

CV of HONGBAO CAO

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Education

PhD, in Biomedical Engineering, Louisiana Tech University, Louisiana, LA, USA, awarded in Nov., 2009

M.S., in Biomedical Engineering, Tianjin University, Tianjin, China, awarded in Mar., 2005

B.A., in Biomedical Engineering, Tianjin University, Tianjin, China, awarded in Jun., 2002

Professional Services

- Lead Guest Editor of PPAR Research (2020)
- Editorial Board Member of SCIREA Journal of Biology
- Editorial Board Member of Applied and Computational Mathematics
- Editorial Board Member of Austin Journal of Genetics and Genomic Research
- Editorial Board Member of SM Journal of Engineering Sciences
- Member of IEEE Since 2012
- Reviewer for top journals and conferences, including:
 1. Applied Mathematics & Information Sciences (AMIS)
 2. Applied Computing and Informatics (ACI)
 3. The IEEE International Conference on Bioinformatics and Biomedicine (BIBM)
 4. BMC Genomics
 5. Journal of Convergence Information Technology (JCIT)
 6. IEEE International Workshop on Machine Learning for Signal Processing (MLSP)
 7. Pattern Recognition (PR)
 8. IEEE Transactions on Biomedical Engineering (TBME)
 9. IEEE Transactions on Fuzzy System (TFS)

Research Experience (2003~present):

1. **Senior Bioinformatics Scientist, Product Manager**, Elsevier Inc., 2015.9~present

✧ *Scientific related duties*

- Design and develop new modules;
- product function evaluation;
- Big data analyses and bioinformatics data integration
- Research on NLP based network analysis
- Research on In-Silico-Biology based drug development
- Database management (Cypher, SQLite)
- Large-scale genetic network analysis
- Collaborate with GeneTalks LLC for NGS data analysis

✧ *Product manager duties*

- Manage internal communications between product team, market team, sale team and teach team

- Manage outside collaborations: NIH, universities, pharmaceutical companies and hospitals
 - Monitoring/prioritizing product development
 - Leading a post-sale service team: customer advisory services, support and consultation
 - Product sale/usage analysis
2. **Distinguished Professor** at Shanxi Medical University, 2019.10~ present
 3. **Affiliate faculty**, George Mason University, 2017. 3 ~ present
 - Textbook editing and scientific paper publication
 - Teaching for Bioinformatics classes
 4. **Research Scientist** at Unit on Statistical Genomics, NIH, 2015.9~2019.9
 - Data integration (for genomic and imaging data)
 - Biomarker discovery (genetic and image biomarkers)
 - Statistical modeling
 5. **Research Fellow** at National Institute of Mental Health (NIMH/NIH), Bethesda, MD, 2012.12~2015.9
 - Medical image data analysis for feature selection and biomarker detection for complex disease (Autism, Schizophrenia, bipolar)
 - Signal processing for multivariate correlation analysis (eQTL analysis; multiple clinical phenotype-genotype data association analysis)
 - Data integration (e.g., fMRI, GWAS, gene expression)
 - Algorithm development and application (PLS;GLM; sparse regression; statistic analysis)
 - Experiment design
 6. **Postdoctoral Research Associate** at Tulane university, New Orleans, LA, 2010.8~2012.12
 - Genomic data/medical imaging data (DNA sequence, SNP and gene expression and copy number data, fMRI imaging data etc.) analysis for the study of complex diseases
 - Designed *genomic marker selection* algorithms and *genomic data classification* algorithms for the combined analysis of different genomic data (SNP data, gene expression data) in the diagnosis of osteoporosis.
 - Developed *sparse representation based clustering algorithm (SRC)* and *discovered two important osteoporosis susceptible genes*.
 - Designed integrative analysis methods of different medical measurements (SNP data, gene expression data, fMRI data) for the diagnosis of complex disease (e.g. osteoporosis, schizophrenia).
 - Developed *sparse representation based variable selection algorithm (SRVS)* and improved the diagnose accuracy of schizophrenia.
 - Statistical analysis of the diagnosis results.

7. **Postdoctoral Research Associate** at University of Missouri at Kansas City, Kansas City, MO, 2009.11~2010.7
 - Multi-color fluorescence in situ hybridization (M-FISH) images analysis for disease diagnosis, 2009.11~present
 - Developed image processing algorithm for the Multi-color fluorescence in situ hybridization (M-FISH) images analysis, including image registration, color compensation, feature extraction, image segmentation, target tracking, and image classification. The work increased the M-FISH diagnosis accuracy by more than 10%.
 - Integrative genomic data analysis (gene expression and copy number data) for the study of breast cancer. Including large data management, feature extraction, genomic marker selection, and genomic data classification using sparse representation based methods. The work discovered seven meaningful genes for the disease.

8. **Research Assistant** at Louisiana Tech University, Ruston, LA, 2005.9~2009.10
 - Independent components analysis (ICA) on four-layer computational head model
 - EEG-based Brain-Computer-Interface (BCI)
 - ECG-based heart disorder diagnosis

9. **Principal Software Engineer** at Tianjin Zhongya Medical Instrument T.D. Co., Ltd., Tianjin, China, 2004.1~2005.3
 - Designed, debugged and applied embed software (C, Assemble) for the Pelvic inflammatory disease treatment instrument
 - Product No.: ZP-11A
 - <http://www.zhongyakj.com/eng/productinfo.asp?id=479>

10. **Research & development Engineer**, Tianjin University, Tianjin, China, 2003.3~2004.1
 - Hardware and software design and development for Pulse Training Simulator.
 - Commoditized by Tellyes Scientific Co. (Product No. CMIO300001ADC)
 - <http://en.tellyes.com/product/4fa25432924d1.html>

Technical Skills

- 10+ years image processing experience; Experience with SPM, AFNI and FSL;
- 10+ years signal processing experience (Regression Models, PCA, ICA, FFT)
- 10+ years programming experience (Matlab, C/C++, R, Java, and SAS)
- 6+ years genomic data analysis (NGS, RNA-Seq, copy number, gene expression, GWAS)
- 2+ years instrumentation development experience, including software design and hardware control

Awards and Honors:

1. Research Assistantship of Louisiana Tech University, 2005.9~2009.9
2. Outstanding BME senior Ph.D. graduate student of Louisiana Tech University, 2007.10
3. Excellent graduate thesis of Tianjin University, 2005,3
4. Distinguished Scientific Report of Tianjin University, 2004.3
5. Hi-Tech Research and Development program of China, 2003,1

6. Distinguished Student Award of Tianjin University, four times, 2003,1998~2001
7. Superior Winner Prize in the National College Mathematic Modeling Competition, 2001
8. Motorola Scholarship, Motorola Inc.-Tianjin University, twice, 1999,1998

Publications (*Journal papers*):

1. Q Xie, Z Li, Y Wang, S Zaidi, A Baranova, **H Cao**. Preeclampsia Drives Molecular Networks to Shift Toward Greater Vulnerability to the Development of Autism Spectrum Disorder. *Front Neurol.* 2020 Jul 15; 11:590. doi: 10.3389/fneur.2020.00590. (IF: 2.889)
2. L Qiao, L Xia, Y Dong, Y Cheng, **H Cao***, Uterine Fibroids My Play a Protecting Role Against Endometrial Carcinoma in Chinese Women With Gynecological Diseases. *Biosci Rep.* 2020 Jul 31; BSR20201083. doi: 10.1042/BSR20200350 (IF: 2.942)
3. X Li , Y Zhu, M Keaton, A Baranova, S Liu, X Hu, Q Li, L Cheng, P Zhou, **H Cao***, Y Xu. Variants and Expression Changes in PPAR-encoding Genes Presented No Significant Association With Overall Schizophrenia Cases. *Biosci Rep.* 2020 Jul 9; BSR20201083. doi: 10.1042/BSR20201083 (IF: 2.942)
4. Y Wu, **H Cao**, A Baranova, et al. Multi-trait Analysis for Genome-Wide Association Study of Five Psychiatric Disorders. *Transl Psychiatry.* 2020 Jun 30; 10(1):209. doi: 10.1038/s41398-020-00902-6. (IF: 5.28)
5. Y Dong, **H Cao**, R Cao, A Baranova. TNFRSF12A and CD38 Contribute to a Vicious Circle for Chronic Obstructive Pulmonary Disease by Engaging Senescence Pathways. *Front Cell Dev Biol.* 2020 May 27;8:330. doi: 10.3389/fcell.2020.00330. eCollection 2020. (IF 5.201).
6. Xi-Juan Zhang, Zhong-Hua Cui, Yan Dong, Xiu-Wen Liang, Yan-Xin Zhao, Ancha Baranova, **H Cao***, Ling Wang. GPNMB Contributes to a Vicious Circle for Chronic Obstructive Pulmonary Disease. *Biosci Rep.* 2020 Jun 26; BSR20201083. doi: 10.1042/BSR20194459. (IF: 2.942)
7. Yanjun Meng, Yuling Li, **Hongbao Cao**, Yong Xu, Binqun Wang. Development of Two Psychological Experience Questionnaires for Screening Violence-Related Mental Health Disorders of Non-Psychiatric Inpatients. *Health Qual Life Outcomes.* 2020 May 25;18(1):151. doi: 10.1186/s12955-020-01399-9. (IF: 2.344)
8. **Hongbao Cao**, Ancha Baranova, Weihua Yue, Hao Yu, Zufu Zhu, Fuquan Zhang, Dongbai Liu. miRNA-Coordinated Schizophrenia Risk Network Cross-Talk With Cardiovascular Repair and Opposed Gliomagenesis. *Front Genet.* 2020 Mar 4;11:149. doi: 10.3389/fgene.2020.00149. eCollection 2020. (IF 3.258).
9. Meng L, **Cao H**, Baranova A, et al. Aging-associated genes TNFRSF12A and CHI3L1 contribute to thyroid cancer: An evidence for the involvement of hypoxia as a driver, *Oncology letter*, April 10, 2020. <https://doi.org/10.3892/ol.2020.11530> (IF 1.871).
10. Zhang L, Huang X, Zhou T, Cao H. Microcystic adnexal carcinoma: report of rare cases. *Biosci Rep.* 2020 Jan 31;40(1). (IF: 2.942)
11. Chen C, Zhu Z, Mao Y, Xu Y, Du J, Tang X, **Cao H**. HbA1c may contribute to the development of non-alcoholic fatty liver disease even at normal-range levels. *Biosci Rep.* 2020 Jan 31;40(1). (IF: 2.942)

12. Liu S, Zhao W, Li Y, Li X, Li J, **Cao H**, Yang Z, Xu Y. Improve cognition of depressive patients through the regulation of basal ganglia connectivity: Combined medication using Shuganjieyu capsule. *J Psychiatr Res.* 2020 Jan 28;123:39-47. (IF: 3.917)
13. S Liu, S Rao, Y Xu, J Li, H Huang, X Zhang, H Fu, Q Wang, **H Cao**, A Baranova, C Jin, F Zhang, Identifying Common Genome-Wide Risk Genes for Major Psychiatric Traits, *Hum Genet*, 2019 Dec 7 (IF: 5.207)
14. Liu D, **Cao H**, Kural KC, Fang, Q, Zhang F. Integrative Analysis of shared Genetic Pathogenesis by Autism Spectrum Disorder and Obsessive-Compulsive Disorder, *Biosci Rep.* 2019 Dec 6. pii: BSR20191942. doi: 10.1042/BSR20191942. (IF: 2.9; Citation: 0)
15. Fang P, Zhang L, Zhang X, Yu J, Sun J, Jiang Q, Zha M, Nesterova A, **Cao H***, Apatinib Mesylate in the treatment of advanced progressed lung adenocarcinoma patients with EGFR-TKI resistance —A Multicenter Randomized Trial, *Scientific Reports* volume 9, Article number: 14013, Sep 2019. <https://doi.org/10.1038/s41598-019-50350-6> (IF: 4.01; Citation 0)
16. Zhang G, Wang W, Huang W, Xie X, Liang Z, **Cao H**. Cross-disease analysis identified novel common genes for both lung adenocarcinoma and lung squamous cell carcinoma. *Oncol Lett.* 2019 Oct;18(4):3463-3470. doi: 10.3892/ol.2019.10678. Epub 2019 Jul 29. (IF: 1.87; Citation: 0)
17. Xie Q, Shen W, Li Z, Baranova A, **Cao H**, Li Z. A core collection of pan-schizophrenia genes allows building cohort-specific signatures of affected brain. *Sci Rep.* 2019 Sep 3;9(1):12671. doi: 10.1038/s41598-019-48605-3. (IF: 4.01; Citation 0)
18. Lian X, Baranova A, Ngo J, Yu G, **Cao H**. UGT2B17 and miR-224 contribute to hormone dependency trends in adenocarcinoma and squamous cell carcinoma of esophagus. *Biosci Rep.* 2019 Jul 5;39(7). doi: 10.1042/BSR20190472. Print 2019 Jul 31. (IF: 2.9; Citation: 0)
19. Lian M, **Cao H**, Baranova A, Kural K, Hou L, He S , Shao Q and Fang J. Aging-related genes TNFRSF12A and CHI3L1 contribute to the carcinogenesis in the thyroid: an evidence for involvement of hypoxia as a driver. *Oncology Letters.* June 2019. (IF: 1.871; Citation 0)
20. Ge Y, Xia L, Wu Y, **Cao H***. Employ ductus venous blood flow in the early detection of trisomy 21, trisomy 18, and trisomy 13: A meta-analysis. *Medicine (Baltimore).* 2019 Mar;98(12):e14773. doi: 10.1097/MD.00000000000014773. (IF: 2.13; Citation: 1)
21. Chen C, Mao Y, Du J, Xu Y, Zhu Z, **Cao H**. Helicobacter pylori infection associated with an increased risk of colorectal adenomatous polyps in the Chinese population. *BMC Gastroenterology.* 2019;19(1):14. (IF: 2.7; Citation: 0)
22. Xu C, **Cao H**, Liu D. Integrative analysis of shared genetic pathogenesis by obsessive-compulsive and eating disorders. *Molecular Medicine Reports*, 2019. 19(3):1761-1766. (IF: 1.92; Citation: 0)
23. Xu C[#], **Cao H[#]**, Zhang F, Cheadle C. Comprehensive literature data-mining analysis reveals a broad genetic network functionally associated with autism spectrum disorder. *Int J Mol Med.* 2018;42(5):2353-2362. (IF: 2.7; Citation: 0)
24. Huang B, Zhong N, **Cao H**, Yu G. A curated target gene pool assisting disease prediction and patient-specific biomarker selection for lung squamous cell carcinoma. *Oncol Lett.* 2018 Oct;16(4):5140-5146. (IF: 1.6; Citation: 0)
25. Yu T, Li Y, Fan F, **Cao H**, et al. Decreased Gray Matter Volume of Cuneus and Lingual Gyrus in Schizophrenia Patients with Tardive Dyskinesia is Associated with Abnormal Involuntary Movement. *Sci Rep.* 2018; 8(1):12884. (IF: 4.1; Citation: 1)

26. Li Z, Xiong Z, Manor L, **Cao H**, and Li T. Integrative computational evaluation of genetic markers for Alzheimer's disease. *Saudi J Biol Sci.* 2018; 25(5): 996-1002. (IF: 3.1; Citation: 0)
27. Xiang X, Wang Y, **Cao H**, and Zhang X, Knowledge database assisted gene marker selection for chronic lymphocytic leukemia, *J Int Med Res.* 2018 Aug; 46(8): 3358-3364. (IF: 1.0; Citation: 0)
28. Zheng Y, Wang YP, **Cao H**, Chen Q, Zhang X. Integrated computational biology analysis to evaluate target genes for chronic myelogenous leukemia. *Mol Med Rep.* 2018;18(2):1766-1772. (IF: 1.9; Citation: 0)
29. Huang B, Zhong N, Xia L, Yu G*, **Cao H***. Sparse Representation-Based Patient-Specific Diagnosis and Treatment for Esophageal Squamous Cell Carcinoma. *Bulletin of Mathematical Biology.* 2018;80(8):2124-2136. (IF: 1.4; Citation: 0)
30. Yu G*, Jiang X, **Cao H***, Huang B, Bilateral synchronous multiple lung nodules: Surgical experience from two cases. *Saudi Journal of Biological Sciences.* 2018; 25(5): 971-974. (IF: 3.1; Citation: 0)
31. Sheng Y, Tang J, Ren K, Manor L, **Cao H**. Integrative computational approach to evaluate risk genes for postmenopausal osteoporosis. *IET Syst Biol.* 2018 Jun;12(3):118-122. (IF: 0.87; Citation: 0)
32. Dong Y, **Cao H**, Liang Z. A Curated Target Gene Pool Assisting Early Disease Prediction and Patient-Specific Treatment for Small Cell Lung Cancer. *J Comput Biol.* 2018 Jun;25(6):576-585. (IF: 1.0; Citation: 1)
33. Y Liu, J Tong, Y Tong, P Li, X Cui, and **H Cao**, In vitro anti-influenza virus effect of total flavonoid from *Trollius ledebouri* Reichb, *Journal of Inter Med Res*, 2018, 46(4): 1380-1390. (IF: 1.0; Citation: 1)
34. W Guo, JF Samuels, Y Wang, **H Cao**, et al., Polygenic risk score and heritability estimates reveals a genetic relationship between ASD and OCD. *Eur Neuropsychopharmacol.* 2017; 27(7):657-666. (IF: 4.1; Citation: 9)
35. Y Xu , J Wang , S Rao, M Ritter ,L Manor, R Backer, **H Cao**, et al., An Integrative Computational Approach to Evaluate Genetic Markers for Bipolar Disorder, *Scientific Reports*, 2017, Jul 27;7(1):6745. (IF: 4.1; Citation: 2)
36. Y Zheng, X Li, L Manor, **H Cao**, Q Chen, An Integrative Computational Approach to Evaluate Genetic Markers for Chronic Lymphocytic Leukemia, *Journal of Computational Biology.* 2017;24(9):942-952. (IF: 1.1)
37. C Cheadle, **H Cao**, A Kalinin, J Hodgkinson. Advanced literature analysis in a Big Data world. *Ann N Y Acad Sci.* 2017;1387(1):25-33. (IF: 4.2; Citation: 2)
38. J Liao, C Cheadle, **H Cao***, V Rao. The genetic network underlying anxiety disorder and its small molecular level supports. *Journal of Psychiatry and Brain Science* 2016;1(3): 4.
39. P Zhou, P Foster, **H Cao***. Cross Disease Analysis Reveals Novel Risk Genes for Esophageal Adenocarcinoma. *Med One.* 2016; 1:e160022.
40. Zhu H, Zhou P, Alcauter S, Chen Y, **Cao H**, et al., Changes of intranetwork and internetwork functional connectivity in Alzheimer's disease and mild cognitive impairment. *J Neural Eng.* 2016;13(4):046008. (IF: 3.9; Citation: 11)
41. **Cao H[#]**, Guo W, Qin H, Xu M, Lehrman B, Tao Y, Shugart YY. Integrating multiple genomic data: sparse representation based biomarker selection for blood pressure, *BMC Proc.* 2016;

- 10(Suppl 7): 283-288. (Citation: 1)
42. X Dong, M Ritter, **H Cao**, D Yang, Literature Data Mining Based Enrichment Analysis on 1,925 Genes for Lung Cancer. *Med One*. 2016; 1(2): 1.
 43. S Li, B Lehrman, **H Cao**, L Manor, Functional network composed of 1,219 genes for Schizophrenia-- a literature data mining and enrichment analysis. *Journal of Psychiatry and Brain Science*. 2016; 1(1): 4.
 44. Wang Y, Li Y, **Cao H**, Xiong M, Shugart YY, Jin L. Efficient test for nonlinear dependence of two continuous variables. *BMC Bioinformatics*. 2015;16:260. (IF: 2.2; Citation: 15)
 45. Li Z, Hu M, Zong X, He Y, Wang D, Dai L, Dong M, Zhou J, **Cao H**, et al. Association of telomere length and mitochondrial DNA copy number with risperidone treatment response in first-episode antipsychotic-naïve schizophrenia. *Sci Rep*. 2015; 5:18553. (IF: 4.1; Citation: 23)
 46. Wang J, **Cao H**, Liao Y, Liu W, Tan L, Tang Y, et al. Three Dysconnectivity Patterns in Treatment-Resistant Schizophrenia Patients and Their Unaffected Siblings. *NeuroImage-Clinical*. 2015;8:95-103. (IF: 3.8; Citation: 18)
 47. Zong X, Hu M, Li Z, **Cao H**, Chen X, Tang J. DNA methylation in schizophrenia: progress and challenges. *Science Bulletin*. 2015; 60(2):149-155. (IF: 4.1; Citation: 2)
 48. Zhang F, Xu Y, **Cao H**, Jin C, Cheng Z, Wang G, Shugart YY. mapsnp: an R Package to Plot a Genomic Map for Single Nucleotide Polymorphisms. *PlosOne*. 2015; 10(4):e0123609.(IF: 2.7; Citation: 2)
 49. Zong X, Hu M, Li Z, **Cao H**, He Y, Liao Y, et al. N-Acetylaspartate Reduction in the Medial Prefrontal Cortex Following 8 weeks of Risperidone Treatment in First-Episode Drug-Naive Schizophrenia Patients. *Sci Rep*. 2015;5:9109. (IF: 4.1; Citation: 15)
 50. Gao X, **Cao H**, Ming D, Qi H, Wang X, Wang X, et al. Analysis of EEG activity in response to binaural beats with different frequencies. *Int J Psychophysiol*. 2014; 94(3):399-406. (IF: 2.6; Citation: 39)
 51. Lin D, **Cao H**, Calhoun VD, Wang YP. Sparse models for correlative and integrative analysis of imaging and genetic data. *J Neurosci Methods*. 2014;237:69-78. (Citations: 33)
 52. Xu Y, Zhang F, Wang G, **Cao H**, Cheng Z, Shugart YY. plot2groups: an R package to plot scatter points for two groups of values. *Source Code for Biology and Medicine*. 2014; 9:23. (Citations: 1)
 53. Zhang F, Xu Y, Shugart YY, Yue W, Qi G, Yuan G, Cheng Z, Yao J, Wang J, Wang G, **Cao H**, et al. Converging evidence implicates the abnormal microRNA system in schizophrenia. *Schizophr Bull*. 2015;41(3):728-35. (IF: 6.9; Citations: 19)
 54. **Cao H**[#], Duan J, Lin D, Shugart YY, Calhoun V, Wang YP. Sparse representation based biomarker selection for schizophrenia with integrated analysis of fMRI and SNPs. *Neuroimage*. 2014; 102 Pt 1:220-8. (IF: 5.4; Citations: 37)
 55. **Cao H**[#], Duan J, Lin D, Calhoun V, Wang YP. Integrating fMRI and SNP data for biomarker identification for Schizophrenia with a sparse representation based variable selection method. *BMC Medical Genomics*.2013; 6(3):S2. (IF: 3.3; Citations: 17)
 56. Li J, Lin D, **Cao H**, Wang YP. An improved sparse representation model with structural information for Multicolour Fluorescence In-Situ Hybridization (M-FISH) image classification. *BMC Systems Biology*. 2013; 7(4):S5. (IF: 2.0; Citations: 11)
 57. Wang X, Zhang Y, Li X, Liu Y, **Cao H**, Zhou P, et al. Alertness staging based on improved self-organizing map, *Transactions of Tianjin University*. 2013; 19(6):459-462. (Citations: 2)

58. **Cao H[#]**, Lei S, Deng HW, Wang YP. Identification of Genes for Complex Diseases Using Integrated Analysis of Multiple Types of Genomic Data. *PLoS One*. 2012; 7(9):e42755. (IF: 2.7; Citations:12)
59. **Cao H[#]**, Deng H, Li Mand, Wang Y. Classification of Multicolor Fluorescence In-situ Hybridization (M-FISH) Images with Sparse Representation. *IEEE Trans Nanobioscience*. 2012;11(2):111-118. (IF: 2.1; Citations: 31)
60. **Cao H[#]**, Duan J, Lin D, Wang YP. Sparse Representation Based Clustering for Integrated Analysis of Gene Copy Number Variation and Gene Expression Data. *International Journal of Computers & Their Applications (IJCA)*. 2012; 19(2):131-139. (Citations: 6)
61. **Cao H[#]**, Deng H, Wang Y. Segmentation of M-FISH Images for Improved Classification of Chromosomes with an Adaptive Fuzzy C-means Clustering Algorithm, *IEEE Tans. Fuzzy System*. 2012; 20(1): 1-8, Feb. 2012. (IF: 8.4; Citations: 85)
62. Tang W, **Cao H**, Duan J, Wang Y. A compressed sensing based approach for subtyping of leukemia from gene expression data. *Journal of Bioinformatics and Computational Biology*. 2011; 9 (5): 631-645. (IF: 0.99; Citations: 15)
63. Tang W, **Cao H**, Zhang J, Duan J, Lin D, Wang Y. Subtyping of Gliomaby Combining Gene Expression and CNVs Data Based on a Compressive Sensing Approach, *Advancements in Genetic Engineering*. 2012; 1:101. (Citations: 5)
64. **Cao H[#]**, Besio WG, Jones S, Zhou P. Individualization of Data-Segment-Related Parameters for Improvement of EEG Signal Classification in Brain-Computer Interface. *Transactions of Tianjin University*. 2010;16(3): 235-238.
65. Zhou P, Ge J, **Cao H**, Zhang S, Wang M. Classification of Motor Imagery Based on Sample Entropy. *Information and control*. 2008; 37(2): 191-196. (Citations: 20)
66. Besio WG, **Cao H**, Zhou P. Application of Tripolar Concentric Electrodes and Pre-Feature Selection Algorithm for Brain-Computer Interface. *IEEE Trans. Neural Syst Rehabil Eng*. 2008; 16(2): 191-194.(IF: 3.97; Citations: 33)
67. Zhou P, **Cao H**, Yi X, Ge J, Zhang S, Wang M. Design of intelligent rehabilitation system based on Brain-Computer Interface. *Computer Engineering and Applications*. 2007; 43(36):1-4.
68. Zhou P, **Cao H**, Yi X, Zhang S, Wang M. Design of a Novel Laplacian Electrode and Its Application in Brain-Computer Interface, *Chinese Journal of Sensors and Actuators*. 2007; 20(9):2108-2112.
69. Wang X, **Cao H**, Sun Y. Fluorescence-assisted image analysis of harmful microalgae. *The Ocean Engineering*. 2005; 23(3): 110-114.
70. **Cao H[#]**, Wang X, Xu Y. The Development of Sphygmoc and Lingual Communicative Diagnosis and Treatment System, *Beijing Biomedical Engineering*, 2005;24(4): 261-263.
71. Liu F, **Cao H**, Wang X, Wang M. Fluorescence-Assisted Image Analysis of Harmful Microalgae, *Journal of Tianjiin University*. 2005; 38(12):1073-1077.
72. Deng Na , Wang X, **Cao H**. Mapping the human retina, *Chinese Medical Equipment Journal*. 2004; 25(9): 3-5.
73. **Cao H[#]**, Li G. Precision Dual Voltage Regulator Controllers ADM1051/1051A, *International Electronic Elements*. 2002; 99(1): 56-58.
74. X. Zhou, X. Lu, **H. Cao**, Y. Xu. Cardio-cerebral Vascular Diseases Research Objective of Tongue and Pulse Interactive Neural Networks Syndrome Treatment System, *Tianjin Journal*

of Traditional Chinese Medicine, 23(6), 2006.

Selected conference papers:

- Linying Zhou, Hongbao Cao, Xingwei An, Shuang Liu, Hongzhi Qi, Dong Ming, Xuejun Jiao, Meng Wu, Peng Zhou. Research of the Regulation Effect of Cooling Stimulation on Vigilance. Conf Proc IEEE Eng Med Biol Soc. 2019 Jul;2019:3127-3130. doi: 10.1109/EMBC.2019.8856794.
- **H. Cao**, Yong Xu, Fuquan Zhang, Chris Cheadle. Comprehensive Literature Data-mining Analysis Reveals a Broad-based Genetic Landscape Functionally Associated with Autism Spectrum Disorder. MMTC 2017, Feb 19-24, 2017, San Francisco, CA.
- **H. Cao**, Y. Wang, V. Calhoun, and YY Shugart, Integration of fMRI and SNPs indicated potential biomarkers for Schizophrenia diagnosis, IGES 2014, Vienna, Austria, August 28-30, 2014.
- **H. Cao**, J. Tang, X. Chen, Y. Yao, Whole Brain Connectivity Study in Schizophrenia Patients and Their Healthy Siblings, 2013 WCPG, Boston, MA, OCT. 17-21.
- **H. Cao**, J. Duan, D. Lin, V. Calhoun, Y. Wang, Sparse Representation Based Biomarker Selection for Schizophrenia with Integrated Analysis of fMRI and SNP data, IEEE ISBI, Apr. 7-11, pp. 756-759, 2013, San Francisco, CA, USA. J Duan, JG Zhang, H Cao, HW Deng, YP Wang, [Copy number variation estimation from multiple next-generation sequencing samples](#). Proceedings of the ACM Conference on Bioinformatics, pp. Pages 555-557 , Oct. 8-10, 2012
- **H. Cao**, D. Lin, J. Duan, V. Calhoun, Y. Wang, Biomarker Identification for Diagnosis of Schizophrenia with Integrated Analysis of fMRI and SNPs, [Bioinformatics and Biomedicine \(BIBM\), 2012 IEEE International Conference on](#), pp. 1-6, Oct. 4-7, 2012, Philadelphia, PA, USA.
- J. Li, H. Cao, Y. Wang, Classification of multicolor fluorescence in-situ hybridization (M-FISH) image using regularized multinomial logistic regression. Proceedings of the ACM Conference on Bioinformatics, Computational Biology and Biomedicine, pp. 551-554, Oct. 2012, Orlando, FL, USA.
- **H. Cao**, and Y. Wang, Identification of Genes for Complex Diseases by Integrating Multiple Types of Genomic Data, the 34th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'12), Aug. 28 - Sep. 1, 2012, San Diego, California, USA.
- **H. Cao**, and Y. Wang, Classification of multicolor fluorescence in-situ hybridization (M-FISH) images with sparse representation, Microscopic Image Analysis with Applications in Biology, Chicago, IL, August 1, 2011.
- **H. Cao** and Y. Wang, Integrated Analysis of Gene Expression and Copy Number Data using Sparse Representation Based Clustering Model, in Proc. BICoB, Mar. 23-25, pp.172-177, 2011.
- **H. Cao**, Y. Wang, M-Fish Image Analysis with Improved Adaptive Fuzzy C-Means Clustering Based Segmentation and Sparse Representation Classification, in Proc. BICoB, 2011, pp.167-171.
- **H. Cao**, Y. Wang, Segmentation of M-FISH Images for Improved Classification of Chromosomes with an Adaptive Fuzzy C-means Clustering Algorithm, 2011 IEEE

International symposium on Biomedical Imaging: From Nano to Macro, 30 March- 2April 2011, pp. 1442-1445, Chicago, IL, USA.

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