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Asst. Professor, Electrical Engineering
Cooperative Engineering Program;
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AREAS OF INTERESTS: Machine learning, Intelligent systems, Data analytics, Bioinformatics

EDUCATION

Missouri University of Science and Technology (S&T), Rolla MO
Post-doctoral Fellowship, Electrical and Computer Engineering Dept., May 2014 – May 2016
Advisor: Dr. Donald Wunsch II

University of Missouri (MU), Columbia MO
Post-doctoral Fellowship, Computer Science Dept., Nov 2011 – Dec 2013
Advisor: Dr. Ye Duan

Illinois Institute of Technology (IIT), Chicago IL
Doctor of Philosophy in Computer Science, Dec 2010
Thesis: "*Computational Models for Historical Document Enhancement*"
Advisors: Drs. Gady Agam and Ophir Frieder

Master of Science in Electrical Engineering, Dec 2001

Bachelor of Science in Electrical Engineering (*High Honors*), May 2000

PUBLICATIONS

Journals

1. **T. Obafemi-Ajayi**, G. Olbricht, C. Germeroth, L. Settles, T. N. Takahashi, J. H. Miles, D. Wunsch, "Genetic variant analysis of facially delineated clusters of boys with Autism Spectrum Disorders using family-based association testing", *submitted*, Molecular Autism, 2016.

2. **T. Obafemi-Ajayi**, J. H. Miles, T. N. Takahashi, W. Qi, K. Aldridge, M. Zhang, S. Xin, Y. He, Y. Duan, "Facial Structure Analysis separates Autism Spectrum Disorders into Meaningful Clinical Subgroups", Journal of Autism and Developmental Disorders, pp. 1-16, 2014.

3. R. Kanawong, **T. Obafemi-Ajayi**, T. Ma, D. Xu, S. Li, Y. Duan, "Automated Tongue Feature Extraction for ZHENG Classification in Traditional Chinese Medicine," Evidence-Based Complementary and Alternative Medicine, Vol. 2012, Article ID 912852, 14 pages, 2012.

4. **T. Obafemi-Ajayi**, G. Agam, "Character-Based Automated Human Perception Quality Assessment in Document Images", IEEE Transactions on Systems, Man and Cybernetics Part A: Systems and Human, Vol.42, No.3, pp. 584-595, 2012.

5. **T. Obafemi-Ajayi**, S. Kapoor, O. Frieder, "Cluster-K+: Network Topology for Searching Replicated Data in P2P Systems", Information Processing & Management Journal, Special Issue on Large-Scale Distributed Systems for Information Retrieval, Vol. 48, Issue 5, pp. 841- 854, 2012.

6. **T. Obafemi-Ajayi**, G. Agam, O. Frieder, "Historical document enhancement using LUT classification", International Journal on Document Analysis and Recognition, Vol. 13, No. 1, pp. 1-17, 2010

Conference Proceedings

7. J. Matta, T. Nguyen, G. Ercal, **T. Obafemi-Ajayi**, "Applications of Novel Graph Theoretic Methods to Clustering Autism Spectrum Disorders Phenotypes", *accepted*, International Conference on Bioinformatics and Computational Biology (BICOB) Mar 2017.

8. J. Matta, **T. Obafemi-Ajayi**, J. Borwey, D. Wunsch, G. Ercal, "Robust Graph-theoretic Clustering Approaches Using Node-Based Resilience Measures", IEEE International Conference on Data Mining, Dec 2016.

9. K. Al-jabery, **T. Obafemi-Ajayi**, G. R. Olbricht, T. N. Takahashi, S. Kanne, D. Wunsch, "Ensemble Statistical and Subspace Clustering Model for Analysis of Autism Spectrum Disorder Phenotypes", IEEE Engineering in Medicine and Biology Conference August, 2016.

10. **T. Obafemi-Ajayi**, D. Lam, T. Takahashi, S. Kanne, D. Wunsch, "Sorting the Phenotypic Heterogeneity of Autism Spectrum Disorders: a Hierarchical Clustering Model", IEEE Conference on Computational Intelligence in Bioinformatics and Computational Biology 2015.

11. J. Borwey, D. Ahlert, **T. Obafemi-Ajayi**, G. Ercal, "A Graph-Theoretic Clustering Methodology Based on Vertex Attack Tolerance", 28th International FLAIRS Conference, Association for Advancement of Artificial Intelligence 2015.

12. **T. Obafemi-Ajayi**, G. Agam, B, Xie, "Ensemble methods using simple features for document zone classification", in Document Recognition and Retrieval XIX (*Part of the IS&T/SPIE International Symposium on Electronic Imaging*), 2012, vol. 8297 of Proc. SPIE.

13. **T. Obafemi-Ajayi**, G. Agam, "Statistical multi-resolution schemes for historical document binarization", in Document Recognition and Retrieval XVIII (*Part of the IS&T/SPIE International Symposium on Electronic Imaging*), 2011, vol. 7874 of Proc. SPIE.

14. **T. Obafemi-Ajayi**, G. Agam, O. Frieder, "Evaluation of human perception of degradation in document images", in Document Recognition and Retrieval XVII (*Part of the IS&T/SPIE International Symposium on Electronic Imaging*), 2010, vol. 7534 of Proc. SPIE.

15. **T. Obafemi-Ajayi**, G. Agam, O. Frieder, "Learning Shape Features for Document Enhancement", in Document Recognition and Retrieval XVII (*Part of the IS&T/SPIE International Symposium on Electronic Imaging*), 2010, vol. 7534 of Proc. SPIE.

16. **T. Obafemi-Ajayi**, G. Agam, O. Frieder, "Efficient Shape-LUT Algorithm for Document Image Restoration," in Document Recognition and Retrieval XVI (*Part of the IS&T/SPIE International Symposium on Electronic Imaging*), 2009, vol. 7247 of Proc. SPIE.

17. **T. Obafemi-Ajayi**, G. Agam, O. Frieder, "Efficient MRF Approach to Document Image Enhancement", in Proc. International Conference on Pattern Recognition (ICPR), 2008.

18. **T. Obafemi-Ajayi**, G. Agam, O. Frieder, "Ensemble LUT classification for degraded document enhancement," in Document Recognition and Retrieval XV *(Part of the IS&T/SPIE International Symposium on Electronic Imaging)*, 2008, vol. 6815 of Proc. SPIE. (**Best Student Paper Award**)

Workshops/Symposiums Proceedings

19. **T. Obafemi-Ajayi**, J. Miles, W. Qi, N. Takahashi, K. Aldridge, H. Ying, Y. Duan, "3D Facial Pattern Analysis for Autism Using Geodesic Distances", International Meeting for Autism Research 2014.

20. **T. Obafemi-Ajayi**, R. Kanawong, X. Dong, L. Shao, Y. Duan, "Features for automated tongue image shape classification," in Proc. IEEE International Conference on Bioinformatics and Biomedicine Workshops (BIBMW), 2012.

21. R. Kanawong, **T. Obafemi-Ajayi**, J. Yu, X. Dong, L. Shao, Y. Duan, "ZHENG classification in Traditional Chinese Medicine based on modified specular-free tongue images," in Proc. IEEE International Conference on Bioinformatics and Biomedicine Workshops (BIBMW), 2012.

22. **T. Obafemi-Ajayi**, B. Morago, J. Wilson, N. Takahashi, K. Aldridge, J. Miles, Y. Duan, "2D Facial Pattern Analysis for Autism", International Meeting for Autism Research 2012

Invited Talk

1. "*Visual Analytics using SAP-HANA for Autism Spectrum Disorder Big Data Research*", No-Boundary Thinking Bioinformatics/Big Data Conference, Arkansas. April 2015

2. "*Unsupervised Learning in Autism: In Search of Biomarkers for More Homogenous Subgroups*", Fall 2014 Seminar Series, School of Engineering, Southern Illinois University Edwardsville. October 2014

3. "*2D/3D Facial Pattern Analysis for Autism*", Colloquium-Research Forum, Thompson Center for Autism and other Neurodevelopmental Disorders, University of Missouri, Columbia. October 2013

Co-presenter, "Successes, Challenges, Lessons Learned: Teaching with Technology and the Hybrid Classroom**",** Focus on Teaching and Technology Conference St. Louis, MO, Nov 2015.

Tutorial session speaker, "Computational Learning Approaches to Data Analytics in Biomedical Applications", to presented at IEEE Engineering in Medicine and Biology Conference (EMBC), August 2016.
Organizers: Donald Wunsch II, **Tayo Obafemi-Ajayi**