

# Erliang Zeng

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RESEARCH INTERESTS	Biological big data mining, bioinformatics, computational biology, comparative genomics and functional genomics, next-generation sequencing data analysis, statistical modeling and data analysis, algorithm design, software development	
EDUCATION	<b>Florida International University</b> , Miami, FL USA Ph.D., Computer Science, 2008 <ul style="list-style-type: none"><li>• Advisor: Professor Giri Narasimhan</li><li>• Area of Study: Bioinformatics</li></ul> <b>Shanghai Jiao Tong University</b> , Shanghai, China M.S., Biochemistry and Molecular Biology, 2001 B.S., Biotechnology, 1998	
ACADEMIC APPOINTMENTS	<b>Associate Professor</b> Division of Biostatistics and Computational Biology, College of Dentistry, University of Iowa Department of Preventive and Community Dentistry, College of Dentistry, University of Iowa Department of Biostatistics, University of Iowa Department of Biomedical Engineering, University of Iowa	July 2018 to present
	<b>Assistant Professor</b> Department of Biology, University of South Dakota Department of Computer Science, University of South Dakota	July 2014 to July 2018
	<b>Research Assistant Professor</b> Department of Computer Science and Engineering, University of Notre Dame	July 2009 to June 2014
	<b>Managing Director</b> The Bioinformatics Core Facility (BCF), University of Notre Dame	July 2009 to June 2014
	<b>Postdoctoral Researcher</b> Department of Computer Science, University of Miami <ul style="list-style-type: none"><li>• Advisor: Professor Mitsunori Ogihara</li><li>• Area of Research: Bioinformatics and Data Mining</li></ul>	September 2008 to June 2009
AFFILIATIONS	Faculty Member, The Iowa Initiative for Artificial Intelligence (IIAI) Faculty Member, Center for Biocatalysis and Bioprocessing, University of Iowa Faculty Member, Iowa Neuroscience Institute, University of Iowa Faculty Member, Holden Comprehensive Cancer Center, University of Iowa Faculty Member, Iowa Institute of Human Genetics, University of Iowa Faculty Member, University of Iowa Informatics Program Faculty Member, University of Iowa Informatics Initiative (UI3)	(2019 -) (2019 -) (2018 -) (2018 -) (2018 -) (2018 -) (2018 - 2020)

Adjunct Associate Professor, Basic Biomedical Sciences, Sanford School of Medicine, University of South Dakota (2016 - 2020)  
 Faculty Member, USD Center for Genetics and Behavioral Health (2017 - 2018)  
 Faculty Member, USD Center for Brain and Behavior Research (CBBRe) (2017 - 2018)  
 Faculty Member, USD Neuroscience & Nanotechnology Network (USD-N3) (2017 - 2018)  
 Faculty Member, SD Biomedical Research Infrastructure Network (BRIN) (2015 - 2018)  
 Faculty Member, SD BioSystems Networks & Translational Research (BioSNTR) (2014 - 2018)  
 Faculty Member, Eck Institute for Global Health, The University of Notre Dame (2009 - 2014)

RESEARCH GROUP **Current Member**

- Yiyang John Shen (since 2024, PhD candidate in informatics, University of Iowa)  
Graduate College Fellowship, 2024-
- Jihyun Kim (since 2023, PhD candidate in informatics, University of Iowa)  
Graduate College Fellowship, 2023-
- Priyanka Singh (since 2023, PhD candidate in informatics, University of Iowa)  
Graduate College Fellowship, 2023-  
James S. Wefel Memorial Research Award, 2024
- Shri Vishalini Rajaram (since 2022, PhD candidate in human toxicology, University of Iowa)  
First-place award of Max Smith Graduate & Postdoctoral Competition, 2024  
James S. Wefel Memorial Research Award, 2024
- Phuong Nguyen (since 2021, PhD candidate in informatics, University of Iowa)  
Graduate College Fellowship, 2021-2022

**Alumni**

- Sagar Patel (2015-2017, Postdoc in Anne Fennell lab at South Dakota State University, co-advised. First employer: Saint Louis University)
- Min Gan (2015-2016, Postdoc, University of South Dakota, First employer: Fuzhou University)
- Miyuraj Harishchandra (2015-2022, PhD, Informatics, University of Iowa. First employer: Inari)
- Pasan Fernando (2014-2018, PhD, Biological Sciences with Specialization in Bioinformatics, University of South Dakota, co-advised by Paula Mabee. First employer: University of Colombo)
- Wei Zhang (2009-2014, PhD, Computer Science and Engineering, University of Notre Dame, co-advised by Scott Emrich. First employer: Walmart Labs)
- Naila Hanif (2023-2024, Undergraduate research, Informatics, University of Iowa)
- Blaine Nelson (2017-2018, BioSNTR and BRIN summer undergraduate research, University of South Dakota)
- David Doss (2017-2018, BRIN summer undergraduate research, University of South Dakota)
- Zhixiu Lu (2016-2018, BioSNTR summer undergraduate research, University of South Dakota)
- Joseph Mammo (2016, BioSNTR summer undergraduate research, University of South Dakota)
- Maria Ludens (2016, BRIN summer undergraduate research, University of South Dakota)
- Lauren Mattison (2016, BioSNTR summer undergraduate research, University of South Dakota)
- Alex Heglin (2015-2016, BRIN/BioSNTR summer undergraduate research, University of South Dakota)

- Derek Lee (2015, BioSNTR summer undergraduate research, University of South Dakota)
- Carrie Brown (2014-2015, MS in mathematical sciences, University of South Dakota)
- Rory Carmichael (2009-2012, Senior Analyst, Bioinformatics Core Facility, University of Notre Dame)

#### GRANTS AND PROPOSALS

- “Novel Injectable Biomaterials for Periodontitis” (Role: Co-I, PI: Hongli Sun), NIH R21, 2024-2026.
- “Hard and Soft Tissue Dimensional Changes and Vascular Perfusion Around Immediately Placed Implants With or Without Soft Tissue Augmentation: A 3-arm Parallel Randomized Trial” (Role: Co-I, PI: I-Ching Wang), Geistlich Pharma AG, 2023-2026.
- “Susceptibility Patterns for Grade C Periodontitis in Young Individuals” (Role: Co-I, PI: Luciana Macchion Shaddox), NIH U01, 2022-2027.
- “Assessing the role of Type I Interferon (IFN-I) in Periodontal Disease” (Role: Co-I, PI: Shaoping Zhang), NIH R01, 2022-2027.
- “Trajectories/Predictors of Oral Health-Related Quality of Life to Early Adulthood” (Role: Co-I, PI: Steven Levy), NIH R03, 2022-2024.
- “Investigating the genetics and genomics etiology of orofacial clefts in the African population” (Role: Co-I, PI: Azeez Alade), IADR Smile Train Cleft Research Award, 2022-2023.
- “Modulation of the reparative potential of odontoblast-like cells by dentin matrix proteins in inflammation” (Role: Co-I, PI: Cristina Vidal), UI OVPR Seed Excellence: Early Career Scholars Initiative, 2022-2023.
- “Metabolic syndrome, periodontal health, and the oral microbiome” (Role: Co-I, PI: Sukirth Ganesan), NIH R03, 2021-2023.
- “The Iowa health data resource: building the future of health informatics at the University of Iowa” (Role: Project Co-PI), UI P3 Program in Support of Strategic Priorities, 2022-2025.
- “UI P3 to NCI/NIDCR P50: multidisciplinary approach to oral cancer etiology and treatment” (Role: Program Co-Leader and a Project Co-PI), UI P3 Program in Support of Strategic Priorities, 2021-2022.
- “Genetic and phenotypic variation of a dominant forage grass across Great Plains and modeling predicted response to climate” (Role: Co-PI, PI: Loretta Johnson), USDA, 2021-2023.
- “Mining genetic patterns in oral cancer and other cancers using computational systems biology approaches” (Role: PI), UI College of Dentistry Seed Grant, 2021-2022.
- “Salivary metabolomic signatures of patients with metabolic syndrome” (Role: Co-I, PI: Sukirth Ganesan), The Fraternal Order of Eagles Diabetes Research Center, 2021-2022.
- “Identifying signature inflammatory mediators in gingival crevicular fluid in periodontal profile class-stages” (Role: Co-I, PI: Shaoping Zhang), Colgate Award for Research Excellence (CARE), 2021-2022.
- “The epigenetic studies in peri-implantitis subjects” (Role: Co-I, PI: Shankar Rengasamy Venugopalan), ITI (International Team for Implantology) Foundation, 2020-2022.
- “Orofacial clefts, whole genome sequencing and incidental findings: ethical considerations” (Role: Co-I, PI: Azeez Butali), NIH Administrative Supplement for R01 funded grant, R01 DE028300-01A1, 2020-2021.
- “Refining the genetic and genomic architecture of non-syndromic orofacial clefts” (Role: Co-I, PI: Azeez Butali), NIH R01, 2020-2025.
- “Diagnostic biomarkers for childhood Sjogren’s syndrome” (Role: Co-I, PI: Enily A Lanzel), Sjogren’s Syndrome Foundation, 2019-2020.
- “Functionalized nanofibrous scaffold for endogenous bone regeneration” (Role: Supporting, PI: Hongli Sun), NIH R03, 2018-2019.
- “Molecular circuit of multi-ciliogenesis regulates choroid plexus differentiation and tumor development” (Role: Sub-award PI, PI: Haotian Zhao), NIH R01, 2017-2019.
- “Center for genetics and behavioral health” (Role: Co-I, PI: Lee Baugh), South Dakota Governor’s Office of Economic Development, 2017-2022.
- “The COP9 signalosome in the heart” (Role: Co-I, PI: XJ Wang), NIH R01, 2016-2021.

- “The South Dakota data store, a modular, affordable platform to enable data-intensive research and education” (Role: Supporting, PI: Douglas Jennewein), NSF, 2016-2021.
- “MRI: acquisition of the Lawrence supercomputer to advance multidisciplinary research in South Dakota” (Role: Co-PI, PI: Douglas Jennewein), NSF, 2016-2019.
- “Evaluating microbial community responses to a bio-pesticide and a bio-fungicide in the soybean rhizosphere to improve product performance” (Role: Co-PI, PI: Senthil Subramanian), Bayer CropScience, 2015-2016.
- “High-performance computing cluster to enable the next generation of computationally assisted research” (Role: Supporting, PI: Douglas Jennewein), South Dakota Board of Regents, 2015-2016.
- “Bioinformatic development for mining genomic patterns corresponding for ecological adapting through massive microbial whole genome sequences” (Role: PI), Faculty Scholarship Research Program, Office of Research, University of Notre Dame, 2013-2014.

PEER REVIEWED  
PUBLICATIONS

### Peer-reviewed Conference Proceedings

- [1] C. Yang\*, **E. Zeng\***, K. Mathee, G. Narasimhan, Mining Regulatory Elements in the Plasmodium falciparum Genome Using Gene Expression Data, *Proceedings of CAMDA'04: the Critical Assessment of Microarray Data Analysis*, Durham, NC, November 2004. \*Contributed equally.
- [2] C. Yang\*, **E. Zeng\***, K. Mathee, G. Narasimhan, Querying a Database of Regulatory Elements, *Proceedings of ICBA'04: the International Conference on Bioinformatics and its Applications*, Fort Lauderdale, Florida, December 2004. \*Contributed equally.
- [3] C. Yang, **E. Zeng**, T. Li, G. Narasimhan, A Knowledge-Driven Method to Evaluate Multi-Source Clustering, *Proceedings of BIOS'05: the International Workshop on Bioinformatics*, Lecture Notes in Computer Science, Vol. 3759, Springer Verlag, 2005.
- [4] C. Yang, **E. Zeng**, T. Li, G. Narasimhan, Clustering Genes using Gene Expression and Text Literature Data , *Proceedings of CSB'05: the IEEE Computer Society Bioinformatics Conference*, p329-340, Stanford, CA, August 2005.
- [5] **E. Zeng**, G. Narasimhan, Enhancing Motif Refinement by Incorporating Comparative Genomics Data , *Proceedings of ISBRA'07: the International Symposium on Bioinformatics Research and Applications*, Lecture Notes in Computer Science, Vol. 4463, Springer Verlag, p329-337, 2007.
- [6] **E. Zeng**, K. Mathee, G. Narasimhan, IEM: An Algorithm for Iterative Enhancement of Motifs Using Comparative Genomics Data, *Proceedings of CSB'07: the LSS Computational Systems Bioinformatics Conference*, p227-235, UCSD, CA, August, 2007.
- [7] **E. Zeng**, C. Yang, T. Li, G. Narasimhan, On the Effectiveness of Constraints Sets in Clustering Genes , *Proceedings of BIBE'07: the 7th IEEE International Symposium on Bioinformatics & Bioengineering*, p79-86, Boston, MA, October, 2007.
- [8] **E. Zeng**, C. Ding, G. Narasimhan, S. R. Holbrook, Estimating Support for Protein-Protein Interaction Data with Applications to Function Prediction, *Proceedings of CSB'08: the LSS Computational Systems Bioinformatics Conference*, p73-84, Stanford, CA, August, 2008.
- [9] **E. Zeng**, K. Mathee, L. Schneper, G. Narasimhan, A Functional Network of Yeast Genes Using Gene Ontology Information, *Proceedings of BIBM'08: the IEEE International Conference on Bioinformatics and Biomedicine*, p343-346, Philadelphia, PA, November, 2008.
- [10] **E. Zeng**, M. Ogihara, Nonnegative Least Square - A New Look Into SAGE Data, *Proceedings of CSB'09: the LSS Computational Systems Bioinformatics Conference*, P151-161, Stanford, CA, August, 2009.

- [11] Y. Zhang, **E. Zeng**, T. Li, G. Narasimhan, Weighted Consensus Clustering for Identifying Functional Modules in Protein-Protein Interaction Networks, *Proceedings of ICMLA'09: the International Conference on Machine Learning and Applications*, Miami, December, 2009.
- [12] W. Zhang, S. Emrich, **E. Zeng\*\***, A Two-Stage Machine Learning Approach for Pathway Analysis, *Proceedings of BIBM'10: the IEEE International Conference on Bioinformatics and Biomedicine*, P274-279, Hong Kong, December, 2010. \*\*Corresponding author.
- [13] W. Zhang, **E. Zeng\*\***, D. Liu, S. Jones, S. Emrich\*\*, A Machine Learning Framework for Trait Based Genomics, *Proceedings of ICCABS'12: the IEEE International Conference on Computational Advances in Bio and Medical Sciences*, Las Vegas, February, 2012. \*\*Corresponding authors.
- [14] D. Wang, M. Ogiwara, **E. Zeng**, T. Li, Combining Gene Expression Profiles and Protein-Protein Interactions for Identifying Functional Modules, *Proceedings of ICMLA'12: the 11th International Conference on Machine Learning and Applications*, Boca Raton, Florida, December 2012.
- [15] W. Zhang, **E. Zeng\*\***, J. Livermore, D. Liu, S. Jones, S. Emrich\*\*, Predicting bacterial functional traits from whole genome sequences using random forest, *Proceedings of ICCABS'13: the IEEE International Conference on Computational Advances in Bio and Medical Sciences*, New Orleans, June 12-14, 2013. \*\*Corresponding authors.
- [16] W. Zhang, S. Emrich, **E. Zeng\*\***, Assess genomic biomarkers of toxicity in drug development, *Proceedings of CAMDA'13: the Critical Assessment of Massive Data Analysis*, Germany, July, 2013. \*\*Corresponding author.
- [17] **E. Zeng\*\***, W. Zhang, S. Emrich, D. Liu, J. Livermore, and S. Jones, A Computational Framework for Integrative Analysis of Large Microbial Genomics Data, *Proceedings of COMMANMD Workshop at BIBM 2015: the IEEE International Conference on Bioinformatics and Biomedicine*, p1109-1116, Washington D.C., November, 2015. \*\*Corresponding author.
- [18] **Z. Lu, M. Harishchandra, E. Zeng\*\***, Predicting Drug Induced Liver Injury Through Combined Genomics Indicator and Ensemble Machine Learning Approaches, *Proceedings of CAMDA'18: the Critical Assessment of Massive Data Analysis*, Chicago, July, 2018. \*\*Corresponding author.

## Book Chapters

- [1] C. Yang\*, **E. Zeng\***, K. Mathee, G. Narasimhan, PlasmotFBM: A Database of Predicted Transcription Factor Binding Motifs in Plasmodium falciparum. *Methods of Microarray Data Analysis V*. McConnell, Lin, Hurban (Eds.), Springer, p121-136, 2007. \*Joint first authors.
- [2] **E. Zeng\*\***, C. Ding, K. Mathee, L. Schneper, G. Narasimhan, Gene function prediction and functional network: the role of gene ontology. *DATA MINING: Foundations and Intelligent Paradigms*. Dawan E. Holmes and Lakhmi C. Jain (Eds.), Springer, p123-162, 2012, ISBN 978-3-642-23150-6. \*\*Corresponding author.
- [3] H. Liang and **E. Zeng\*\***, RNA-seq experiment and data analysis, *Methods in Molecular Biology - Estrogen Receptors Methods and Protocols*. K. M. Eyster (Ed.), Springer, 2016, ISBN 978-1-4939-3126-2. \*\*Corresponding author.
- [4] M. Fernandez, J. Riveros, V. Aguiar-Pulido, J. Segal, M. Campos, K. Mathee, **E. Zeng**, and G. Narasimhan, Microbiome analysis: state-of-the-art and future trends, *Computational Methods for Next Generation Sequencing Data Analysis*. I. Mandoiu and A.Z. Zelikovsky (Eds.), Wiley, 2016, ISBN: 978-1-118-16948-3.

- [5] **M.H. Withanage**, H. Liang, and **E. Zeng\*\***, RNA-seq experiment and data analysis (2nd Edition), *Methods in Molecular Biology - Estrogen Receptors Methods and Protocols (2nd Edition)*. K. M. Eyster (Ed.), Springer, 2022, ISBN 978-1-0716-3. \*\*Corresponding author.

## Journals

- [1] D. Wang, M. Li, **E. Zeng**, W. Zhang, X. Wu, Cloning of Secondary Lymphoid-tissue Chemokine (SLC) and Its Expression in Prokaryotic System (in Chinese), *Chinese Journal of Biotechnology*. 2001;17(4):392-395.
- [2] **E. Zeng**, J. Liu, Z. Lin, The nucleic acid analysis by DNA chip technique based on nuclease S1 protection (in Chinese), *Acta Academiae Medicinae Sinicae*. 2001;23(1):89-92.
- [3] L. Li, Y. Lin, Y. Liu, **E. Zeng**, C. Li, The Use of Shareware for mtDNA Sequence Comparison (in Chinese), *Chinese Journal of Forensic Sciences*. 2003;(1):29-31.
- [4] M. He, **E. Zeng**, Y. Zheng, Z. Tang, X. Lu, B. Sun, D. Xu, Z. Zhang, L. Yang, Identification of Mycobacterium tuberculosis and rifampin-resistant strains by gene-chips (in Chinese), *Chinese Journal of Epidemiology*. 2003;24(5):385-8.
- [5] J. Yue, **E. Zeng**, J. Xie, Y. Li, L. Liu, H. Wang, Molecular mutations of rpoB gene of multidrug resistant Mycobacterium tuberculosis isolates from China (in Chinese), *Journal of Genetics and Genomics*. 2004;31(12):1332-6.
- [6] J. Yue, **E. Zeng**, J. Xie, Y. Li, L. Liang, H. Wang, Reliable Detection of Rifampin-Resistance of Mycobacterium tuberculosis Strains by Using a Specialized Oligonucleotide Microarray (in Chinese), *Chinese Journal of Biochemistry and Molecular Biology*. 2004;20(2):264-9.
- [7] J. Yue, W. Shi, J. Xie, Y. Li, **E. Zeng**, H. Wang, Mutations in the rpoB gene of multidrug-resistant Mycobacterium tuberculosis isolates from China, *J Clin Microbiol*. 2003;41(5):2209-12.
- [8] X. Gao, X. Fu, T. Li, J. Zi, Y. Luo, Q. Wei, **E. Zeng**, Y. Xie, Y. Li, Y. Mao, Determining a detectable threshold of signal intensity in cDNA microarray based on accumulated distribution, *J Biochem Mol Biol*. 2003;36(6):558-64.
- [9] J. Yue, W. Shi, J. Xie, Y. Li, **E. Zeng**, L. Liang, H. Wang, Detection of rifampin-resistant Mycobacterium tuberculosis strains by using a specialized oligonucleotide microarray, *Diagn Microbiol Infect Dis*. 2004;48(1):47-54.
- [10] K. Mathee, G. Narasimhan, C. Valdes, X. Qiu, J. Matewish, M. Koehrsen, A. Rokas, C. Yandava, R. Engels, **E. Zeng**, R. Olavarietta, M. Doud, R. Smith, P. Montgomery, J. White, P. Godfrey, C. Kodira, B. Birren, J. Galagan, S. Lory, Dynamics of Pseudomonas aeruginosa genome evolution, *Proceedings of the National Academy of Sciences (PNAS)*. 2008;105(8):3100-05.
- [11] M. Doud, **E. Zeng**, L. Schneper, G. Narasimhan, K. Mathee, Approaches to analyze dynamic microbial communities such as those seen in cystic fibrosis lung, *Human Genomics*. 2009;3(3):246-256.
- [12] **E. Zeng\*\***, C. Yang, T. Li, G. Narasimhan, Clustering genes using heterogeneous data sources, *International Journal of Knowledge Discovery in Bioinformatics*. 2010;1(2):12-28. \*\*Corresponding author.
- [13] P. P. Singh, C. LeMaire, J. Tan, **E. Zeng**, J. S. Schorey, Exosomes released from M.tuberculosis infected cells can suppress IFN- $\gamma$  mediated activation of naive macrophages, *PLoS ONE*. 2011;6(4):e18564. doi:10.1371/journal.pone.0018564.

- [14] T. Wang, F. Jiang, S. Oehrlein, **E. Zeng**, R. Kershner, F. Cerrina, Optical trapping force reduction and manipulation of nanoporous beads, *Appl. Phys. Lett.* 100, 153702 (2012); doi: 10.1063/1.3703604.
- [15] M. Galvan, D. Foreman, **E. Zeng**, J. Tan, S. Bohlson, Complement component C1q regulates macrophage expression of Mer tyrosine kinase to promote clearance of apoptotic cells, *The Journal of Immunology*. March 14, 2012; 1102920.
- [16] J. Sarro, E. Andrews, L. Sun, S. K. Behura, J. C. Tan, **E. Zeng**, D. W. Severson, and M. Duman-Scheel, Requirement for commissureless2 function during dipteran insect nerve cord development, *Developmental Dynamics*. 2013;242 (12): 1466-1477.
- [17] S. T. O'Neil, J. D. Dzurisin, C. Williams, N. F. Lobo, J. K. Higgins, J. M. Deines, R. D. Carmichael, **E. Zeng**, J. C. Tan, G. C. Wu, S. J. Emrich, J. J. Hellmann, Gene expression in closely-related species mirrors local adaptation: consequences for responses to a warming world, *Molecular Ecology*. 2014;23(11):2686-2698.
- [18] M. A. Favila, N. S. Geraci, **E. Zeng**, B. Harker, D. Condon, R. N. Cotton, A. Jayakumar, V. Tripathi, and M. A. McDowell, Human Dendritic Cells exhibit a pronounced type I IFN signature following *Leishmania* major infection that is required for IL-12 induction, *The Journal of Immunology*. May 7, 2014.
- [19] M. D. Galvan, H. Hulsebus, T. Heitker, **E. Zeng**, and S. S. Bohlson, Complement protein C1q and adiponectin stimulate Mer tyrosine kinase dependent engulfment of apoptotic cells through a shared pathway, *The Journal of Innate Immunity*. 2014;6(6).
- [20] W. Zhang, **E. Zeng**\*\* , D. Liu, S. Jones, S. Emrich, Mapping genomic features to functional traits through microbial whole genome sequences, *The International Journal of Bioinformatics Research and Applications*. 2014;10(4):461-478. \*\*Corresponding authors.
- [21] L. Y. Yampolsky, **E. Zeng**, J. Lopez, P. J. Williams, K. B. Dick, J. K. Colbourne, and M. E. Pfrender, Functional genomics of acclimation and adaptation in response to thermal stress in *Daphnia*, *The BMC Genomics*. 2014;15(859):1-12.
- [22] P. V. Hickner, A. Mori, **E. Zeng**, J. C. Tan, D. W. Severson, Whole transcriptome responses among females of the filariasis and arbovirus vector mosquito *Culex pipiens* implicate TGF- $\beta$  signaling and chromatin modification as key drivers of diapause induction, *The Functional & Integrative Genomics*. 16 January, 2015.
- [23] B. Liu, C. Zhou, G. Li, H. Zhang, **E. Zeng**, Q. Ma, Bacterial regulon modeling and prediction based on systematic cis regulatory motif analyses, *Scientific Reports*. 2016;6(23030).
- [24] L. Li, K. Picotte, J. Wang, M. Lun, J. Ohli, H. Lidov, M. Calicchio, **E. Zeng**, J. Salisbury, R. Wechsler-Reya, M. Lehtinen, U. Sch009Fller, and H. Zhao, Sonic Hedgehog promotes proliferation of Notch-dependent monociliated choroid plexus tumour cells, *Nature Cell Biology*. 21 March 2016.
- [25] P. Vermeer, D. Vermeer, J. Coppock, **E. Zeng**, K. Lee, W. Spanos, M. Onken, R. Uppaluri, and J. Lee, Metastatic model of HPV+ oropharyngeal squamous cell carcinoma demonstrates heterogeneity in tumor metastasis, *Oncotarget*. 22 March 2016.
- [26] S. S. C. Rund, B. Yoo, C. Alam, T. Green, M. T. Stephens, **E. Zeng**, G. F. George, A. D. Sheppard, G. E. Duffield, T. Milenkovic, and M. E. Pfrender, Genome-wide profiling of 24 hr diel rhythmicity in the water flea, *Daphnia pulex*: network analysis reveals rhythmic gene expression and enhances functional gene annotation, *BMC Genomics*. 2016;17(653).
- [27] K. B. Grausam, S. D. Dooyema, L. Bihannic, **H. Premathilake**, A. S. Morrissy, A. Forget, A. M. Schaefer, J. H. Gundelach, S. Macura, D. M. Maher, X. Wang, **A. H. Heglin**, X. Ge, **E. Zeng**, S. Puget, I. Chandrasekar, K. Surendran, R. J. Bram, U. Sch009Fller, M. D. Taylor, O. Ayrault, H. Zhao, ATOH1 promotes leptomeningeal dissemination and metastasis of Sonic Hedgehog subgroup medulloblastomas, *Cancer Research*. May 10, 2017.

- [28] A. Abdullah, K. M. Eyster, T. Bjordahl, P. Xiao, **E. Zeng**, and X. Wang, Murine Myocardial Transcriptome Analysis Reveals a Critical Role of COPS8 in the Gene Expression of Cullin-RING Ligase Substrate Receptors and Redox and Vesicle Trafficking Pathways, *Frontiers in Physiology*. August 17, 2017.
- [29] S. Patel, **Z. Lu**, X. Jin, P. Swaminathan, **E. Zeng**, and A. Fennell, Comparison of three assembly strategies for a heterozygous seedless grapevine genome assembly, *BMC Genomics*. January 17, 2018.
- [30] F. Fang, A. VanCleave, R. Helmuth, H. Torres, K. Rickel, H. Wollenzien, H. Sun, **E. Zeng**, J. Zhao, and J. Tao, Targeting the Wnt/beta-catenin pathway in human osteosarcoma cells. *Oncotarget*, 2018;9(95):36780-36792.
- [31] P. Brown, **RELISH Consortium\*\***, Y. Zhou, Large expert-curated database for benchmarking document similarity detection in biomedical literature search, *Database*. Volume 2019, 2019, baz085. \*\*A member of RELISH Consortium.
- [32] J. Zheng, C. He, Y. Qin, G. Lin, W. D. Park, M. Sun, J. Li, X. Lu, C. Zhang, C. Yeh, C. J. Gunasekara, **E. Zeng**, H. Wei, P. S. Schnable, G. Wang, and S. Liu, Co-expression Analysis Aids in the Identification of Genes in the Cuticular Wax Pathway in Maize, *Plant Journal*, 2019;97(3):530-542.
- [33] J. Zheng, **E. Zeng**, Y. Du, C. He, Y. Hu, Z. Jiao, K. Wang, W. Li, M. Ludens, J. Fu, H. Wang, F. White, G. Wang, and S. Liu, Temporal Small RNA Expression Profiling under Drought Reveals a Potential Regulatory Role of Small Nucleolar RNAs in the Drought Responses of Maize, *Plant Genome*, 12(1), 2019.
- [34] M. M. Bertke, K. M. Dubiak, L. Cronin, **E. Zeng**, P. W. Huber, A Deficiency in SUMOylation Activity Disrupts Multiple Pathways Leading to Neural Tube and Heart Defects in Xenopus Embryos, *BMC Genomics*, 2019;20(386).
- [35] C. Fischer, A. Bates, E. Lanzel, J. Guthmiller, G. Johnson, N. Singh, A. Kumar, R. Vidva, T. Abbasi, S. Vali, X. Xie, **E. Zeng**, K. Brogden, Computational Models Accurately Predict Multi-Cell Biomarker Profiles in Inflammation and Cancer, *Scientific Reports*. 2019;9:10877.
- [36] A. Dumbuya, A. F. Gomes, L. Marchini, **E. Zeng**, **C. L. Comnick**, S. L. Sousa Melo, Bone Changes in the Temporomandibular Joints of Older Adults: A Cone-beam Computed Tomography Study, *Special Care Dentistry*, 2020;40(1):84-89.
- [37] S. Smita, J. Kiehne, S. Adhikari, **E. Zeng**, Q. Ma, S. Subramanian, Gene regulatory networks associated with lateral root and nodule development in soybean, *in silico Plants*, February 28, 2020;diaa002.
- [38] C. He, Y. Du, J. Fu, **E. Zeng**, S. Park, F. White, J. Zheng, S. Liu, Early drought-responsive genes are variable and relevant to drought tolerance, *G3: Genes, Genomes, Genetics*, Mar 11, 2020.
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- [57] A. Alade, N. Mukhopadhyay, **E. Zeng**, **M. Hikkaduwa Withanage**, W. Awotoye, O. Abimbola, T. Busch, V. Sule, L. Gowans, P. Mossey, M. Eshete, W. Adeyemo, A. Adeyemo, J. Murray, M. Marazita, A. Butali, Genetic Interactions Implicate Disruption in Ciliogenesis in the Etiology of Non-syndromic Orofacial Clefts, *ASHG 2022 Annual Meeting*, October 25-29, 2022

- [58] A. Petrin, X. Xie, **E. Zeng**, D. Moretti-Ferreira, M. Marazita, J. Murray, L. Moreno-Uribe, DNA Methylation in Twins Discordant for van der Woude Syndrome, *ASHG 2022 Annual Meeting*, October 25-29, 2022
- [59] **T. Peter**, **M. Hikkaduwa Withanage**, **C. Cornick**, **C. Pendleton**, X. Xie, **E. Zeng**, Meta-Analysis of Oral Microbiome Associated With Oral Cancer, *IADR/APR 2022 Virtual Conference*, June 22, 2022
- [60] A. Alade, W. Awotoye, O. Abimbola, T. Busch, **E. Zeng**, **M. Hikkaduwa Withanage**, L. Gowans, P. Mossey, M. Eshete, W. Adeyemo, A. Adeyemo, J. Murray, A. Butali, SNP-SNP Interactions Identify Novel Genes for Non-syndromic Orofacial Clefts, *IADR/APR 2022 Virtual Conference*, June 24, 2022
- [61] L. Gowans, W. Awotoye, A. Alade, **C. Cornick**, O. Abimbola, V. Sule, T. Busch, **E. Zeng**, **M. Hikkaduwa Withanage**, S. Obiri-Yeboah, W. Adeyemo, P. Mossey, P. Donkor, A. Adeyemo, J. Murray, A. Butali, Afadin Contributes to Genetic Etiology of Orofacial Clefts in Africans, *IADR/APR 2022 Virtual Conference*, June 24, 2022
- [62] K. Evenson, J. Hartshorn, H. Cowen, **E. Zeng**, Effects of Pre-doctoral Experiences on Treating Patient's with Alzheimer's Disease, *The Voice of Dental Education*, March 12, 2023
- [63] W. Awotoye, L. Moreno-Uribe, J. Murray, A. Petrin, X. Xie, **E. Zeng**, Epigenomic Analysis of Cleft Lip Laterality in Mirror Image Twins, *The 2023 AADOCR/CADR Annual Meeting & Exhibition*, March 15, 2023
- [64] V. Sule, A. Butali, C. Buxó-Martínez, S. Cleven, J. Hecht, B. Howe, M. Marazita, L. Moreno-Uribe, I. Orioli, C. Padilla, F. Poletta, C. Valencia-Ramirez, G. Wehby, S. Weinberg, **E. Zeng**, Developmental Enamel Defects in Non-Syndromic Orofacial Clefting, *The 2023 AADOCR/CADR Annual Meeting & Exhibition*, March 15, 2023
- [65] **P. Nguyen**, A. Butali, R. Lie, M. Marazita, L. Moreno-Uribe, J. Murray, A. Petrin, A. Wilcox, X. Xie, **E. Zeng**, Computational Framework for Differential Methylation Analysis in Orofacial Cleft Twins, *The 2023 AADOCR/CADR Annual Meeting & Exhibition*, March 15, 2023
- [66] J. Zhang, Y. Lei, A. Wang, N. Yu, **E. Zeng**, S. Zhang, Type I Interferon Plays a Protective Role in Ligature-Induced Periodontitis by Mitigating an IL-17-Neutrophil Axis, *The 2023 AADOCR/CADR Annual Meeting & Exhibition*, March 16, 2023
- [67] **E. Zeng**, **M. Hikkaduwa Withanage**, S. Zaizabekov, X. Xie, Computational Identification of Community-Wide Transcriptional Regulatory Networks in Oral Microbiomes, *The 2023 AADOCR/CADR Annual Meeting & Exhibition*, March 17, 2023
- [68] G. Bhatia, S. Levy, **C. Pendleton**, J. Warren, P. Saha, **E. Zeng**, Associations between Longitudinal Fluoride Intake and Bone Densitometry Outcomes at 23 Years, *National Oral Health Conference*, April 17, 2023
- [69] A. Alade, T. Busch, W. Awotoye, O. Abimbola, E. Aladenika, T. Naicker, V. Sule, P. Mossey, L. J.J Gowans, M. A. Eshete, W. L. Adeyemo, **E. Zeng**, E. Van Otterloo, M. O'Rorke, A. Adeyemo, J. Murray, P. Romitti, A. Butali, Rare Coding Variant Analyses Identify Novel Genes Associated with NSOFCs, *2023 IADR/LAR General Session & Exhibition with WCPD*, June 21-24, 2023
- [70] **J. Kim**, **S. Rajaram**, **N. Phuong**, A. Peng, X. Xie, **E. Zeng**, Analysis of Multi-Omics Data in Oral Squamous Cell Carcinoma Reveals Prognostic Biomarkers Linked to Cell Cycle Regulation, *2024 IADR/AADOCR/CADR General Session & Exhibition*, March 13-16, 2024
- [71] S. Kulanthaivel, J. Banas, **O. Rysavy**, **E. Zeng**, D. Drake, C. Vidal, Different Stimulation Strategies to Study the MMPs Expression by DPSC, *2024 IADR/AADOCR/CADR General Session & Exhibition*, March 13-16, 2024

- [72] A. Petrin, H. Keen, M. Chimenti, B. Darbro, X. Xie, **E. Zeng**, R. Philibert, A. Butali, G. Wehby, A. Wilcox, R. Lie, S. Weinberg, M. Marazita, J. Murray, L. Uribe, Epigenetic Profiling of Monozygotic Twins Discordant for Orofacial Clefts, *2024 IADR/AADOCCR/CADR General Session & Exhibition*, March 13-16, 2024
- [73] L. Paula, B. Doolittle, L. Hovey, L. Dunlay, Xi. Xie, **E. Zeng**, A. Butali, G. Wehby, R. Lie, M. Marazita, J. Murray, L. Uribe, A. Petrin, Genetic-Epigenetic Interactions (MeQTLs) in Orofacial Clefts Etiology, *2024 IADR/AADOCCR/CADR General Session & Exhibition*, March 13-16, 2024
- [74] **P. Singh, S. Rajaram, E. Zeng**, Meta-Analysis of Metatranscriptome of Oral Microbiome Associated With Dental Diseases, *2024 IADR/AADOCCR/CADR General Session & Exhibition*, March 13-16, 2024
- [75] **S. Rajaram, P. Singh, M. Withanage, E. Zeng**, Multi-Omics Comparison of Bacteria, Viruses and Fungi in Oral Microbiome, *2024 IADR/AADOCCR/CADR General Session & Exhibition*, March 13-16, 2024
- [76] W. Awotoye, P. Mossey, L. Gowans, M. Eshete, W. Adeyemo, A. Alade, **E. Zeng**, T. Naicker, T. Busch, M. Young, A. Oladayo, A. Adeyemo, A. Butali, Novel Pathogenic Variants in Cleft Genes Contributing to NSCL±P Risk, *2024 IADR/AADOCCR/CADR General Session & Exhibition*, March 13-16, 2024
- [77] C. Ogwo, J. Warren, G. Brown, **E. Zeng**, W. Thomson, S. Levy, Predicting OHRQOL Trajectories From Adolescence to Adulthood Using Machine Learning, *2024 IADR/AADOCCR/CADR General Session & Exhibition*, March 13-16, 2024
- [78] M. Olujitan, E. Aladenika, A. Oladayo, W. Awotoye, A. Alade, T. Busch, L. Gowans, M. Eshete, W. Adeyemo, **E. Zeng**, P. Mossey, J. Murray, A. Adeyemo, P. Lupo, A. Butali, The Burden of Cancer Predisposition in Individuals With Orofacial Clefts, *2024 IADR/AADOCCR/CADR General Session & Exhibition*, March 13-16, 2024
- [79] J. Zhang, A. Wang, D. Miao, **E. Zeng**, M. Lin, Y. Lei, S. Zhang, Type I Interferon Plays a Protective Role in Murine Ligature-Induced Periodontitis, *2024 IADR/AADOCCR/CADR General Session & Exhibition*, March 13-16, 2024
- [80] W. Senn, S. McKernan, J. Warren, J. Reynolds, **E. Zeng**, J. Sukalski, **J. Thomas**, Factors Associated With Career Intentions of Early to Mid-Career Air Force Dental Officers, *2024 National Oral Health Conference*, April 15-17, 2024

PATENTS

**E. Zeng**, J. Liu, Z. Lin, Number: 00119541.7 (Chinese), 2001

SELECTED INVITED PRESENTATIONS

- “Challenges and opportunities: when biology meets big data,” TSRI Research Seminar Series, Saban Research Institute, Children’s Hospital Los Angeles, CA, March 19, 2014
- “Interpret Large Genomic Data Using Data Mining & Computational Systems Biology Approaches,” School of Medicine Seminar Series, USD Sanford School of Medicine, Vermillion, SD, October 31, 2014
- “Bioinformatics and Computational Systems Biology: State-of-the-Art and Applications in Large Genomic Data Analysis,” Sanford Research Seminar Series, Sanford Research, Sioux Falls, SD, March 19, 2015
- “Interpret Omics Data using Computational Methods: Perspectives and Experiences,” Plant Pathology Seminar, Kansas State University, Manhattan, KS, September 22, 2016
- “Network Analysis for Evaluating Computational Methods and Interpreting Omics Data,” CSS Seminar, South Dakota State University, Brookings, SD, October 3, 2016
- “Bioinformatics and Computational Science for BioSciences,” Workshop of Center for Brain and Behavior Research, University of South Dakota, Vermillion, December 7, 2016



- “Bioinformatics Research for Undergraduate Students,” ACM Student Chapter, University of South Dakota, Vermillion, November 7, 2017
- “Modeling and Interpreting Biological Data Using Networks and Graphs,” CS Departmental Seminar, University of South Dakota, Vermillion, SD, November 13, 2017
- “Microbiome Study in Omics Data Era: The Role of Bioinformatics and Its Applications,” BME Departmental Seminar, University of South Dakota, Sioux Falls, SD, April 5, 2018
- “Predicting Drug Induced Liver Injury Through Combined Genomics Indicator and Ensemble Machine Learning Approaches,” CAMDA 2018 (17th Annual International Conference on Critical Assessment of Massive Data), Chicago, IL, July 8, 2018
- “Big Biological Data Mining and Analysis”, Seminar Presented at the UI Genetics Cluster Initiative, Iowa City, IA, September 26, 2018
- “Biostatistics and Bioinformatics at the College of Dentistry”, Seminar Presented at the UI Diabetes Research Center Retreat, Iowa City, IA, December 15, 2018
- “Cancer Study in Omics Data Era: The Role of Bioinformatics and Its Applications”, Seminar Presented in Holden Comprehensive Cancer Center at UI, Iowa City, IA, December 21, 2018
- “Microbiome Study in an Omics Data Era: The role of Bioinformatics and Its Applications”, Oral presentation at the 4th Mini-Symposium for Young Investigators on the International Association for Dental Research (IADR) 2019 Meeting, Vancouver, BC, Canada, June 18, 2019
- “Patterns in Dental Anomalies in Orofacial Clefting using Hierarchical Clustering”, Oral presentation at International Association for Dental Research (IADR) 2019 Meeting, Vancouver, BC, Canada, June 19, 2019
- “Modeling and Prediction of Bacterial Regulons With an Application to the Oral Microbiome”, 19th Annual Mark Wilson Conference, San Juan, Puerto Rico, February 10, 2020
- “A Novel Machine-Learning Framework Identifies Dental Caries and Periodontitis Biomarkers”, Iowa Section of the AADR 68th Annual Meeting, February 16, 2021
- “Big Biological Statistical Analysis and Data Mining: Perspectives and Computational Methods”, Biostatistics Seminar, Department of Biostatistics, University of Iowa, Iowa City, IA, April 5, 2021
- “Systematic Comparison of Bioinformatics Analytical Tools for Metagenomics Data”, IADR Symposium: Oral Microbiome Omics Data Analysis, IADR 2021 Virtual Conference, July 24, 2021
- “A Novel Machine-Learning Framework for Disease-associated Microbiome Interaction Identification”, The Virtual International Conference on Multidisciplinary Approaches in Science (ICMAS-2021), University of Colombo, Sri Lanka, November 25, 2021
- “Artificial Intelligence Demonstration in Dentistry: A Novel Machine-Learning Framework for Disease-associated Microbiome Interaction Identification”, Research Seminar, University of Florida College of Dentistry, Gainesville, FL, February 28, 2022
- “Promote Biomedical Research Using Data Science Approaches”, Research Seminar, The Oklahoma Medical Research Foundation, Oklahoma City, OK, March 8, 2022
- “Exploring the Interface of Toxicology Research: Machine Learning Approaches and Applications”, Research Seminar, The UI Human Toxicology Program & The Iowa Superfund Basic Research Program, University of Iowa, Iowa City, IA, November 10, 2023

RESEARCH  
EXPERIENCE

- Associate Professor** University of Iowa, July 2018 to present  
*Research in Bioinformatics and Computational Systems Biology*
- Direct BioComs Lab to solve problems in the areas of bioinformatics, computational systems biology, and functional genomics using computational and statistical methods.
  - Establish collaborative research inside College of Dentistry at the University of Iowa and across UI campus.
- Assistant Professor** University of South Dakota, July 2014 to July 2018  
*Research in Bioinformatics and Computational Systems Biology*
- Direct BioComs Lab to solve problems in the areas of bioinformatics, computational systems biology, and functional genomics using computational and statistical methods.
  - Establish and develop the bioinformatics specialization for PhD program in biological sciences at USD, developed four new courses in bioinformatics and computational systems biology to support this bioinformatics specialization.
- Research Assistant Professor** University of Notre Dame, July 2009 to June 2014  
*Bioinformatics Algorithm Development*
- Develop new algorithms for microarray data analysis, next-generation sequencing data analysis, and metagenomic data analysis.
- Managing Director of BCF** University of Notre Dame, July 2009 to June 2014  
*Bioinformatics Core Facility (BCF) Management*
- Daily management of bioinformatics core facility including overseeing core lab functions and technical staff.
  - Build collaborative relationships with faculty members from other departments.
- Postdoctoral Researcher** University of Miami, September 2008 to June 2009  
*Study of Neurological Disorders*
- Data mining on genomics data and gene expression data of neurological disorders such as Alzheimer's disease and Parkinson's disease.
- Research Assistant** Bioinformatics Research Group (BioRG), Florida International University, September 2003 to August 2008
- Protein-Protein Interaction Mining*
- Predicted protein function and networks using comparative genomics and multi-source data.
- Gene Regulation Mining*
- Revealed gene regulation mechanisms using comparative genomics and gene expression data.
- Clustering Genes Using Heterogeneous Biological Data*
- Investigated effectiveness of constraints sets in clustering genes.
  - Developed a new algorithm called Multi-Source Clustering (MSC) to cluster genes by combining microarray data and text information.
- Mining Regulatory Elements Using Gene Expression Data*
- Predicted putative transcription factor binding motifs (TFBMs) in *P.falciparum* using two different computational approaches and building a relational database called PlasmotFBM with a user-friendly web interface.
- Internship** Lawrence Berkeley National Laboratory, June 2007 to August 2007  
*Research on Mining Protein-Protein Interaction Data*
- Internship** Centocor (a subsidiary of Johnson&Johnson), May 2006 to August 2006  
*Implemented a Web-based Program for Target Explorer*  
*Developed a Web Application of Codon Usage*  
*Analyzed Flow Cytometry Data for Department of Experimental Pathology*

*Microarray Data Analysis and Promoter Sequence Data Analysis*

**Group Leader** Research and Development Dept., Biostar Genechip Inc., Shanghai, China, May 2001 to June 2003

*Developed Oligonucleotide Microarrays for SNP Detection*

- Developed SNP chips for forensics testing.

*Study of Expression Profiles of Hepatocellular Carcinoma Using cDNA Microarray*

- Participated in using cDNA microarray to investigate gene expression profiles of Hepatocellular Carcinoma.

*Developed Oligonucleotide Microarrays for M. tuberculosis Drug Resistance Detection*

- Developed microarrays for detecting drug resistance in *M.tuberculosis*.

*Basic Research on Oligonucleotide Microarrays*

- Participated in establishing a oligonucleotide microarray technical platform for organization.

TEACHING  
EXPERIENCE

- UIOWA T90/R90 Program: Training on Research Rigor and Reproducibility, Instructor (Team Teaching), UI, IA, Spring 2024
- IGPI:5015: Independent Study, Instructor, UI, IA, Spring 2024
- TOX:7201: Independent Study in Toxicology Research, Instructor, UI, IA, Spring 2024, Fall 2023
- IGPI:6520: Research for Dissertation, Instructor, UI, IA, Spring 2021
- ORSC:5212: Statistical Methods for Dental Research, Course director, UI, IA, Fall 2022, 2021, 2020
- OMFS:5220: Research Methodology, Course co-director, UI, IA, Summer 2022, 2021, 2020
- ORSC:5210: Dental Sciences Research Methodology, Course co-director, UI, IA, Summer 2021, 2020, 2019
- ORSC:5275:0001: Oral Microbiology and Immunology, Instructor of a teaching team, UI, IA, Spring 2023, 2021, 2019
- IGPI:6515: Independent Study, Instructor, UI, IA, Spring & Summer & Fall 2024, 2023, 2022, 2020, 2019
- PCD:8500:0800: Dental Student Research Honors Program, Guest lecturer, UI, IA, Fall 2019
- BIOL 420 & BIOL 520: Introduction to Biostatistics and Computational Biology, Instructor, BIO, USD, SD, Spring 2018, 2017, 2016, 2015
- BIOL 791 IS: Plant Genomics Analysis, USD, SD, Fall 2017
- BIOL 781: Data Mining in Bioinformatics, Instructor, USD, SD, Fall 2017
- BIOL 492/592, CSC 492/592: Topics in Bioinformatics, Instructor, USD, SD, Fall 2017
- BIOC 752: Molecular Biology of the Gene, Instructor of a teaching team, USD, SD, Spring 2017
- CPHD 601: Introduction to Bioinformatics, Instructor of a teaching team, USD, SD, Springs 2015, 2016, 2017
- BIOL 792: Topics in Biology: Computing for Biologists, Instructor, BIO, USD, SD, Fall 2016
- BIOL 792: Topics in NGS Data Analysis, Instructor, BIO, USD, SD, Fall 2015
- BIOL 792: Topics in Bioinformatics and Systems Biology, Instructor, BIO, USD, SD, Fall 2014
- CSE 40532 & CSE 60532: Bioinformatics Computing, Instructor, CSE, ND, IN, Fall 2011
- Guest lectures for a genomics course (with a topic of Statistics in Biology), ND, IN, Fall 2009
- CSC 410, CSC 411 and CSC 412: Computer Science Project, CS, UM, Miami, FL, Spring 2009
- COP 2250: Programming in Java, Instructor, SCIS, FIU, Miami, FL, Spring 2008

- COP 2210: Programming I, Lectured and supervised lab, SCIS, FIU, Miami, FL, Spring 2007
- CGS 2518: Computer Data Analysis, Lectured and supervised lab, SCIS, FIU, Miami, FL, Spring 2006 to Fall 2006
- CGS 2100: Computer Applications for Business, Lectured and supervised lab, SCIS, FIU, Miami, FL, Fall 2005

## ACADEMIC ACTIVITIES

### Postdoc Advisor

- Sagar Patel (Postdoctoral researcher in Anne Fennell lab at SDSU, co-advised, 2015-2017)
- Min Gan (Computer Science, University of South Dakota, 2015-2016, First Employment: Associate Professor at FuZhou University, China)

### Dissertation/Thesis Advisor

#### *PhD Dissertation Advisor*

- Brian Hong (Interdisciplinary Graduate Program in Informatics, University of Iowa, 2024- )
- Yiyang John Shen (Interdisciplinary Graduate Program in Informatics, University of Iowa, 2024- )
- Jihyun Kim (Interdisciplinary Graduate Program in Informatics, University of Iowa, 2023- )
- Priyanka Singh (Interdisciplinary Graduate Program in Informatics, University of Iowa, 2023- )
- Shri Vishalini Rajaram (Interdisciplinary Graduate Program in Human Toxicology, University of Iowa, 2022- )
- Phuong Nguyen (Interdisciplinary Graduate Program in Informatics, University of Iowa, 2021- )
- Miyuraj Harishchandra (Interdisciplinary Graduate Program in Informatics, University of Iowa, 2018-2022)
- Miyuraj Harishchandra (Biological Sciences with Specialization in Bioinformatics, University of South Dakota, 2015-2018)
- Pasan Fernando (Biological Sciences with Specialization in Bioinformatics, University of South Dakota, 2015-2018, Co-advised by Paula Mabee, First Employment: Assistant Professor at the University of Colombo, Sri Lanka)
- Wei Zhang (Computer Science, University of Notre Dame, 2009-2014, Co-advised by Scott Emrich, First Employment: Walmart Labs)

#### *Honors Thesis Advisor*

- Blaine Nelson (USD Honors Program, University of South Dakota, 2017-2018 )
- Alex Heglin (USD Honors Program, University of South Dakota, 2015-2016, Medical School Student at Touro College of Osteopathic Medicine After Graduation)

### Dissertation/Thesis Committee Member

#### *PhD Dissertation Committee*

- Mojisola Olujitan (College of Dentistry, University of Iowa, 2023- )
- Emmanuel Aladenika (College of Dentistry, University of Iowa, 2022- )
- Tabitha Peter (College of Public Health, University of Iowa, 2020- )
- Azeez Alade (College of Dentistry, University of Iowa, 2019-2023)
- Waheed Awotoye (College of Dentistry, University of Iowa, 2018-2022)
- Maram Jaradat (College of Dentistry, University of Iowa, 2018-2021)
- Jeff Beck (Basic Biomedical Science, University of South Dakota, 2015-2022)
- Casey Finnicum (Basic Biomedical Science, University of South Dakota, 2014-2019)

- Laura Jackson (Biological Sciences, University of South Dakota, 2014-2019)
- Joseph Madison (Biological Sciences, University of South Dakota, 2014-2018)
- Kumudu Rathnayake (Biological Sciences, University of South Dakota, 2014-2018)
- Mike Wallinga (Computer Science, University of South Dakota, 2014-2017)

#### *Master Thesis Committee*

- Cam Geyer (College of Dentistry, University of Iowa, 2022-2024 )
- William Senn (College of Dentistry, University of Iowa, 2022-2024 )
- Maria Teresa Rosas Diaz (College of Dentistry, University of Iowa, 2021-2023 )
- Gurjot Bhatia (College of Dentistry, University of Iowa, 2021-2023 )
- Ala Saffer (College of Dentistry, University of Iowa, 2021-2023 )
- Emma Mueldener (College of Dentistry, University of Iowa, 2021-2023)
- Veronica Sule (College of Dentistry, University of Iowa, 2020-2023)
- Richard Sinn (College of Dentistry, University of Iowa, 2020-2022)
- Olajide Obe (College of Dentistry, University of Iowa, 2019-2022)
- Abimbola Oladayo (College of Dentistry, University of Iowa, 2019-2022)
- Stephanie Vazana (College of Dentistry, University of Iowa, 2019-2022)
- Yun Jung Kim (College of Dentistry, University of Iowa, 2019-2021)
- Paula Gomez (College of Dentistry, University of Iowa, 2018-2020)
- Moamen Sheba (College of Dentistry, University of Iowa, 2018-2020 )
- Amal Aljeshi (College of Dentistry, University of Iowa, 2018-2020 )
- Vijaya Akode (Computer Science, University of South Dakota, 2016-2017)
- Shiva Prasad Gaddameedi (Computer Science, University of South Dakota, 2016-2017)
- Jinyu Yang (Mathematics and Statistics, South Dakota State University, 2016-2017 )
- Fatema Zohora (Computer Science, University of South Dakota, 2016-2017)

#### *Honors Thesis Committee*

- Blaine Nelson (USD Honors Program, University of South Dakota, 2018-2019)

#### **University Service**

- Interdisciplinary Graduate Program in Informatics (IGPI), Student Recruitment and Admissions Committee, 2021-
- The Iowa Health Data Resource (IHDR) Intercollegiate Advisory and Implementation Team (IAI), 2021-
- Interdisciplinary Graduate Program in Molecular Medicine Review Committee, June, 2020
- Judge, UI annual Fall Undergraduate Research Festival (FURF), November, 2019
- Judge, 28th Annual Biocatalysis and Bioprocessing Conference, UI Center for Biocatalysis and Bioprocessing, October, 2019
- Judge, UI annual Spring Undergraduate Research Festival (FURF), April, 2019
- Judge, Local 2019 AADR Research, February, 2019
- Judge, UI annual Fall Undergraduate Research Festival (FURF), November, 2018
- USD Information Technology Advisory Council (ITAC), 2017-2018
- USD Research Computing Advisory Committee, 2016-2018

#### **Department/College Service**

- Judge, The 71st Iowa Section of AADOCR Meeting, UI, 2024
- Member, College of Dentistry Department of Preventive & Community Dentistry Faculty-Grad Student Seminar, UI, 2022
- Participating in the virtual site-visit for the graduate program in Oral Science, UI, 2022
- Member, College of Dentistry Research & Education Committee, UI, 2022
- Member, College of Dentistry Faculty Search Committee, UI, 2021
- Member, College of Dentistry D1 Student Interview Team, UI, 2020, 2022, 2023
- Judge, College of Dentistry Student Research Proposal, UI, 2020
- Member, College of Dentistry Faculty-Student Mentoring Community, UI, 2019
- UI College of Dentistry Faculty-Student Mentoring Community, since 2019

- Member, Ecological Modeler Faculty Search Committee, USD, 2017-2018
- Chair, Biology Graduate Student Travel Award Committee, USD, 2016-2018
- Member, Computer Science Faculty Search Committee, USD, 2015-2016
- Member, Biology Grad Steering Committee, USD, 2014-2015

## Professional Service

### *Grant Proposal Review Panel*

- Reviewer, University of Texas at San Antonio (UTSA) FY23 Limited Submission Program
- Reviewer, Oak Ridge Associated Universities (ORAU) FY20 Proposal Development Program
- Reviewer, University of Texas at San Antonio (UTSA) FY20 Limited Submission Program
- Reviewer, NSF FY19 DBI IIBR Panel
- Reviewer, NSF FY19 CIBR Electronic Proposal Review
- Reviewer, NSF FY18 MCB Panel
- Reviewer, NSF FY18 DBI Panel
- Reviewer, UK FY17 Medical Research Council
- Reviewer, NSF FY17 CAREER Panel
- Reviewer, NSF FY17 SSB Panel
- Reviewer, NSF FY16/FY17 Graduate Fellowship Review Program
- Reviewer, NSF FY16 DBI Panel

### *External Reviewer*

- External Reviewer, A Faculty Promotion Application, 2019

### *Editorial Board Member*

- Frontiers in Computer Science, 2020-
- Journal of Prosthodontics, 2019-
- Scientific Reports, 2016-
- Open Computer Science (COMP), 2014-
- BMC Bioinformatics (Associate Editor), 2016-2022
- Central European Journal of Computer Science (CEJCS), 2011-2014

### *Editorial Review Board*

- International Journal of Knowledge Discovery in Bioinformatics (IJKDB), 2009-2018

### *Guest Editor*

- A Collection of Biological Modularity, Scientific Reports, 2023
- A Microbiome Supplement, Evolutionary Bioinformatics, 2016

### *Conference Session Chair/Steering Committee or Advisory Committee Member*

- AADOCR/CADR Annual Meeting & Exhibition, Interactive Talk Session Chair, 2023
- International Conference on Bioinformatics, Biocomputational Systems and Biotechnologies (BIOTECHNO), Industry/Research Advisory Committee Member, 2020-2022
- International Conference on Bioinformatics, Biocomputational Systems and Biotechnologies (BIOTECHNO), Steering Committee Member, 2017-2019

### *Program Committee*

- Program committee, International Conference on Physiological Computing Systems (PhyCS), 2014-2018
- Program committee, ACM Conference on Bioinformatics, Computational Biology and Biomedical Informatics (ACM-BCB), 2013
- International Conference on Bioinformatics and Computational Biology (BICoB),

2010-2017

- International Conference on Bioinformatics Models, Methods and Algorithms (BIOINFORMATICS), 2010-
- IEEE International Conference on Bioinformatics & Biomedicine (BIBM), 2009-2018
- International Conference on Global Health Challenges (GLOBAL HEALTH), 2012-
- International Workshop on Collaboration Technologies and Systems in Healthcare and Biomedical Fields (CoHeB), 2011
- Workshop Co-Chair, COMMANMD (COMputational Methods for Analyzing Metagenomics Data) BIBM 2015 Workshop, Washington D.C., November 9, 2015
- Workshop Co-Chair, GMDM (Genomics and Metagenomics Data Mining) ACM-BCB 2015 Workshop, Atlanta, GA, September 9, 2015
- ICDM 2011 Workshop on Biological Data Mining and its Applications in Healthcare (BioDM), 2011-2014
- International Conference on Bioinformatics & Computational Biology (BIOCOMP), Las Vegas, July 2010
- International Joint Conference on Bioinformatics, Systems Biology and Intelligent Computing (IJCBS), Shanghai, China, August 2009

#### Public Service

- Contributor, Futurum brochure: “Dental discoveries: How is dental research improving oral health?” <https://futurumcareers.com/dental-discoveries>, (2023)
- Judge, “It’s All About Science” Festival, Sioux Falls, South Dakota, (2016, 2017)

#### AWARDS

- The Certificate of Distinction Award of the 9th annual Student Supervisor of the Year, University of Iowa, 2024
- The Best Contributed Analysis (Second Place), CAMDA (Critical Assessment of Massive Data Analysis) Conference, 2018
- Faculty Research Support Program Award, University of Notre Dame, 2013
- Dissertation Year Fellowship, Florida International University, 2008
- Outstanding Graduate Academic Achievement Award, School of Computing and Information Sciences, FIU, 2007
- Excellence Award, School of Computing and Information Sciences, FIU, 2007-2008
- Presidential Fellowship, Florida International University, 2003-2005