

# Daifeng Wang

## Background Information

### Name and Contact Information

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## Formal Education

Bachelor of Science, Electronics and Information Engineering, Huazhong University of Science and Technology, Wuhan, Hubei, P.R. China, 2004

Master of Science, Electrical and Computer Engineering, The University of Texas at Austin, Austin, TX, 2006

Ph.D., Electrical and Computer Engineering, The University of Texas at Austin, Austin, TX, 2011

Postdoctoral Associate, Computational Biology & Bioinformatics Program and Department of Molecular Biophysics and Biochemistry, Yale University, New Haven, CT, 2012 – 2015

Certificate, Statistical Foundations, Division of Statistics and Scientific Computation, The University of Texas at Austin, Austin, TX, 2011

## Current Positions

Assistant Professor, Department of Biostatistics and Medical Informatics, University of Wisconsin – Madison, Madison, WI, 2019 – Present

Assistant Professor (Affiliate), Department of Computer Sciences, University of Wisconsin – Madison, Madison, WI, 2020 – Present

Investigator and Director of Data Science Core, Waisman Center, University of Wisconsin – Madison, Madison, WI, 2019 – Present

Computational faculty, Quantitative Biology Initiative (QBI), University of Wisconsin – Madison, Madison, WI, 2020 – Present

Faculty mentor in Genetics Training Program and Affiliated Faculty of Center for Genomic Science Innovation, University of Wisconsin – Madison, Madison, WI, 2021 – Present

Faculty trainer in Genomic Sciences Training Program (GSTP), University of Wisconsin – Madison, Madison, WI, 2022 – Present

### **Past Appointments/Positions**

Assistant Professor, Department of Biomedical Informatics, State University of New York at Stony Brook (SUNY-Stony Brook), Stony Brook, NY, 2016 – 2019

Associate Research Scientist, Department of Molecular Biophysics and Biochemistry, Yale University, New Haven, CT, 2015 – 2016

### **Honors and Awards**

National Science Foundation (NSF) Career Award 2022 – 2027

Sigma Xi Full Membership 2022 – Present

Best Poster Award, ACM Conference on Bioinformatics, Computational Biology and Health Informatics 2018

Faculty of 1000 Best Poster Presentation Award, 10th Great Lakes Bioinformatics Conference, International Society for Computational Biology 2015

Graduate Student Professional Development Award, The University of Texas at Austin 2009

Graduate Student Travel Award, IEEE GLOBECOM 2006

Advanced Class of Elite Range (ACER), Huazhong University of Science and Technology, 2000 – 2004

### **Professional Society Memberships**

International Society for Computational Biology

Institute of Electrical and Electronics Engineers

Society for Neuroscience

Organization for Computational Neurosciences

American Society of Human Genetics

Alzheimer's Association International Society

## Publications

### Peer-Reviewed Papers

- Shuang Liu, Hyejung Won, Declan Clarke, Nana Matoba, Saniya Khullar, Yudi Mu, **Daifeng Wang**<sup>#</sup>, Mark Gerstein<sup>#</sup>, Illuminating links between cis-regulators and trans-acting variants in the human prefrontal cortex, *Genome Medicine*, 14, 133, 2022.
- Michael J. Gandal, Jillian R. Haney, Brie Wamsley, Chloe X. Yap, Sepideh Parhami, Prashant S. Emani, Nathan Chang, George T. Chen, Gil D. Hoftman, Diego de Alba, Gokul Ramaswami, Christopher L. Hartl, Arjun Bhattacharya, Chongyuan Luo, Ting Jin, **Daifeng Wang**, Riki Kawaguchi, Diana Quintero, Jing Ou, Ye Emily Wu, Neelroop N. Parikshak, Vivek Swarup, T. Grant Belgard, Mark Gerstein, Bogdan Pasaniuc, Daniel H. Geschwind, Broad transcriptomic dysregulation across the cerebral cortex in ASD, *Nature*, 611, 532–539, 2022.
- Chirag Gupta, Jieli Xu, Ting Jin, Saniya Khullar, Xiaoyu Liu, Sayali Alatar, Feixiong Cheng, **Daifeng Wang**, Single-cell network biology characterizes cell-type gene regulation for drug repurposing and phenotype prediction in Alzheimer’s disease, *PLoS Computational Biology*, 18(7): e1010287, 2022. (cover image of July 2022 issue)
- Sahar Javadi, Yue Li, Jie Sheng, Lucy Zhao, Yao Fu, **Daifeng Wang**, Xinyu Zhao, Sustained correction of hippocampal neurogenic and cognitive deficits after a brief treatment by Nutlin-3 in a mouse model of Fragile X Syndrome, *BMC Medicine*, 20, 163, 2022.
- Yathindar Giffin-Rao, Jie Sheng, Bennett Strand, Leslie Huang, Margaret Medo, Bradley Levesque, Roger A Daley Jr., Lindsey Amundson, Aratrika Keshan, Rebecca Reese, **Daifeng Wang**, Su-Chun Zhang, Anita Bhattacharyya, Altered patterning of trisomy 21 interneuron progenitors, *Stem Cell Reports*, 17, 1-4, 2022.
- Chirag Gupta, Pramod Chandrashekar, Chenfeng He, Ting Jin, Saniya Khullar, Qiang Chang, **Daifeng Wang**, Bringing machine learning to research on intellectual and developmental disabilities: taking inspiration from neurological diseases, in press, *Journal of Neurodevelopmental Disorders*, 2022.
- Nam D Nguyen, Jiawei Huang, **Daifeng Wang**, A deep manifold-regularized learning model for improving phenotype prediction from multi-modal data, *Nature Computational Science*, 2, 38–46, 2022.
- Cui-Xiang Lin, Hong-Dong Li, Chao Deng, Weisheng Liu, Shannon Erhardt, Fang-Xiang Wu, Xing-Ming Zhao, Yuanfang Guan, Jun Wang, **Daifeng Wang**, Bin Hu, Jianxin Wang, An integrated brain-specific network identifies genes associated with neuropathologic and clinical traits of Alzheimer’s disease, *Briefings in Bioinformatics*, 23(1):bbab522, 2021.
- Ali Fathi, Sakthikumar Mathivanan, Linghai Kong, Andrew J Petersen, Cole R. K. Harder, Jasper Block, Julia Marie Miller, Anita Bhattacharyya, **Daifeng Wang**, Su-Chun Zhang, Chemically induced senescence in human stem cell-derived neurons promotes phenotypic presentation of neurodegeneration, *Ageing Cell*, e13541, 2021.
- Jiawei Huang, Jie Sheng, **Daifeng Wang**, Manifold learning analysis suggests strategies for aligning single-cell multi-modalities and revealing functional genomics for neuronal electrophysiology, *Communications Biology*, 4, 1308, 2021.
- Ting Jin, Peter Rehani, Mufang Ying, Jiawei Huang, Shuang Liu, Panos Roussos, **Daifeng Wang**, scGRNom: a computational pipeline of integrative multi-omics analyses for predicting cell-type disease genes and regulatory networks, *Genome Medicine*, 13, 95, 2021.
- Minjie Shen, Yu Guo, Qiping Dong, Yu Gao, Michael E. Stockton, Meng Li, Sudharsan Kannan, Tomer Korabelnikov, Keegan A. Schoeller, Carissa L. Sirois, Chen Zhou, Jonathan Le, **Daifeng Wang**, Qiang Chang, Qian-Quan Sun, Xinyu Zhao, FXR1 regulation of

parvalbumin interneurons in the prefrontal cortex is critical for schizophrenia-like behaviors, *Molecular Psychiatry*, 2021.

- Kunling Huang, Yuchang Wu, Junha Shin, Ye Zheng, Alireza Fotuhi Siahpirani, Yupei Lin, Zheng Ni, Jiawen Chen, Jing You, Sunduz Keles, **Daifeng Wang**, Sushmita Roy, Qiongshi Lu, Transcriptome-wide transmission disequilibrium analysis identifies novel risk genes for autism spectrum disorder, *PLoS Genetics*, 17(2): e1009309, 2021.
- Ting Jin, Nam D Nguyen, Flaminia Talos, **Daifeng Wang**, ECMarker: Interpretable machine learning model identifies gene expression biomarkers predicting clinical outcomes and reveals molecular mechanisms of human disease in early stages *Bioinformatics*, 37 (8), 1115-1124, 2021.
- Nam D Nguyen, Ting Jin, **Daifeng Wang**, Varmole: A biologically drop-connect deep neural network model for prioritizing disease risk variants and genes, btaa866, *Bioinformatics*, 2020.
- Yu Gao, Minjie Shen, Jose Carlos Gonzalez, Qiping Dong, Sudharsan Kannan, Johnson Hoang, Brian E. Eisinger, Qiang Chang, **Daifeng Wang**, Linda Overstreet-Wadiche, Xinyu Zhao, RGS6 mediates effects of voluntary running on adult hippocampal neurogenesis, *Cell Reports*, 32(5):107997, 2020.
- Koon-Kiu Yan, **Daifeng Wang**, Kun Xiong, Mark Gerstein, Comparing technological development and biological evolution from a network perspective, *Cell Systems*, 10(3), P219-222, 2020.
- Jing Zhang et al. including **Daifeng Wang**, An integrative ENCODE resource for cancer genomics, *Nature Communications*, 11, 3696, 2020.
- Nam D Nguyen, **Daifeng Wang**, Multi-view learning for understanding functional multiomics, *PLoS Computational Biology*, 16(4): e1007677, 2020.
- Nam Nguyen, Ian K. Blaby, **Daifeng Wang**, ManiNetCluster: A Manifold Learning Approach to Reveal the Functional Linkages Across Multiple Gene Networks, *BMC Genomics*, 20, 1003, 2019.
- John A Haley, Christian F Ruiz, Emily D Montal, **Daifeng Wang**, John D Haley, Geoffrey D Girnun, Decoupling of Nrf2 Expression Promotes Mesenchymal State Maintenance in Non-Small Cell Lung Cancer, *Cancers*, 11(10), 1488, 2019.
- Mohamed Salama, Mengling Liu, Christopher J. Clarke, Mel Pilar Espailat, John Haley, Ting Jin, **Daifeng Wang**, Lina M. Obeid, Yusuf A. Hannun, PKC $\alpha$  is required for Akt-mTORC1 activation in Non-Small Cell Lung Carcinoma (NSCLC) with EGFR mutation, *Nature Oncogene*, 2019.
- **Daifeng Wang**, Shuang Liu, ..., PsychENCODE Consortium, Nenad Sestan, Andrew E. Jaffe, Kevin White, Zhiping Weng, Daniel H. Geschwind, James Knowles, Mark Gerstein, Comprehensive functional genomic resource and integrative model for the human brain, *Science*, 362, 1266, 2018.
- Michael J Gandal, Pan Zhang, ..., **Daifeng Wang**, ..., PsychENCODE Consortium, ..., Daniel H. Geschwind, Transcriptome-wide isoform-level dysregulation in ASD, schizophrenia, and bipolar disorder, *Science*, 362, 1265, 2018.
- Mingfeng Li, Gabriel Santpere, ..., **Daifeng Wang**, ..., BrainSpan Consortium, PsychENCODE Consortium: Developmental Subgroup, ..., Nenad Sestan, Integrative Functional Genomic Analysis of Human Brain Development and Neuropsychiatric Risk, *Science*, 362, 1264, 2018.
- PsychENCODE consortium including **Daifeng Wang**, Revealing the brain's molecular architecture, *Science*, 2018 Dec 14;362(6420):1262-1263.
- Adam P Arkin, Robert W Cottingham, ..., **Daifeng Wang**, Fangfang Xia, Hyunseung Yoo, Shinjae Yoo, Dantong Yu, KBase: The United States Department of Energy Systems

- Biology Knowledgebase, *Nature Biotechnology*, 36(7):566-569, 2018.
- Zongdong Li, Natasha M. Nesbitt, Lisa E. Malone, Dimitri V. Gnatenko, Song Wu, **Daifeng Wang**, Wei Zhu, Geoffrey D. Girnun, Wadie F. Bahou, Heme degradation enzyme biliverdin IXB reductase is required for stem cell glutamine metabolism, *Biochemical Journal*, 475(6):1211-1223, 2018.
  - Pedro Alves, Shuang Liu, **Daifeng Wang**<sup>#</sup> and Mark Gerstein<sup>#</sup>, Multiple-Swarm Ensembles: Improving the Predictive Power and Robustness of Predictive Models and Its Use in Computational Biology, *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, 15(3):926-933, 2018.
  - **Daifeng Wang**, John D. Haley and Patricia Thompson, Comparative gene co-expression network analysis of epithelial to mesenchymal transition reveals lung cancer progression stages, *BMC Cancer*,
  - **Daifeng Wang**, Fei He, Sergei Maslov, Mark Gerstein, DREISS: Using state-space models to infer the dynamics of gene expression driven by external and internal regulatory networks, *PLoS Computational Biology*, 12(10): e1005146, 2016.
  - **Daifeng Wang**, Koon-Kiu Yan, Joel Rozowsky, Eric Pan, Mark Gerstein, Temporal dynamics of collaborative networks driven by large scientific consortia, *Trends in Genetics*, 32, 251-253, 2016.
  - Koon-Kiu Yan, **Daifeng Wang**, Anurag Sethi, Robert Kitchen, Paul Muir, Chao Cheng, Mark Gerstein, Cross-Disciplinary Network Comparison: Matchmaking between Hairballs, *Cell Systems*, 2(3):147-157, 2016.
  - Paul Muir, Shantao Li, Shaoke Lou, **Daifeng Wang**, Daniel Spakowicz, Leonidas Salichos, Jing Zhang, Farren Isaacs, George M. Weinstock, Joel Rozowsky, Mark Gerstein, The real cost of sequencing: scaling computation to keep pace with data generation, *Genome Biology*, 17:53, 2016.
  - Fei He, Shinjae Yoo, **Daifeng Wang**, Sunita Kumari, Mark Gerstein, Doreen Ware, Sergei Maslov, Large-scale atlas of microarray data reveals biological landscape of gene expression in Arabidopsis, *The Plant Journal*, 86(6), 472-480, 2016.
  - The PsychENCODE Consortium including **Daifeng Wang**, The PsychENCODE Project Consortium, *Nature Neuroscience*, 18, 1707-1712, 2015.
  - **Daifeng Wang**, Koon-Kiu Yan, Cristina Sisu, Chao Cheng, Joel Rozowsky, William Meyerson, Mark Gerstein, Loregic: A method to characterize the cooperative logic of regulatory factors, *PLoS Computational Biology* 11(4): e1004132, 2015.
  - Chao Cheng, Erik Andrews, Koon-Kiu Yan, Matthew Ung, **Daifeng Wang**, Mark Gerstein, An Approach for Determining and Measuring Network Hierarchy: Application to Comparing the Phosphorylome and the Regulome, *Genome Biology*, 16:63, 2015.
  - Shuang Liu, Anjali Datta, Derek Ho, Jordan Dwelle, **Daifeng Wang**, Thomas E. Milner, H. Grady Rylander III, Mia K. Markey, Effect of image registration on longitudinal analysis of retinal nerve fiber layer thickness of non-human primates using Optical Coherence Tomography (OCT), *BMC Eye and Vision*, 2:3, 2015.
  - Mark Gerstein, Joel Rozowsky, Koon-Kiu Yan, **Daifeng Wang**, Chao Cheng, ..., Steven Brenner, Brenton Graveley, Susan Celniker, Thomas Gingeras, and Robert Waterston, Comparative Analysis of the Transcriptome across Distant Species, *Nature* 512, 445–448, 2014.
  - Alan P. Boyle\*, Carlos L. Araya\*, ..., **Daifeng Wang**, ..., Robert H. Waterston, Mark Gerstein, Kevin P. White, Manolis Kellis, Michael Snyder, Comparative analysis of regulatory information and circuits across diverse species, *Nature* 512, 453–456, 2014.
  - Koon-Kiu Yan, **Daifeng Wang**, Joel Rozowsky, Henry Zheng, Mark Gerstein, OrthoClust: An orthology-based network framework for expression clustering across multiple species,

**Genome Biology**, 15:R100, 2014.

- Cristina Sisu, Baikang Pei, ..., Rachel Harte, **Daifeng Wang**, Michael Rutenberg Schoenberg, Wyatt Clark, Mark Diekhans, Joel Rozowsky, Tim Hubbard, Jennifer Harrow, Mark Gerstein, Comparative analysis of pseudogenes across three phyla, **Proceedings of the National Academy of Sciences** (PNAS), vol. 111, no. 37, pp. 13361–13366, 2014.
- **Daifeng Wang**, Mia K. Markey, Claus O. Wilke and Ari Arapostathis, Eigen-genomic System Dynamic-pattern Analysis (ESDA): Modeling mRNA degradation and self-regulation, **IEEE/ACM Transactions on Computational Biology and Bioinformatics**, vol. 9, no. 2, pp. 430-437, 2012.
- **Daifeng Wang**, Ari Arapostathis, Claus O. Wilke, Mia K. Markey, Principal-Oscillation-Pattern Analysis of Gene Expression, **PLoS ONE** 7(1): e28805, 2012.
- Sean X. Shi, Anand Ramalingam, **Daifeng Wang**, and David Z. Pan, Latch Modeling for Statistical Timing Analysis, Proceedings of the IEEE Conference on Design, Automation and Test in Europe 2008.
- Wei Wu, **Daifeng Wang**, Ari Arapostathis and K. Davey, Optimal Power Generation Scheduling of a Shipboard Power System, Proceedings of the IEEE Electric Ship Technologies Symposium 2007.
- **Daifeng Wang**, Brian L. Evans, Codebook Design for Noncoherent MIMO Communications Via Reflection Matrices, Proceedings of the IEEE Global Telecommunications Conference 2006.

### Chapters in Books and Book Reviews

- Justin Snider, **Daifeng Wang**, Daniel F. Bogenhagen, John D. Haley, Pulse SILAC Approaches to the Measurement of Cellular Dynamics, Advances in Experimental Medicine and Biology book series (volume 1140), pp 575-583.
- **Daifeng Wang**, Systems Biology: Constraint-Based Reconstruction and Analysis by Bernhard O. Palsson, The Quarterly Review of Biology, 92:3, 303-304, 2017.
- **Daifeng Wang**, Epigenomics in Health and Disease by Mario Fraga and Agustin F. Fernandez, The Quarterly Review of Biology, 93:2, 163-164, 2018.
- **Daifeng Wang**, Chao Cheng, Chapter 27: Genomics and Systems Biology, *Cooperative and Graph Signal Processing*, Editors: Petar M. Djuric and Cedric Richard, Elsevier, 2018, ISBN: 978-0-12-813677-5.

### Other Appropriate Media: Open-Source Software and Computational Infrastructure

- Data science core in Waisman Center for bioinformatics and biostatistical analyses with AWS cloud computing and high-performance computing platforms, 2020, <https://www.dropbox.com/s/o8owobhul62xkqu/WaismanCenter-AWS.pdf?dl=0>
- ManiNetCluster, R package for revealing the functional links between gene networks using manifold learning, 2019 <https://github.com/daifengwanglab/ManiNetCluster>
- ECMarker, Python package (Pytorch), an interpretable neural network model for identifying gene expression biomarkers predicting clinical phenotypes and outcomes and revealing underlying gene regulatory mechanisms, 2020, <https://github.com/daifengwanglab/ECMarker>
- Varmole, Python package (Pytorch), a biologically drop-connect deep neural network model for prioritizing disease risk variants and genes, 2020, <https://github.com/daifengwanglab/Varmole>
- scGRNom, R package, a computational pipeline for predicting gene regulatory networks via

multi-omics data (e.g., cell-type gene regulatory networks), 2021, <https://github.com/daifengwanglab/scGRNom>

- scMNC, R codes, Manifold learning analysis for aligning single-cell multi-modalities and revealing functional genomics for cellular electrophysiology, 2021, <https://github.com/daifengwanglab/scMNC>
- deepManReg, Python package (Pytorch), a deep manifold-regularized learning model for improving phenotype prediction from multi-modal data, 2022, <https://github.com/daifengwanglab/deepManReg>
- DeepGAMI, Python package, Deep auxiliary learning for multi-modal integration and estimation to improve genotype-phenotype prediction, 2022, <https://github.com/daifengwanglab/DeepGAMI>
- BOMA, R package & webtool, Comparative manifold learning analysis of brain and organoid transcriptomic data for understanding functional genomics in brain development, 2022, <https://github.com/daifengwanglab/BOMA>
- scNET, a pipeline of single cell network biology for drug repurposing and phenotype prediction in Alzheimer's disease, 2022, <https://github.com/daifengwanglab/scNET>

### Invited Research Presentations

#### Local/UW

- Annual Wisconsin Epigenetics Symposium, 10/2021
- Genetics Colloquium, University of Wisconsin – Madison, Madison, WI, 02/2021
- Seminar series in the Systems, Information, Learning and Optimization (SILO) research group, University of Wisconsin – Madison, Madison, WI, 04/2020
- Board of Visitors, Waisman Center, University of Wisconsin – Madison, Madison, WI, 10/2019

#### National

- NIH/NIA Psych-AD Meeting (virtual), 11/2022
- NIH/NIMH PsychENCODE Meeting, UCLA, 11/2022
- Bioinformatics and Computational Biology Seminar, Purdue University, 03/2021
- NIH/NIA Psych-AD and Resilience-AD Joint Meeting, 12/2020
- Quantitative Biomedical Research Center Seminar Series, Department of Population and Data Sciences, University of Texas Southwestern Medical Center, 12/2020
- DOE Biological Systems Science Division Scientific Focus Area (SFA) workshop, LBNL/LLNL, 10/2020
- NIMH PsychENCODE Consortium In-Person Workshop, University of Chicago, Chicago, IL, 10/2019
- Gene discovery session, Directors meeting of Eunice Kennedy Shriver Intellectual & Developmental Disabilities Research Centers, NICHD, Seattle, WA, 11/2019
- American College of Neuropsychopharmacology Annual Meeting, Hollywood, FL, 12/2018
- NIMH PsychENCODE Consortium In-Person Workshop, Yale University, New Haven, CT, 05/2018
- NIMH PsychENCODE Workshop, Society for Neuroscience conference, San Diego, CA, 11/2016

#### International

- Applied Bioinformatics in Life Sciences, Leuven, Belgium, 02/2020 (Cancelled due to COVID19)
- PsychENCODE symposium, 2019 World Congress of Psychiatric Genetics, Anaheim, CA, 10/2019
- Institute of Brain Science (IOBS), Fudan University, Shanghai, China, 09/2019
- College of Computer Science, Central South University, Changsha, Hunan, China, 09/2019

**Peer-reviewed Presentation** (*Oral presentations only*)

- International Conference on Intelligent Biology and Medicine, Columbus, OH, 06/2019
- Network Biology 2019 at Cold Spring Harbor Laboratory, NY, 03/2019
- American Society of Human Genetics Annual Meeting, San Diego, CA, 10/2018
- International Conference on Intelligent Biology and Medicine, Los Angeles, CA, 06/2018
- International Plant & Animal Genome Conference, San Diego, CA, 01/2017
- Intelligent Systems for Molecular Biology (ISMB), Orlando, FL, 07/2016 (Highlights talk)
- 1<sup>st</sup> SysMod SIG meeting, Intelligent Systems for Molecular Biology (ISMB), Orlando, FL, 07/2016
- RECOMB Conference on Regulatory and Systems Genomics, with DREAM Challenges, Philadelphia, PA, 11/2015
- Yale Institute for Network Science and Kavli Institute for Neuroscience, Yale University, 11/2015
- 10<sup>th</sup> Great Lakes Bioinformatics Conference, International Society for Computational Biology, Indiana, 05/2015

**Research Support**

Active

- NIH R01MH128695-01A1  
Award Dates: 08/2022 – 07/2025  
Role: PI
- National Science Foundation (NSF) Career Award 2144475  
Award Dates: 03/2022 – 02/2027  
Role: PI
- NIH R21NS128761  
Award Dates: 07/2022 – 06/2024  
Role: MPI
- NIH R21NS127432  
Award Dates: 04/2022 – 03/2024  
Role: MPI
- Simons Foundation Autism Research Initiative (SFARI) 971316  
Award Dates: 11/2022 – 10/2024  
Role: MPI



- NIH R03NS123969  
Award Dates: 09/2021 – 08/2023  
Role: MPI
- NIH R01AG067025  
Award Dates: 09/2019 – 08/2024  
Role: MPI
- NIH R21CA237955  
Award Dates: 01/2020 – 12/2022  
Role: MPI
- International Rett Syndrome Foundation (IRSF) Innovation Award  
Award Dates: 01/2023 – 12/2024  
Role: Co-PI
- NIH R01HD106197  
Award Dates: 09/2021 – 08/2026  
Role: Co-I
- NIH P50HD105353  
Award Dates: 07/2021 – 05/2026  
Role: Co-I
- NIH U01MH116492  
Award Dates: 04/2018 – 03/2023  
Role: Co-I
- DOE Quantitative Plant Science Initiative  
Award Dates: 02/2020 – 03/2023  
Role: Co-I
- NIH K08MH122911  
Award Dates: 07/2020 – 06/2024  
Role: Mentor in bioinformatics and machine learning
- Research Forward Initiative, OVCRGE, UW-Madison  
Award Dates: 06/2021 – 06/2023  
Role: key collaborator

### **Educational Activities & Presentations**

<b>Classroom Teaching</b> (graduate & undergraduate)		
Years	Course Title	Credits
2020	BMI/CS 776 Advanced Bioinformatics	3
2021	BMI/CS 776 Advanced Bioinformatics	3
2022	BMI/CS 776 Advanced Bioinformatics	3

2020	CS 540 Introduction to Artificial Intelligence (team teaching)	3
2017,2018	BMI 511 Translational Bioinformatics (SUNY-Stony Brook)	3

<b>Guest Lectures</b> (graduate & undergraduate)		
Years	Course Title	Credits
2020, 2022	STAT/BMI 877 Statistical Methods for Molecular Biology	3
2018	CSE 393 Introduction to Biomedical Informatics (SUNY-Stony Brook)	3

<b>Local Continuing Medical Education Courses</b>		
Years	Course Title	Sponsor - Venue
2020	John D. Wiley Seminar	Waisman Center, UW-Madison

<b>Postdoctoral Mentees</b>			
Years	Mentee Name	Graduate school	Current Position
2020 - Now	Pramod Chandrashekar	Arizona State University	In progress
2021 - Now	Chirag Gupta	University of Arkansas	In progress
2021 - Now	Chenfeng He	University of Texas at Austin	In progress
2021 - Now	Kalpana Hanthanan Arachchilage	University of Central Florida	In progress
2022 - Now	Huazhang Li	University of Virginia	In progress

<b>Graduate Student Mentees</b>			
Years	Mentee Name	Degree & Program	Current Position
2017-2021	Nam Nguyen	Ph.D. (Computer Science, SUNY-Stony Brook)	Lane Fellow in Dept. of Computational Biology, Carnegie Mellon University
2017-	Ting Jin	Ph.D. (Biomedical Data Science)	In progress
2020-	Saniya Khullar	Ph.D. (Biomedical Data Science)	In progress, Ph.D. Candidate
2021-	Sayali Alatar	Ph.D. (Computer Sciences)	In progress
2021-	Noah C Kalafut	Ph.D. (Computer Sciences)	In progress
2022-	Jie Sheng	Ph.D. (Biomedical Data Science)	In progress
2022-	Jerome Choi	Ph.D. (Population Health)	Rotation
2021	Krittisak Chaiyakul	Ph.D. (Rotation, Biomedical Data Science)	Ph.D. student in Irene Ong Lab, UW-Madison
2021-2022	Chen Yang	M.S. (Mathematics)	Ph.D. student, Biomedical Informatics, The Ohio State University
2020-2022	Jie Sheng	M.S. (Statistics)	Biostatistician in Waisman Center, UW-Madison
2020-2021	Jiawei Huang	M.S. (Statistics)	Ph.D. student, College of Business, University of Cincinnati
2020-2021	Yudi Mu	M.S. (Statistics)	Ph.D. student, Biostatistics, University of California, Riverside
2019-2020	Mufang Yin	M.S. (Statistics)	Ph.D. student, Statistics, Rutgers University

#### Other Educational Activities

- Undergraduate students

- Jonathan Bryan, Neurobiology & Undergraduate Research Scholar (2020 – Present)
- Undergraduate Research Scholar Program 2021
  - Marin Suzuki, Computer Sciences
  - Dhruv Gupta, Computer Sciences
  - Julia Paciorek, Computer Sciences
  - Arjun Malik, Computer Sciences
  - Isabella Escalante, Neurobiology
  - Boya Zhang, Mathematics
- Undergraduate Research Scholar Program 2020
  - Sahas Kumar Dandapantula, Computer Sciences
  - Difei Kang, Computer Sciences
- Peter Rehani, Integrative biology (2019 – 2020, now Assistant System Programmer in Morgridge Institute for Research)
- K-12 Science, Technology, Engineering, and Math (STEM)
  - Badger Precollege, UW-Madison, Summer 2021-2022
  - Computer Science and Informatics Summer Research Experience Program, Stony Brook University, Summer 2017-2018

### **Service Activities**

#### Administrative service

- Organization committee member and Co-chair for Workshop/Tutorial Committee, International Conference on Intelligent Biology and Medicine (ICIBM) 2022
- Program committee member, IEEE International Conference on Bioinformatics and Biomedicine (BIBM) 2022

#### Departmental

- Interviewers for faculty candidates and Ph.D./M.S. applicants, 2019 – Present
- Biomedical Data Science student training seminars, 2019 – Present
- Biomedical Data Science Visit Day, 2020 – Present

#### UW-Madison

- Hiring committee member and Interviewers for Functional Genetics/Genomics Cluster, 2020 – 2022
- Preliminary and Defense committee members for Jared Brown, Ph.D. student, Statistics, UW-Madison, 2021 – 2022
- Thesis committee member for Siyuan Feng, Ph.D. student, Genetics, UW-Madison, 2022
- Preliminary committee member for Shan Lu, Ph.D. student, Statistics, UW-Madison, 2022
- Hosted visiting for John D. Wiley Seminar Series in Waisman Center, 2019 – Present
- Search committee member for the Biomedical Research Computing Specialist position, 2020
- Grant reviewer: UW Health Animal, 2020
- Computation and Informatics in Biology and Medicine (CIBM) Seminar, 10/2019
- Hosted Dr. Trey Ideker's visit to UW-Madison and Morgridge Institute for Research, 9/2019

#### Journal reviewers

- Nature Medicine, Nature Communications, Communications Biology, Communications Medicine, iScience (Cell), Scientific Reports, PLoS One
- Genome Biology, Genome Medicine, PLoS Genetics, Human Molecular Genetics, Trends in Molecular Medicine, Nucleic Acids Research, Cell Systems, Cell Reports Methods
- PLoS Computational Biology, Oxford Bioinformatics, Patterns (Cell), Machine learning, Genomics, Proteomics & Bioinformatics, Evolutionary Bioinformatics, BMC Bioinformatics, Algorithms for Molecular Biology, Information Sciences, IEEE/ACM Transactions on Computational Biology and Bioinformatics
- Molecular Psychiatry, Biological Psychiatry, Alzheimer's & Dementia: The Journal of the Alzheimer's Association, Schizophrenia Research, Cancer Research, Clinical and Translational Medicine, Molecular Cancer Research, Cancers, Journal of Visualized Experiments, Cancer Management and Research, Cancer Informatics

#### Conference reviewers

- Neural Information Processing Systems (NeurIPS) 2021, 2022
- International Conference on Learning Representations (ICLR) 2022
- International Conference on Intelligent Biology and Medicine (ICIBM) 2021
- International Conference on Machine Learning (ICML) 2022
- American Society of Human Genetics (ASHG) 2022

### Professional Service

#### National

- Grant review panelists:
  - NIH/NHLBI P01 (ad hoc 2018, special emphasis panelist 2019)
  - NSF (virtual panelist 2019)
  - AHA Data Science (2019, 2020)
  - NIH Special Emphasis Panel ZAG1 ZIJ-8, 2021
  - NIH Special Emphasis Panel ZRG1 ETTN-N, 2022
  - NIH Molecular Neurogenetics (MNG) Study Section (ad hoc), 02/2022-10/2022
  - NSF Division of Molecular and Cellular Biosciences (MCB) and the US-Israel Binational Science Foundation (BSF), 03/2022
  - DOE Office of Science Graduate Student Research (SCGSR) 2022
  - NSF Innovation: Bioinformatics Panel, 10/2022
- Guest editor of Journal of Neurodevelopmental Disorders (JND) special issue on computational neuroscience 2022 for NICHD IDDRCs
- Preliminary and defense committee member for Lara Franceschinis Tshering, Ph.D. student, Molecular and Cellular Pharmacology, Stony Brook University, 2020 – 2022

#### International

- Grant reviewers:
  - NWO Dutch Research Council Open Competition Domain Science, 2021
  - European Science Foundation Postdoc Fellowship, 2022
  - College of Expert Reviewers, European Science Foundation

- Belgian Alzheimer Foundation
- Wellcome Trust