arizona, **April 30 – May 4, 2023.**
- *IMOX: Cancer Communities.* Integrated Mathematical Oncology (IMO) Workshop, Moffitt Cancer Center, Tampa, Florida, **October 31 – November 4, 2022.**
- *Mathematical Modeling of Adoptive Immunotherapy in B16 Melanoma: A Physics-Informed Machine Learning Approach.* Mathematics and Statistics Department Colloquium, Bowling Green State University, Bowling Green, Ohio, held Virtually, **November 4, 2022.**
- *Physics-informed Attention Neural Network: Learning the dynamics of Partial Differential Systems with an attention-based model.* Lightening talk at Holistic Design of Time-Dependent PDE Discretizations, Topical Workshop held at ICERM, Providence, Rhode Island, **January 10 – 15, 2022.**
- *Data-driven deep learning algorithm for Asymptomatic COVID-19 model with time-varying transmission rate.* poster presentation at Modeling in a Heterogeneous World, XVIII Red Raider Mini-symposium, held at Texas Tech University, Lubbock, Texas, **August 20 – 21, 2021.**
- *Data-driven deep learning algorithms for COVID-19 time-varying infection rates and mitigation measures.* mini-symposium at SIAM Conference on Computational Science and Engineering, CSE21, held Virtually, **March 1 – 5, 2021.**
- *Learning time-varying COVID-19 infection rate from data.* CBAS Graduate Research Showcase, Middle Tennessee State University, Murfreesboro, Tennessee, **February 5, 2021.**
- *PDE Based Neural Network Approach Using Noisy Data in Facial recognition.* SIAM conference on Mathematics of Data Science (MDS20), Cincinnati, Ohio, **May 5 – 7, 2020.**
- MANNA (Modeling, Analysis and Numerics for Nonlocal Applications), Santa Fe, New Mexico, **December 11 – 15, 2017.**
- Informal Analysis Seminar, Kent State University, Ohio, **April 11 – 13, 2014.**
- *The Marshall–Simpson Differential Analyzer Project: Mechanical Interpretations of Mathematical Equations* (co−presented with Dr. Bonita Lawrence and Molly Peterson), Simpson College, Iowa, **March 18, 2013.** https://simpsoncollegemath.blogspot.com/
- *Generalization of First Order Linear Differential and Difference Equations.* 40th Annual Mathematics and Statistics Conference, Miami University, Oxford, Ohio, **September, 2012.**