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

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
- Mange 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. **Research Scientist** at Unit on Statistical Genomics, NIH, 2015.9~present
   - Data integration (for genomic and imaging data)
   - Biomarker discovery (genetic and image biomarkers)
   - Statistical modeling

3. Affiliate faculty, George Mason University, 2017. 3 ~ present
   - Textbook editing and scientific paper publication
   - Teaching for Bioinformatics classes

4. **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

5. **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 susceptive 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.

6. **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.

7. **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 hart disorder diagnosis

8. **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

9. **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

Professional Services

- Editor of Applied and Computational Mathematics
- Editor of Austin Journal of Genetics and Genomic Research
- Editor 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)

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

Professional service

Publications (*Journal papers*):

1. 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. Accepted by BMC Gastroenterology. Jan 2019.
2. ZhangG, Wang W, HuangW, Xie X, Liang Z, **Cao H**. Cross-disease analysis identified novel common genes for both lung adenocarcinoma and lung squamous cell carcinoma. Accepted by Oncology letter. Nov 2018.
3. Xu C, **Cao H**, and Liu D, Integrative analysis of shared genetic pathogenesis by obsessive-compulsive and eating disorders. Accepted by Molecular Medicine Reports, 2018.
4. 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 Nov;42(5):2353-2362. doi: 10.3892/ijmm.2018.3845. Epub 2018 Aug 28.
5. 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. doi: 10.3892/ol.2018.9241. Epub 2018 Jul 31.
6. 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 Aug 27;8(1):12884. doi: 10.1038/s41598-018-31186-y.
7. Li, Z Xiong, L Manor, **H Cao**, and T Li. Integrative computational evaluation of genetic markers for Alzheimer's disease. Saudi J Biol Sci. 2018 Jul; 25(5): 996–1002.
8. X Xiang, Y Wang, **H Cao**, and X Zhang， Knowledge database assisted gene marker selection for chronic lymphocytic leukemia, J Int Med Res. 2018 Aug; 46(8): 3358–3364. PMID: 29996709. doi: 10.1177/0300060518783072
9. 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 Aug;18(2):1766-1772. doi: 10.3892/mmr.2018.9125. Epub 2018 Jun 5.
10. Huang B, Zhong N, Xia L, Yu G, **Cao H**. Sparse Representation-Based Patient-Specific Diagnosis and Treatment for Esophageal Squamous Cell Carcinoma. Bull Math Biol. 2018 Aug;80(8):2124-2136. doi: 10.1007/s11538-018-0449-8. Epub 2018 Jun 4.
11. Y Gu, X Jiang, **H Cao**, B Huang, Bilateral synchronous multiple lung nodules: Surgical experience from two cases. Saudi Journal of Biological Sciences, April 2018; doi.org/10.1016/j.sjbs.2018.04.012.
12. 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. doi: 10.1049/iet-syb.2017.0043.
13. 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. doi: 10.1089/cmb.2017.0071. Epub 2018 May 9.
14. 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.
15. W Guo, JF Samuels, Y Wang, **H Cao**, et al., Polygenic risk score and heritability estimates reveals a genetic relationship between ASD and OCD, European neuropsychopharmacology, July 2017 Volume 27, Issue 7, Pages 657–666.

16. 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, accepted by Scientific Reports, 2017, Jul 27;7(1):6745. doi: 10.1038/s41598-017-05846-4.

17. 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, J Comput Biol. 2017 Jun 1. doi: 10.1089/cmb.2017.0041.

18. C Cheadle, **H Cao**, A Kalinin, J Hodgkinson. Advanced literature analysis in a Big Data world. Ann N Y Acad Sci. 2017 Jan;1387(1):25-33. doi: 10.1111/nyas.13270. Epub 2016 Nov 10.

19. 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 ; DOI:10.20900/jpbs.20160013

20. P Zhou, P Foster, **H Cao**, Cross Disease Analysis Reveals Novel Risk Genes for Esophageal Adenocarcinoma. Med One. 2016 Oct 25; 1:e160022. DOI:10.20900/mo.20160022.

21. 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 Jun 1;13(4):046008.

22. **Cao H.**, Guo W., Qin H., Xu M., Lehrman B., Yu T., Shugart YY., Integrating multiple genomic data: sparse representation based biomarker selection for blood pressure, BMC Proc. 2016; 10(Suppl 7): 283–288. PMID: 27980650

23. 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; https://doi.org/10.20900/mo.20160006

24. 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; https://doi.org/10.20900/jpbs.20160004

25. Wang Y, Li Y, **Cao H**, Xiong M, Shugart YY, Jin L. Efficient test for nonlinear dependence of two continuous variables. BMC Bioinformatics. 2015 Aug 19;16:260. doi: 10.1186/s12859-015-0697-7.

26. Li Z, Hu M, Zong X, He Y, Wang D, Dai L, Dong M, Zhou J, **Cao H**, Lv L, Chen X, Tang J., Association of telomere length and mitochondrial DNA copy number with risperidone treatment response in first-episode antipsychotic-naïve schizophrenia. Sci Rep. doi: 10.1038/srep18553. 2015, 5:18553

27. Y. Wang, Y Li, **H. Cao**, M Xiong, YY Shugart, and J. Li, Efficient test for nonlinear dependence of two 3 continuous variables, BMC Bioinformatics, 2015, 16(1):260

28. J. Wang, **H. Cao**, Y. Liao,W. Liu, L. Tan, Y. Tang, J. Chen, C. Liu, K. Ries Merikangas, V. Calhoun, J. Tang, YY. Shugart, X. Chen. Three Dysconnectivity Patterns in Treatment-Resistant Schizophrenia Patients and Their Unaffected Siblings, Neuroimage: clinical, 2015, 8: 95–103.

29. X. Zong, M. Hu, Z. Li, **H. Cao**, X. Chen, J. Tang, DNA methylation in schizophrenia: progress and challenges, Science Bulletink, January 2015, 60(2):149-155

30. F. Zhang, Y. Xu, **H. Cao**, C. Jin, Z. Cheng, G. Wang, mapsnp: an R Package to Plot a Genomic Map for Single Nucleotide Polymorphisms, PlosOne, 2015

31. X. Zong, M. Hu, Z. Li, **H. Cao**, et al., N-Acetylaspartate Reduction in the Medial Prefrontal Cortex Following 8 weeks of Risperidone Treatment in First-Episode Drug-Naiive Schizophrenia Patients, Scientific Reports, 2015

32. X. Gao, **H. Cao**, D. Ming, H. Qi, X. Wang, X. Wang, R. Chen, P. Zhou. Analysis of EEG activity in response to binaural beats with different frequencies, Int J Psychophysiol. 2014 Dec; 94(3):399-406.

33. D. Lin, **H. Cao**, V. Calhoun, Y. Wang, Sparse models for correlative and integrative analysis of imaging and genetic data. J Neurosci Methods. 2014 Nov 30;237:69-78

34. Y. Xu, F. Zhang, G. Wang, **H. Cao**, Z. Cheng and YY. Shugart, plot2groups: an R package to plot scatter points for two groups of values, Source Code for Biology and Medicine 2014, 9:23

35. Zhang F, Xu Y, Shugart YY, Yue W, Qi G, Yuan G, Cheng Z, Yao J, Wang J, Wang G, **Cao H**, Guo W, Zhou Z, Wang Z, Tian L, Jin C, Yuan J, Liu C, Zhang D. Converging Evidence Implicates the Abnormal MicroRNA System in Schizophrenia, Schizophr Bull. 2014 Nov 26.

36. H. Cao, J. Duan, D. Lin, YY Shugart, V. Calhoun, Y. Wang, Sparse Representation Based Biomarker Selection for Schizophrenia with Integrated Analysis of fMRI and SNPs, NeuroImage (2014), http://dx.doi.org/10.1016/j.neuroimage.2014.01.021

37. H. Cao, J. Duan, D. Lin, V. Calhoun, Y. Wang, Integrating fMRI and SNP data for biomarker identification for Schizophrenia with a sparse representation based variable selection method, *BMC Medical Genomics*, Nov. 2013 6(3):S2, doi:10.1186/1755-8794-6-S3-S2.

38. J. Li, D. Lin, **H. Cao**, Y. Wang, 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 doi:10.1186/1752-0509-7-S4-S5

39. X. Wang, Y. Zhang , X. Li, Y. Liu , **H. Cao**, P. Zhou, X. Wang, X. Gao, Alertness staging based on improved self-organizing map, Dec. 2013, Volume 19, Issue 6, pp 459-462, Transactions of Tianjin University.

40. H. Cao, S. Lei, H. Deng, Y. Wang, Identification of Genes for Complex Diseases Using Integrated Analysis of Multiple Types of Genomic Data, *PLoS ONE*, 7(9): e42755. doi:10.1371/journal.pone.0042755, July 2012.

41. H. Cao, H. Deng, Marilyn Li and, Y. Wang, Classification of Multicolor Fluorescence In-situ Hybridization (M-FISH) Images with Sparse Representation, *IEEE Trans Nanobioscience.*11(2):111-118, Jun. 2012.

42. H. Cao, J Duan, D Lin, YP Wang, Sparse Representation Based Clustering for Integrated Analysis of Gene Copy Number Variation and Gene Expression Data, International Journal for Computers & Their Applications (IJCA), 19(2):131-139, June 2012

43. H. Cao, H. Deng, and Y. Wang, Segmentation of M-FISH Images for Improved Classification of Chromosomes with an Adaptive Fuzzy C-means Clustering Algorithm, *IEEE Tans. Fuzzy System*, 20(1): 1-8, Feb. 2012.

44. W. Tang, **H. Cao**, J. Duan, and Y. Wang. (2011) A compressed sensing based approach for subtyping of leukemia from gene expression data. *Journal of Bioinformatics and Computational Biology*, 9 (5): 631-645, 2011.

45. W. Tang, **H. Cao**, J. Zhang, J. Duan, D. Lin, Y. Wang, Subtyping of Gliomaby Combining Gene Expression and CNVs Data Based on a Compressive Sensing Approach, Advancements in Genetic Engineering, 1:101 , 2012. doi: 10.4172/2169-0111.1000101

46. H. Cao, W. G. Besio, S.Jones and Peng Zhou. Individualization of Data-Segment-Related Parameters for Improvement of EEG Signal Classification in Brain-Computer Interface, *Transactions of Tianjin University*, 16(3): 235-238, May 2010.

47. P. Zhou, J. Ge, **H. Cao**, S. Zhang, M. Wang, Classification of Motor Imagery Based on Sample

Entropy. Information and control, 2008, 37(2): 191-196.

48. W. Besio, **H. Cao**, P. Zhou. Application of Tripolar Concentric Electrodes and Pre-Feature Selection Algorithm for Brain-Computer Interface, *IEEE Trans. Neural Syst Rehabil Eng.*16(2): 191-194, Apr. 2008.

49. P. Zhou, **H. Cao**, X. Yi, J. Ge, S. Zhang, M. Wang, Design of intelligent rehabilitation system based on Brain-Computer Interface, Computer Engineering and Applications, 43(36) 2007. Doi: 10.3321/j.issn:1002-8331.2007.26.001

50. P. Zhou, **H. Cao**, Y. Xiong, S. Zhang, M. Wang, Design of a Novel Laplacian Electrode and Its Application in Brain-Computer Interface, Chinese Journal of Sensors and Actuators, Vol. 20, No. 9, 2007

51. X Wang, **H. Cao**, Y. Sun, Fluorescence-assisted image analysis of harmful microalgae. The Ocean Engineering, 23(3): 2005.Doi: 10.3969/j.issn.1005-9865.2005.03.019

52. **H. Cao**, X. Wang, Y. Xu. The Development of Sphygmic and Lingual Communicative Diagnosis and Treatment System, *Beijing Biomedical Engineering*, 24(4): 261-263, 2005.

53. F. Liu, **H. Cao**, X. Wang, M. Wang. Fluorescence-Assisted Image Analysis of Harmful Microalgae, Journal of Tianjiin University, 38(12):1073-1077, 2005.

54. Na Deng, X. Wang, **H. Cao**. Mapping the human retina, *Chinese Medical Equipment Journal***,** 25(9): 3-5, 2004.

55. **H. Cao**, Gang Li. Precision Dual Voltage Regulator Controllers ADM1051/1051A, *International Electronic Elements***,**99(1): 56-58, 2002.

56. 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:

1. **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
2. **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
3. **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.
4. **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 2013*, San Francisco, CA, USA, Apr. 7-11, pp. 756-759, 2013.
5. 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
6. **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. (**Citations: 3**)

7. 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, Pages 551-554, Orlando, FL, USA, October, 2012
8. **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)*, San Diego, California, USA, August 28 - September 1, 2012.
9. **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.
10. **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. (**Citations: 9**)
11. **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. (**Citations: 7**)
12. **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.
13. J. Li, D. Lin, **H. Cao** and Y. Wang, Classification of Multicolor Fluorescence In-Situ Hybridization (M-FISH) Image Using Structure based Sparse Representation Model, *Bioinformatics and Biomedicine (BIBM), IEEE International Conference on*, pp. 1-6, Oct. 4-7, 2012, Philadelphia, PA, USA. (**Citations: 2**)
14. **H. Cao**, W. G. Besio, S.Jones, Andrei Medvedev. Improved Separability Of Dipole Sources By Tripolar Versus Conventional Disk Electrodes: A Modeling Study Using Independent Component Analysis, *Conf Proc IEEE Eng Med Biol Soc. 2009*, bullet 4, pp. 4023-6. Sep. 3-6, 2009 (**Citations: 2**)
15. X. Wang, **H. Cao**, J. Zhang. Analysis of Retinal Images Associated with Hypertension and Diabetes, *Engineering in Medicine and Biology Society, 2005. IEEE-EMBS 2005. 27th Annual International Conference of the*, page(s): 6407-6410, 2006 (**Citations: 12**).
16. D. Lin, **H. Cao**, Y. Wang, Classification of schizophrenia patients with combined analysis of SNP and fMRI data based on sparse representation, *BIBM 2011* http://www.cs.gsu.edu/BIBM2011/ 12-15 Nov. 2011, Atlanta, GA, USA.
17. W. Tang, H. Cao, Classifying Six Glioma Subtypes from Combined Gene Expression and CNVs Data Based on Compressive Sensing Approach. Workshop on Cancer Informatics, *BIBM 2011*, Nov 12-15. Atlanta, GA, USA. 2011.
18. J. Duan, **H. Cao** and Y. Wang, A joint method to process atomic force microscopy retraction force curves with model selection, *Microscopic Image Analysis with Applications in Biology*, Chicago, IL, USA, August 1, 2011.
19. W. Tang, **H. Cao**, and Y. Wang, Subtyping of Leukemia with Gene Expression Analysis Using Compressive Sensing Method, *IEEE Conference on Healthcare Informatics, Imaging, and Systems Biology (HISB)*, San Jose, USA, pp. 76 - 80, July 26-29, 2011, California.

20. P. Zhou, **H. Cao,** Jiayi Ge, Xin Zhao, Mingshi Wang, An Automatic Optimum Data selection Method For EEG-based Brain-computer Interface, *Complex Medical Engineering. CME 2007. IEEE/ICME International Conference on*. Beijing, China, May 23-27 2007, pp. 1515 – 1518.

21. P. Zhou, M. Wang, **H. Cao,** Research on Features of Retinal Images Associated with Hypertension and Diabetes, In Proc of the 2005 IEEE, Engineering in Medicine and Biology 27th Annual Conference, Shanghai, China, September 1-4, 2005.

Patents

1. X. Wang, H. Cao, Y. Sun, X, Chang, J. Wang, Y. Chen, 2004. Fluorescence microalgae image acquisition instruments. China Patent 200420056363.9, filed Dec. 03, 2004, issued Dec. 28, 2005.
2. X. Wang, H. Cao, Y. Sun, X, Chang, J. Wang, Y. Chen, Image analysis system and methodology of harmful microalgae, China Patent 200410094035.2, filed Dec. 27, 2004, issued Jul. 27, 2005.