ZHIGUANG (CALEB) HUO

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https://caleb-huo.github.io

EDUCATION

University of Pittsburgh,   Pittsburgh, PA, US

- Ph.D. in Biostatistics,   *April 2017*
  - Dissertation: *Statistical integrative omics methods for disease subtype discovery*
  - GPA: *3.93/4.00*
  - Advisors: George C. Tseng, ScD and Yong Seok Park, PhD
- M.S. in Physics,   *Apr 2012*
  - *GPA: 3.86/4.00*

Harbin Institute of Technology,   Harbin, Heilongjiang, China

- B.S. in Physics,   *June 2011*
  - GPA: *90.43/100*

RESEARCH INTEREST

My research interest lies in the intersection between statistical methodology and its applications to genomics and bioinformatics. I am particularly interested in genomic data integration, models and variable selection in high-dimensional data, graphical models, Bayesian methods, optimization and statistical computing. I have collaborated with biologists in the fields of cancer, psychiatry and aging, analyzing a broad range of genomic data. These experiences motivate me to develop methodology and software that are practical, user-friendly and easy to use.

PROFESSIONAL EXPERIENCE

- Assistant Professor   *July 2017 ∼ Now*
  - Department of Biostatistics, University of Florida

PUBLICATIONS ON STATISTICAL METHODOLOGY

†: co-first author; *: corresponding author; ___: student paper.

2022

1. Lingsong Meng, Dorina Avram, George Tseng, **Zhiguang Huo***. (2022) Outcome-guided Sparse K-means for Disease Subtype Discovery via Integrating Phenotypic Data with High-dimensional Transcriptomic Data. *Journal of the Royal Statistical Society: Series C (Applied Statistics)*, 71(2), 352-375.

2021

2. Haocheng Ding, Lingsong Meng, Andrew C. Liu, Michelle L. Gumz, Andrew J. Bryant, Colleen A. Mcclung, George Tseng, Karyn A. Esser, **Zhiguang Huo***. (2021) Likelihood-based Tests for Detecting Circadian Rhythmicity and Differential Circadian Patterns in Transcriptomic Applications. *Briefings in Bioinformatics* Nov 5;22(6):bbab224.

3. Chi Song, Shih-Chi Su, **Zhiguang Huo**, Suleyman Vural, James E. Galvin, and Lun-Ching Chang. (2021) HCMMCNVs: Hierarchical Clustering Mixture Model of Copy Number Variants Detection us-ing Whole Exome Sequencing in Cancer Genomes *Bioinformatics*, 37(18), 3026-3028.

2020

4. **Zhiguang Huo**, Shaowu Tang, Yongseok Park, George Tseng. (2020) P-value evaluation, variability index and biomarker categorization for adaptively weighted Fisher's meta-analysis method in omics applications. *Bioinformatics* 36(2), 524-532.

5. **Zhiguang Huo***, Li Zhu, Tianzhou Ma, Hongcheng Liu, Song Han, Daiqing Liao, Jinying Zhao and George Tseng*. (2020) Two-way Horizontal and Vertical Omics Integration for Disease Subtype Discovery. *Statistics in Bioscience* 12, 1-22.

2019

6. **Zhiguang Huo**, Chi Song*, George C. Tseng*. Bayesian latent hierarchical model for transcriptomic meta-analysis to detect biomarkers with clustered meta-patterns of differential expression signals. *The Annals of Applied Statistics* 13, no. 1 (2019): 340-366. (An earlier version won ASA Biometrics Section JSM Travel Award 2018)

7. Li Zhu, **Zhiguang Huo**, Tianzhou Ma, George Tseng. (2019) Bayesian indicator variable selection to incorporate multi-layer overlapping group structure in multi-omics applications. *The Annals of Applied Statistics* 13(4), 2611-2636. (An earlier version won ENAR distinguished student paper award 2018)

2018

8. Tianzhou Ma[†], **Zhiguang Huo**[†], Anche Kuo[†], Li Zhu, Fang Zhou, Xiangrui Zeng, Chien-Wei Lin, Silvia Liu, Lin Wang, Tanbin Rahman, Lun-Ching Chang, Sunghwan Kim, Jia Li, Yongseok Park, Chi Song, Steffi Oesterreich, Etienne Sibille and George C. Tseng. MetaOmics - Comprehensive Analysis Pipeline and Web-based Software Suite for Transcriptomic Meta-Analysis. *Bioinformatics* 35, no. 9 (2018): 1597-1599.

9. Kelly Cahill[†], **Zhiguang Huo**[†], George Tseng, Ryan W. Logan*, Marianne L. Seney*. Improved identification of concordant and discordant gene expression signatures using an updated rank-rank hypergeometric overlap approach. *Scientific Reports* 8.1 (2018): 9588.

10. Wang, Kai Wen, Xiangrui Zeng, Xiaodan Liang, **Zhiguang Huo**, Eric P. Xing, and Min Xu (2018). Image-derived generative modeling of pseudo-macromolecular structures-towards the statistical assessment of Electron CryoTomography template matching. *The British Machine Vision Conference*

2017

11. **Zhiguang Huo**, George C. Tseng. Integrative Sparse K-means with overlapping group lasso in genomic applications for disease subtype discovery. *The Annals of Applied Statistics*, 11(2) (2017): 1011-1039.

12. SungHwan Kim, Dongwan Kang, **Zhiguang Huo**, Yongseok Park, and George C. Tseng. Meta-analytic principal component analysis in integrative omics application. *Bioinformatics* 34, no. 8 (2017): 1321-1328.

2016

13. **Zhiguang Huo**, Ying Ding, Silvia Liu, Steffi Oesterreich, and George Tseng. Meta-Analytic Framework for Sparse K-Means to Identify Disease Subtypes in Multiple Transcriptomic Studies. *Journal of the American Statistical Association*, 111, no. 513 (2016): 27-42.

14. Zhu, Li, Ying Ding, Cho-Yi Chen, Lin Wang, **Zhiguang Huo**, SungHwan Kim, Christos Sotiriou, Steffi Oesterreich, and George C. Tseng. MetaDCN: meta-analysis framework for differential co-expression network detection with an application in breast cancer. *Bioinformatics* 33, no. 8 (2016): 1121-1129.

2015 and Before

15. Silvia Liu, Wei-Hsiang Tsai, Ying Ding, Rui Chen, Zhou Fang, **Zhiguang Huo**, SungHwan Kim,

Tianzhou Ma, Ting-Yu Chang, Nolan Michael Priedigkeit, Adrian V. Lee, Jianhua Luo, Hsei-Wei Wang, I-Fang Chung, George C. Tseng. (2015). Comprehensive evaluation of fusion transcript detection algorithms and a meta-caller to combine top performing methods in paired-end RNA-seq data. *Nucleic Acids Research*, 44(5), e47-e47.

16. SungHwan Kim, **Zhiguang Huo**, YongSeok Park and George Tseng. (2015) MetaOmics: transcriptomic meta-analysis methods for biomarker detection, pathway analysis and other exploratory purposes. Book chapter in Integrating omics data: statistical and computational methods. Edited by George C. Tseng, Debashis Ghosh, Xianghong Jasmine Zhou. *Cambridge University Press*. Page 39-67.

17. Xingbin Wang, Dongwan Kang, Kui Shen, Chi Song, Shuya Lu, Lunching Chang, Serena G. Liao, **Zhiguang Huo**, Naftali Kaminski, Etienne Sibille, Yan Lin, Jia Li and George C. Tseng. (2012) A Suite of R Packages for Quality Control, Differentially Expressed Gene and Enriched Pathway Detection in Microarray Meta-analysis. *Bioinformatics*, 28:2534-2536.

PUBLICATIONS ON BIOMEDICAL APPLICATIONS

†: co-first author; *: corresponding author; ___: student paper.

2023

1. Christopher A. Wolff†, Miguel A. Gutierrez-Monreal†, Lingsong Meng, Xiping Zhang, Lauren G. Douma, Hannah M. Costello, Collin M. Douglas, Elnaz Ebrahimi, Bryan R. Alava, Andrew R. Morris, Mehari M. Endale, G. Ryan Crislip, Kit-yan Cheng, Elizabeth A. Schroder, Brian P. Delisle, Andrew J. Bryant*, Michelle L. Gumz*, **Zhiguang Huo***, Andrew C. Liu*, Karyn A. Esser*. Defining the age-dependent and tissue-specific circadian transcriptome in male mice. *Cell Reports* (Accepted)

2. Eric Helm, Xianghong Chen, Beatrice Zitti, Timothy Holmes, Christine Tao, Alexander Kwiakowski, Theodore, Drashansky, Joseph Dean, Benjamin Keselowsky, Weizhou Zhang, **Zhiguang Huo**, Inna Smalley, Keiran Smalley, Liang Zhou, Yenan Bryceson, Dorina Avram. The transcription factor Bcl11b restricts memory CD8+ T cell residency program and sustains tissue exit program in infection and cancer *Science Immunology* (Accepted)

3. Helena Palma-Gudiel, Lei Yu, **Zhiguang Huo**, Jingyun Yang, Tongjun Gu, Cheng Gao, Philip L. De Jager, Peng Jin, David A. Bennett, Jinying Zhao. Fine-mapping and replication of EWAS loci harboring putative epigenetic alterations associated with AD neuropathology in a large collection of human brain tissue samples. *Alzheimer's & Dementia* (Accepted)

2022

4. Soamy Montesino-Goicolea†, Lingsong Meng†, Asha Rani, Zhiguang Huo, Thomas C. Foster, Roger B. Fillingim. Enrichment of genomic pathways based on differential DNA methylation profiles associated with knee osteoarthritis pain. *Neurobiology of pain* 2022 Nov 3;12:100107

5. Tengfei Bian†, Haocheng Ding†, Yuzhi Wang, Qi Hu, Jin Koh, Sixue Chen, Naomi Fujioka, F. Zahra Aly, Junxuan Lu*, **Zhiguang Huo*** and Chengguo Xing*. Suppressing the activation of protein kinase A as a DNA damage-independent mechanistic lead for dihydromethysticin (DHM) prophylaxis of NNK-induced lung carcinogenesis. *Carcinogenesis* 2022 Aug 30;43(7):659-670.

6. Jessica A. Peterson, Larissa J. Strath, Chavier Laffitte Nodarse , Asha Rani, **Zhiguang Huo**, Lingsong Meng, James Cole, Thomas C. Foster, Roger B. Fillingim, Yenisel Cruz-Almeida. Accelerated Epigenetic Aging Mediates the Association between Pain Impact and Predicted Brain Age Difference in Middle to Older Age Individuals with Knee Pain. *Epigenetics* 2022 Dec;17(13):2178-2187.

7. Cruz-Almeida, Yenisel; Johnson, Alisa; Meng, Lingsong; Rani, Asha; Sinha, Puja; Yoder, Sean; **Huo, Zhiguang**; Foster, Thomas; Fillingim, Roger. Epigenetic Age Predictors in Community-Dwelling Adults with High Impact Knee Pain. *Molecular Pain* 2022 Apr;18:17448069221118004.

8. Johnson AJ, Buchanan T, Laffitte Nodarse C, Valdes Hernandez PA, **Huo Z**, Cole JH, Buford TW,

Fillingim RB, Cruz-Almeida Y. Cross-Sectional Brain-Predicted Age Differences in Community-Dwelling Middle-Aged and Older Adults with High Impact Knee Pain. *J Pain Res* 2022 Nov 16;15:3575-3587

9. Tengfei Bian, Yuzhi Wang, Jordy Botello, Qi Hu, Yunhan Jiang, Adriana Zingone, Haocheng Ding, Yougen Wu, F. Aly, Ramzi Salloum, Graham Warren, **Zhiguang Huo**, Brid Ryan, Lingtao Jin, and Chengguo Xing. LKB1 phosphorylation and deactivation in lung cancer by NNAL, a metabolite of tobacco-specific carcinogen, in an isomer-dependent manner. *Oncogene* 41, 4042–4054 (2022).

10. Edwin N. Aroke, Lingsong Meng, **Zhiguang Huo**, Yenisel Cruz-Almeida, Burel Goodin. Differential DNA Methylation in Black and White Individuals with Chronic Low Back Pain Enrich Different Genomic Pathways. *Neurobiology of Pain* 2022 Feb 25;11:100086.

11. Larissa Jane Strath; Lingsong Meng; Asha Rani; Puja Sinha; Alisa Johnson; Ricarrdo Marioni; **Zhiguang Huo**; Thomas Foster; Roger Fillingim; Yenisel Cruz-Almeida. Accelerated Epigenetic Aging Mediates the Association between Vitamin D Levels and Knee Pain in Community-Dwelling Individuals. *Journal of nutrition, health & aging*, 26(4), 318-323.

12. Yuzhi Wang, Tengfei Bian, Lina Song, Yunhan Jiang, **Zhiguang Huo**, Ramzi Salloum, Graham Warren, Frederic J. Kaye, Naomi Fujioka, Lingtao Jin, Chengguo Xing. Reducing chemotherapy-induced DNA damage via nAChR-mediated redox reprograming - a new mechanism for SCLC chemoresistance boosted by nicotine. *Cancers*, 14(9), 2272.

13. Santanu Hati[†], Qi Hu[†], **Zhiguang Huo**, Junxuan Lu, Chengguo Xing. In vivo structure-activity relationship of dihydromethysticin in reducing NNK-induced lung DNA damage against lung carcinogenesis. *ChemMedChem* 2022 Apr 5;17(7):e202100727.

14. Qi Hu, Pedro Corral, Stephen S. Hecht, F. Zahra Aly, **Zhiguang Huo**, Chengguo Xing. Characterization of adductomic totality of NNK, (R)-NNAL, and (S)-NNAL in A/J mice, and their correlations with distinct lung carcinogenicity. *Carcinogenesis*, 43(2), 170-181.

15. Brendan M. Gabriel, Ali Altintas, Richard Tjörnhammar, Laura Sardon-Puig, Jonathon A.B. Smith, Xiping Zhang, Astrid L. Basse, Rhianna C. Laker, Carles Canto, Hui Gao, Jonas T. Treebak, Antonio Zorzano, **Zhiguang Huo**, Mikael Rydén, Karyn A. Esser, Nicolas J. Pillon, Romain Barrès, Anna Krook, Juleen R. Zierath. Disrupted Circadian Oscillations in Type 2 Diabetes are Linked to Altered Rhythmic Mitochondrial Metabolism in Skeletal Muscle *Science Advances*, 7(43), eabi9654.

16. Fullwood, Dottington; Gomez, Rebecca; **Huo, Zhiguang**; Cardoso, Josue; Bartley, Emily; Booker, Staja; Powell-Roach, Keesha; Johnson, Alisa; Sibille, Kimberly; Sotolongo, Adriana; Goodin, Burel; Staud, Roland; Redden, David; Fillingim, Roger; Terry, Ellen. A mediation appraisal of catastrophizing, pain-related outcomes, and race in adults with knee osteoarthritis. *The Journal of Pain*, 22(11), 1452-1466.

2021

17. **Zhiguang Huo**, Brinda K. Rana, Jeremy A. Elman, Ruocheng Dong, Corinne D. Engelman, Sterling C. Johnson, Michael J. Lyons, Carol E. Franz, William S. Kremen, Jinying Zhao. Metabolic profiling of cognitive aging in midlife. *Frontier in Aging Neuroscience* 12 (2020): 397.

18. Johnson, Alisa; Laffitte Nodarse, Chavier; Peraza, Julio; Valdes-Hernandez, Pedro; Montesino-Goicolea, Soamy; **Huo, Zhiguang**; Fillingim, Roger; Cruz-Almeida, Yenisel. Psychological profiles in adults with knee OA-related pain: A replication study. *Therapeutic Advances in Musculoskeletal Disease* 2021 Dec 8;13:1759720X211059614.

19. Aaron R Waddell, Iqbal Mahmud, Haocheng Ding, **Zhiguang Huo**, Daiqing Liao. Pharmacological inhibition of CBP/p300 blocks estrogen receptor alpha (ERa) function through suppressing enhancer H3K27 acetylation in luminal breast cancer. *Cancers* 13, no. 11 (2021): 2799.

20. Theodore Drashansky, Eric Helm, Nina Curkovic, Jaimee Cooper, Xiaoping Luo, Lingsong Meng, William Collins, Benjamin Keselowsky, Derek Sant'Angelo, **Zhiguang Huo**, Liang Zhou, Dorina Avram. BCL11B is positioned upstream of PLZF and RORγt to control thymic development of mucosal-associated invariant T cells and MAIT17 program. *iScience* 24, no. 4 (2021): 102307.

21. Yang Shen, Wei Wang, Mehari Endale, Lauren J Francey, Rachel L Harold, David W Hammers, **Zhiguang Huo**, Carrie L Partch, ProfileJohn Hogenesch, Zhao-Hui Wu, Andrew C Liu. NF-kB modifies the mammalian circadian clock through interaction with the core clock protein BMAL1. *PLOS Genetics* 17, no. 11 (2021): e1009933.

22. Pedro Valdes-Hernandez; Soamy Montesino-Goicolea; Lorraine Hoyos; Eric C Porges; **Zhiguang Huo**, Natalie C Ebner; Adam J Woods; Ronald Cohen; Joseph L Riley III; Roger B Filligim; Yenisel Cruz-Almeida. Resting State Functional Connectivity Patterns are Associated with Chronic Pain Duration in Community-Dwelling Older Adults. *Pain Report*, 6, no. 4 (2021).

23. Lei Yu, **Zhiguang Huo**, Jingyun Yang, Patricia A. Boyle, Julie A. Schneider, David A. Bennett, Jinying Zhao. Human brain and blood N-glycome profiling in AD/ADRD. *Frontiers in Aging Neuroscience* (2021) 13, 765259.

24. Guanhong Miao, Ying Zhang, **Zhiguang Huo**, Wenjie Zeng, Jianhui Zhu, Jason G. Umans, Gert Wohlgemuth, Diego Pedrosa, Brian DeFelice, Shelley A. Cole, Elisa T. Lee, Barbara V. Howard, Oliver Fiehn, Jinying Zhao. Longitudinal Plasma Lipidome and Risk for Type 2 Diabetes in a Large Sample of American Indians with Normal Fasting Glucose: The Strong Heart Family Study. *Diabetes Care* 44, no. 12 (2021): 2664-2672.

25. Welch, Nicole; Singh, Shashi; Kumar, Avinash; Dhruba, Saugato; Mishra, Saurabh; Sekar, Jinendiran; Bellar, Annette; Attaway, Amy; Chelluboyina, Aruna; Willard, Belinda; Li, Ling; **Huo, Zhiguang**; Esser, Karyn; Karnik, Sadhashiva; Longworth, Michelle; Shah, Yatrik; Davuluri, Gangarao; Pal, Ranadip; Dasarathy, Srinivasan. Integrated multiomics analysis identifies molecular landscape perturbations during hyperammonemia in skeletal muscle and myotubes. *Journal of Biological Chemistry*, 297, no. 3 (2021).

26. Nicholas J. Saner, Matthew JC Lee, Jujiao Kuang, Nathan W. Pitchford, Gregory D. Roach, Andrew Garnham, Amanda J. Genders; Tanner Stokes; Elizabeth A Schroder; **Zhiguang Huo**; Esser A Karyn; Stuart M Phillips; David J Bishop; Jonathan D Bartlett. Exercise mitigates sleep-loss-induced changes in glucose tolerance, mitochondrial function, sarcoplasmic protein synthesis, and diurnal rhythms. *Molecular Metabolism* 43 (2021): 101110.

27. Burcu F. Darsta, **Zhiguang Huo**, Erin M. Jonaitis, Rebecca L. Koscik, Lindsay R. Clarkc, Qiongshi Lu, William S. Kremen, Carol E. Franz, Brinda Rana, Michael J. Lyons, Kirk J. Hogan, Jinying Zhao, Sterling C. Johnsonc, Corinne D. Engelman. Metabolites Associated with Early Cognitive Changes Implicated in Alzheimer's Disease. *Journal of Alzheimer Disease* JAD 79, no. 3 (2021): 1041-1054.

28. Joseph Collins, **Zhiguang Huo**, Danxin Wang, ESR1 ChIP-Seq Identifies Distinct Ligand-Free ESR1 Genomic Binding Sites in Human Hepatocytes and Liver Tissue. *International journal of molecular sciences* 22, no. 3 (2021): 1461.

2020

29. **Zhiguang Huo**, Lei Yu, Jingyun Yang, Yun Zhu, David A. Bennett, Jinying Zhao. (2020) Brain and blood metabolome for Alzheimer's dementia: Findings from a targeted metabolomics analysis. *Neurobiology of aging* 86, 123-133.

30. Ryan W. Logan, Angela R. Ozburn, Rachel N. Arey, Kyle D. Ketchesin, Alicia Winquist, Andrew Crain, Brian T. D. Tobe, Darius Becker-Krail, Matthew B. Jarpe, Xiangning Xue, Wei Zong, **Zhiguang Huo**, Puja K. Parekh, Xiyu Zhu, Ethan Fitzgerald, Hui Zhang, Jeffrey Oliver-Smith, Lauren M. DePoy, Mariah Hildebrand, Evan Y. Snyder, George C. Tseng, and Colleen A. McClung. Valproate reverses mania-like behaviors in mice via preferential targeting of HDAC2. *Molecular Psychiatry* (2020): 1-19.

31. Marianne Seney, William Paden, Kelly Barko, Rachel Puralewski, Kelly Cahill, **Zhiguang Huo**, Micah Shelton, George Tseng, and Ryan Logan (2020) Sex differences in adult mood and in stress-induced transcriptional coherence across mesocorticolimbic circuitry. *Translational Psychiatry* 10(1), pp.1-14.

32. Nader Shaikh, Judith M Martin, Alejandro Hoberman, Megan Skae, Linette Milkovich, Christi McElheny, Robert W Hickey, Diana Kearney, Massoud Majd, Eglal Shalaby-Rana, George Tseng,

John F Alcorn, Jay Kolls, Marcia Kurs-Lasky, William Horne, **Zhiguang Huo**, Timothy R Shope. (2020) Biomarkers that differentiate false positive urinalyses from true urinary tract infection. *Pediatric Nephrology* 35(2), 321-329..

33. Ali Zarrinpar, Ting-Yuan D Cheng, **Zhiguang Huo**. (2020) What Can We Learn About Drug Safety and Other Effects in the Era of Electronic Health Records and Big Data That We Would Not Be Able to Learn from Classic Epidemiology? *Journal of Surgical Research* 246, 599-604.

34. Saunjoo L. Yoon, Oliver Grundmann, Joseph J. Williams, Samuel S. Wu, Christiaan Leeuwenburgh, **Zhiguang Huo**, and Thomas J. George Jr. (2020) Differential response to targeted acupuncture by gender in patients with gastrointestinal cancer cachexia: secondary analysis of a randomized controlled trial. *Acupuncture in Medicine* 38(1), 53-60.

35. Kristin Curry Greenwood, Jennifer Kirwin, **Zhiguang Huo**. (2020) Design and Implementation of the Health Professions Simulation Assessment, a Tool to Assess Students' Perceptions of Simulation Experiences. *Journal of Acute Care Physical Therapy*, 11(2), 70-78.

36. Yonghan He, Sajid Khan, **Zhiguang Huo**, Dongwen Lv, Xuan Zhang, Xingui Liu, Yaxia Yuan, Robert Hromas, Mingjiang Xu, Guangrong Zheng, Daohong Zhou. (2020) Proteolysis targeting chimeras (PROTACs) are emerging therapeutics for hematologic malignancies. *Journal of Hematology & Oncology*, 13(1), 1-24.

37. Soamy Montesino-Goicolea, Pedro A Valdes-Hernandez, Lorraine Hoyos, Adam J. Woods, Ronald Cohen, **Zhiguang Huo**, Joseph L. Riley III, Eric C. Porges, Roger B. Fillingim, Yenisel Cruz-Almeida. (2020) Cortical thickness mediates the association between self-reported pain and sleep quality in community-dwelling older adults. *Journal of Pain Research*, 13:2389-2400.

38. Soamy Montesino-Goicolea, Puja Sinha; **Zhiguang Huo**; Asha Rani; Thomas Foster; Yenisel Cruz-Almeida. (2020) Enrichment of Genomic Pathways Based on Differential DNA Methylation Profiles Associated With Chronic Musculoskeletal Pain in Older Adults: An Exploratory Study *Molecular Pain*, 16, 1744806920966902.

39. Tengfei Bian, Pedro Corral, Yuzhi Wang, Jordy Botello, Rick Kingston, Tyler Daniels, Ramzi Salloum, Edward Johnston, **Zhiguang Huo**, Andrew Liu, Junxuan Lu, Chengguo Xing. (2020) Kava as a clinical nutrient: promises and challenges. *Nutrients*, 12(10), 3044.

2019

40. **Zhiguang Huo**, Yun Zhu, Lei Yu, Jingyun Yang, Philip De Jager, David A. Bennett, Jinying Zhao. DNA methylation variability in Alzheimer's Disease. *Neurobiology of aging* 76 (2019): 35-44.

41. Song Han*, **Zhiguang Huo***, Kathy Nguyen, Fanchao Zhu, Patrick W Underwood, Kari Basso, Thomas George, and Steven Hughes. (2019) The Proteome of Pancreatic Cancer-Derived Exosomes Reveals Signatures Rich in Key Signaling Pathways. *Proteomics*, 19(13), 1800394.

42. Marianne L. Seney, Kelly Cahill, John F. Enwright III, Ryan W. Logan, **Zhiguang Huo**, Wei Zong, George Tseng, and Colleen A. McClung. (2019) Diurnal rhythms in gene expression in the prefrontal cortex in schizophrenia. *Nature Communications* 10, no. 1 (2019): 1-11.

43. Li Zhu, **Zhiguang Huo**, Tianzhou Ma, George Tseng. (2019) Bayesian indicator variable selection to incorporate multi-layer overlapping group structure in multi-omics applications. *The Annals of Applied Statistics* 13(4), 2611-2636. (An earlier version won ENAR distinguished student paper award 2018)

44. Nader Shaikh, Judith M Martin, Alejandro Hoberman, Megan Skae, Linette Milkovich, Andrew Nowalk, Christi McElheny, Robert W Hickey, Diana Kearney, Massoud Majd, Eglal Shalaby-Rana, George Tseng, John F Alcorn, Jay Kolls, Marcia Kurs-Lasky, **Zhiguang Huo**, William Horne, Greg Lockhart, Hans Pohl, Timothy R Shope. (2019) Host and Bacterial Markers that Differ in Children with Cystitis and Pyelonephritis. *The Journal of pediatrics* , 209, 146-153.

45. Yenisel Cruz-Almeida, Puja Sinha, Asha Rani, **Zhiguang Huo**, Roger Benton Fillingim, Thomas C Foster. (2019) Epigenetic Aging is Associated with Clinical and Experimental Pain in Community-Dwelling Older Adults. *Molecular Pain*, 15 (2019): 1744806919871819.

46. Theodore Drashansky[†], Eric Helm[†], **Zhiguang Huo**, Upasana Parthasarathy, Ashley Zuniga,

Jonathan Cho, Zhiwei Xu, Mohammad Uddin, Kyle Lorentsen, Safiehkhatoon Moshkani, Liang Zhou, Nina Curkovic, Preet Kumar, Xiaoping Luo, Dorina Avram. (2020) Bcl11b prevents fatal autoimmunity by promoting Treg cell program and constraining innate lineages in Treg cells. *Science Advances*, 5(8), eaaw0480.

2018

47. Marianne Seney, **Zhiguang Huo**, Kelly Cahill, Leon French, Rachel Puralewski, Joyce Zhang, Ryan W. Logan, George Tseng, David A Lewis, Etienne Sibille. Opposite molecular signatures of depression in men and women. *Biological Psychiatry* 84, no. 1 (2018): 18-27.

48. John Enwright, **Zhiguang Huo**, Dominique Arion, John P. Corradi, George Tseng, and David A. Lewis. Transcriptome alterations of prefrontal cortical parvalbumin neurons in schizophrenia. *Molecular psychiatry* 23, no. 7 (2018): 1606.

49. Cynthia R. Johnson, Kimberly Brown, Susan Hyman, Maria M. Brooks, Courtney Aponte, Lynne Levato, Brianna Schmidt, Victoria Evans, **Zhiguang Huo**, Roxanna Bendixen, Heather Eng, Theresa Sax, Tristram Smith. Parent Training for Feeding Problems in Children with Autism Spectrum Disorder: Initial Randomized Trial. *Journal of pediatric psychology* 44, no. 2 (2018): 164-175.

2017

50. Dominique Arion, **Zhiguang Huo**, John F. Enwright, John P. Corradi, George Tseng, and David A. Lewis. Transcriptome alterations in prefrontal pyramidal cells distinguish schizophrenia from bipolar and major depressive disorders. *Biological psychiatry* 82, no. 8 (2017): 594-600.

2016 and before

51. Tiffany A. Katz, Serena G. Liao, Vincent J. Palmieri, Robert K. Dearth, Thushangi Pathiraja, **Zhiguang Huo**, Patricia Shaw, Sarah Small, Nancy E. Davidson, David G. Peters, George C. Tseng, Steffi Oesterreich, Adrian V. Lee. Targeted DNA Methylation Screen in the Mouse Mammary Genome Reveals a Parity-Induced Hypermethylation of IGF1R That Persists Long after Parturition. *Cancer Prevention Research* 8, no. 10 (2015): 1000-1009.

52. Yan P. Yu, Silvia Liu, **Zhiguang Huo**, Amantha Martin, Joel B. Nelson, George C. Tseng and Jian-Hua Luo. (2015) Genomic copy number variations in the genomes of leukocytes predict prostate cancer clinical outcomes. *PloS one*, 10(8):e0135982.

AWARD

Academic Awards

- Colledge of Public Health and Health Professional, University of Florida   Sep 2020
  - Dean's citation award
- Department of Biostatistics, University of Florida   March 2019
  - Outstanding Teacher

Student Awards

- Delta Omega Membership   April 2017
- American Statistics Association (ASA) Pittsburgh chapter   March 2016
  - Student of the year
- Department of Physics, Harbin Institute of Technology   May 2009
  - National Scholarship of P.R. China.
    (Awarded to the top 2 students in my Bachelors degree.)

Travel Awards

- 2018 ASA Biometrics Section JSM Travel Award, Vancouver, BC, Canada.   Aug 2018

- Objective Bayes meeting 2017 travel award, Austin, TX.   Dec 2017

- SAMSI, Research Triangle Park, NC.
  - Interface of Statistics and Optimization   Feb 2017
  - Optimization Summer School   Aug 2016
  - Epigenetics Workshop   Mar 2015
  - Beyond Bioinformatics Workshop   June 2014

TEACHING EXPERIENCE

Lecturer, University of Florida

- PHC6937 - Introduction to Biostatistical Computing   Feb 2022
- PHC6937 - Frontiers in Biostatistics   Feb 2020, Feb 2018
- PHC6068 - Biostatistical computing   Fall 2017 ∼ Fall 2021

Lecturer, University of Pittsburgh

- BIOST2094 - Advanced R Computing – (with Tianzhou Ma)   Spring 2017
- BIOST2025 - Special Studies in Bayesian Data Analysis   Fall 2016
  - (with George Tseng, Tianzhou Ma and Li Zhu)

Guest Lecturer, University of Pittsburgh

- BIOST2055 - Introductory high-throughput genomic data analysis I:
  data mining and applications   Mar 2016
  - Differential and isoform analysis of RNA-seq data
- BIOST2078 - Introductory high-throughput genomic data analysis II:
  theories and algorithms   Dec 2015
  - Reproducible research and parallel computing in R
- BIOST2078 - Introductory high-throughput genomic data analysis II:
  theories and algorithms   Dec 2014
  - Reproducible research

Teaching Assistant, University of Pittsburgh

- BIOST 2078 - Introductory high-throughput genomic data analysis II:
  theories and algorithms   Fall 2014
- PHYS 0212 - Introduction to Laboratory Physics   Spring 2012
- PHYS 0212 - Introduction to Laboratory Physics   Fall 2011

PRESENTATIONS

Invited Oral Presentation

- International Chinese Statistical Association conference, Gainesville, FL   June 2022
  - A Bayesian Framework for Outcome-guided Clusterings via Integrating
    Clinical Data with High-dimensional Transcriptomic Data.
- International Chinese Statistical Association conference (virtual), Houston, TX   Dec 2020
  - Outcome-guided Sparse K-means for Disease Subtype Discovery via Integrating
    Phenotypic Data with High-dimensional Transcriptomic Data
- Division of Biostatistics, Albert Einstein College of Medicine, Bronx, NY   Oct 2019
  - Statistical methods on omics data integration for disease subtype discovery.
- Rush Alzheimer's Disease Center ROSMAP Investigator's Meeting, Chicago, IL   April 2019
  - Brain and blood metabolome for Alzheimer's dementia.
- Department of Physiology and Functional Genomics at UF, Gainesville, FL   October 2018
  - Statistical methods on omics data meta-analysis and integration, for
    disease subtype discovery and differential expression analysis.

- Joint Statistical Meetings, Vancouver, BC, Canada   August 2018
    - Bayesian meta-analysis for biomarkers of meta-patterns.
- International Chinese Statistical Association conference, New Brunswick, NJ   June 2018
    - Two-way Horizontal and Vertical Omics Integration for Disease Subtype Discovery.
- Rush Alzheimer's Disease Center ROSMAP Investigator's Meeting, Chicago, IL   May 2018
    - Identifying variably methylated regions (VMRs) associated with AD.
- International Indian Statistical Association conference, Gainesville, FL   May 2018
    - Two-way Horizontal and Vertical Omics Integration for Disease Subtype Discovery.
- Department of Biostatistics, University of Florida, Gainesville, FL   Feb 2017
    - Meta-analytic and integrative framework for sparse K-means to
      identify disease subtypes.

Contributed Poster and Oral Presentation

- Poster, ENAR converence, Atlanta, GA   Mar 2018
    - p-value evaluation, variability index and biomarker categorization for
      adaptively weighted Fisher's meta-analysis method in omics applications
- Poster, 2018 UF Stats Winter Workshop, University of Florida, Gainesville, FL   Jan 2018
    - Bayesian latent hierarchical model for transcriptomic meta-analysis to detect
      biomarkers with clustered meta-patterns of differential expression signals
- Poster, Objective Bayes meeting 2017, University of Texas, Austin, TX   Dec 2017
    - Bayesian latent hierarchical model for transcriptomic meta-analysis to detect
      biomarkers with clustered meta-patterns of differential expression signals
- Poster, Dean's Day's competition, GSPH, University of Pittsburgh   April 2017
    - Circadian rhythms of gene expression in the human prefrontal cortex
      reveal distinct pattern between schizophrenia and control subjects
- Oral Presentation, ENAR, Washington, DC   Mar 2017
    - Bayesian latent hierarchical model for transcriptomic meta-analysis to detect
      biomarkers with clustered meta-patterns of differential expression signals.
- Poster, SAMSI optimization summer school, Research Triangle Park, NC   Aug 2016
    - Integrative Sparse K-means for disease subtype discovery using
      multi-level omics data.
- Poster, Pittsburgh ASA banquet, Pittsburgh, PA   Mar 2016
    - Integrative Sparse K-means for disease subtype discovery using
      multi-level omics data.
- Department of Biostatistics, University of Pittsburgh   Nov 2015
    - How to use Latex to make slides
- Oral Presentation, JSM, Seattle, WA   Aug 2015
    - Meta-analytic framework for sparse K-means to identify disease
      subtypes in multiple transcriptomic studies.
- Poster, Pittsburgh ASA banquet, Pittsburgh, PA   Apr 2015
    - Meta-analytic framework for sparse K-means to identify disease
      subtypes in multiple transcriptomic studies.
- Oral Presentation, ENAR Conference, Miami, FL   Mar 2015
    - Meta-analytic framework for sparse K-means to identify disease
      subtypes in multiple transcriptomic studies.
- Poster, Dean's Day's competition, GSPH, University of Pittsburgh   Mar 2015
    - Discover and Characterize Invasive Lobular Breast Carcinoma Subtypes.
- Oral Presentation, ENAR Conference, Baltimore, MA   Mar 2014
    - Meta-analytic framework for sparse K-means to identify disease
      subtypes in multiple transcriptomic studies.
- Poster, Dean's Day's competition, GSPH, University of Pittsburgh   Mar 2014
    - Meta-analytic framework for sparse K-means to identify disease

subtypes in multiple transcriptomic studies.

CONFERENCE SERVICE

- ICSA, Gainesville, FL   June 2022
  - Chair for Session Recent advancement in statistical learning methods for high-dimensional biomedical data.
- ICSA, New Brunswick, NJ   June 2018
  - Chair for Session New developments in microbiome sequencing data modeling and analysis.
  - Chair for Session Modern Statistical Development for Biomedical Big data.

REVIEWER SERVICE

Statistical journal	Count
Journal of the American Statistical Association	1
Journal of the Royal Statistical Society Series C	1
Biometrics	3
Bioinformatics	3
BMC Bioinformatics	1
Statistics in Bioscience	1
Journal of Statistical Research	1
Journal of Data Science	1
Biological journal	
Nucleic Acids Research	1
American Journal of Epidemiology	1
PLOS ONE	3
Scientific Reports	2
Journal of Alzheimer's Disease	4
Alzheimer's & Dementia Journal	1
Frontiers Immunology	1
BMC Medicine	1

DEPARTMENT/COLLEGE SERVICE

- Member of PHHP Faculty Council   *June 2020 ∼ now*
  - College of Public Health and Health Professions, University of Florida
- Member of PhD Qualifying Exam commitee   *Jan 2018 ∼ Aug 2022*
  - Department of Biostatistics, University of Florida
- Director of the Biostatistics Consulting Lab   *Sep 2017 ∼ June 2019*
  - Department of Biostatistics, University of Florida

PH.D. ADVISING

Committee Chair

Name	Department	Graduation Time	First position
Haocheng Ding	Biotatistics, UF	Active	
Lingsong Meng	Biotatistics, UF	Active	
Yutao Zhang	Biotatistics, UF	Active	

MEMBERSHIP

Committee Member

Name	Department	Graduation Time	First position
Shaojun Zhang	Statistics, UF	July 2018	84.51°
Satyajit Ghosh	Statistics, UF	July 2018	postdoc at Rutgers University
Jalalli Peyman	Statistics, UF	April 2019	Wells Fargo
Minji Lee	Statistics, UF	June 2020	postdoc at Columbia University
Zhongkai Wang	Biostatistics, UF	July 2020	Eli Lilly
Tamal Ghosh	Statistics, UF	July 2020	
Roy Samrat	Statistics, UF	July 2020	
Suman Bhattacharya	Statistics, UF	March 2021	
Ruoyang Zhang	Statistics, UF	May 2021	
Eric Helm	Anatomy and Cell Biology, UF	Nov 2021	
Sourav Mukherjee	Statistics, UF	July 2022	
Jiayuan Zhou	Statistics, UF	July 2022	
Nilanjana Chakraborty	Statistics, UF	July 2022	
Srijata Samanta	Statistics, UF	July 2022	
Fatmah Alamoudi	Nursing, UF	Active	
Tingting Hou	Biostatistics, UF	Active	
Xiaoru Dong	Biostatistics, UF	Active	
Dongyuan Wu	Biostatistics, UF	Active	
Seungjun Ahn	Biostatistics, UF	Active	
Sagnik Halder	Statistics, UF	Active	
Eleni Dilma	Statistics, UF	Active	

- Member of International Chinese Statistical Association *Mar 2015 ∼ Now*
- Member of Eastern North American Region International Biometric Society *Oct 2013 ∼ Now*
- Member of American Statistical Association *Nov 2013 ∼ Now*

HOBBIES

Running, skiing, other endurance activities.

Running Record

Name	Location	Date
Horrible Hundred (Century ride)	Clermont, FL	11/21/2021
Five Points of Life Half Marathon	Gainesville, FL	02/16/2020
HITS half ironman	Sarasota, FL	01/05/2020
Santa Fe Century (Century ride)	Gainesville, FL	10/26/2019
Las Olas International Triathlon	Fort Lauderdale, FL	03/10/2019
Five Points of Life Half Marathon	Gainesville, FL	02/16/2019
The Southernmost Marathon	Key West, FL	10/06/2018
Dick's Sporting Goods Pittsburgh Half Marathon	Pittsburgh, PA	05/06/2018
Five Points of Life Race Marathon	Gainesville, FL	02/18/2018
Bank of America Chicago Marathon	Chicago, IL	10/09/2016
First National Bank Pittsburgh Triathlon (Sprint)	Pittsburgh, PA	08/14/2016
Dick's Sporting Goods Pittsburgh Marathon	Pittsburgh, PA	05/01/2016
First National Bank Pittsburgh Triathlon	Pittsburgh, PA	08/09/2015
Dick's Sporting Goods Pittsburgh Marathon	Pittsburgh, PA	05/03/2015
Dick's Sporting Goods Pittsburgh Marathon	Pittsburgh, PA	05/04/2014
Dick's Sporting Goods Pittsburgh Marathon	Pittsburgh, PA	05/05/2013