Hongqing Liu

Present Contact Information

School of Communication and Information Engineering, Chongqing University of Posts and Telecommunications
No.2 Chongwen Road, Nan'an District, Chongqing, China, 400065,
Email: hongqingliu@outlook.com; hongqingliu@cqupt.edu.cn
Researchgate: `www.researchgate.net/profile/Hongqing_Liu3`
Homepage: `https://hong-qing-liu.github.io/english-hong-qing-liu.github.io/`

Short Bio

Hongqing Liu received his Bachelor and Master degrees, from Xidian University, Xi'an Shaanxi, China, in 2003 and 2006, respectively, and Ph.D. degree from City University of Hong Kong, Hong Kong, China, in 2009, all in electronic engineering. From 2009 to 2013, he was a Research Fellow at Acoustic Research Laboratory (ARL), National University of Singapore (NUS). He joined the School of Communication and Information Engineering, Chongqing University of Posts and Telecommunications, Chongqing, China, in 2013, as a faculty member. He has authored/coauthored over 200 technical papers. In 2006, he received the Science and Technology Award of Shaanxi Province (No. 06C8) and the First Prize of the Science and Technology Award of Universities in Shaanxi Province (No. 06-2-010-R9). He received the Best Paper Award from the IEEE Digital Signal Processing conference and the outstanding reviewers from Signal Processing, Digital Signal Processing, and Physical Communication. Dr. Liu has received research funding locally and nationally. He is a senior member of IEEE. He serves an Senior Area Editor (S-AE) for the IEEE Signal Processing Letters (SPL), 2025-. His current research interests lie in the areas of statistical signal processing and convex optimization, including sparse signal reconstruction, speech signal processing, image reconstruction, and parameter estimation.

Education

- (2006-2009) Ph.D., Electronic Engineering, City University of Hong Kong, Hong Kong, China
- (2003-2006) M.S., Electronic Engineering, Xidian University, Xi'an, Shaanxi, China
- (1999-2003) B.S., Electronic Engineering, Xidian University, Xi'an, Shaanxi, China

Research Interests

- Array signal processing, optimal design of array configuration
- Parameter estimation, statistical signal processing
- Target tracking in sensor networks
- Compressed sensing
- Remote sensing
- Convex optimization
- Underwater imaging
- Speech signal processing
- Deep learning in audio signal processing

Awards

- Excellent Graduate of Xidian University in 2003
- The Best Paper of Xidian University Annual Conference in 2005
- Excellent Postgraduate of Shaanxi Province in 2006
- The Best Postgraduate Thesis of Xidian University in 2006
- The Science and Technology Award of Shaanxi Province in 2007, No. of Certificate 06-2-010-R9.
- First Prize of the Science and Technology Award of Universities in Shaanxi Province, 2006, No. of Certificate 06C18.
- Best Paper Honorable Mention Award, IEEE DSP, 2016
- 多元供给、自主选择、形成性评价的个性化实践教学模式改革与实践, 重庆市教学成果奖励, 三等奖，2022.
- 第八届中国国际互联网+创新创业大赛，优秀创新创业导师，重庆市教育委员会，2022。
- mdctGAN: Taming transformer-based GAN for speech super-resolution with Modified DCT spectra, 重庆市优秀本科毕业论文，2023.
- 第三届成渝地区双城经济圈留学生创新创业大赛，优秀指导教师，重庆市教育委员会，四川省教育厅，2023.
- 乘用车座舱声景设计与智能控制关键技术，中国汽车工程学会科学技术奖，科学技术进步奖，二等奖，2024.

Contests

- National Silver Medal, The intelligent wheelchair based on GIS and MIC array speech recognition, The 5th China College Students 'Internet Plus' Innovation and Entrepreneurship Competition, 2019.
- Beamforming Videos Contest, Global Top 10 (Global), ICASSP, Spain, 2020.
- National Bronze Medal, "Timbre" - 一款基于计算机听觉技术的智能安全监测机器人, The 7th China College Students 'Internet Plus' Innovation and Entrepreneurship Competition, 2021.
- National Silver Medal, Windblade listener - an intelligent approach for wind turbine blade monitoring using sound, The 7th China College Students 'Internet Plus' Innovation and Entrepreneurship Competition, 2021.
- L3DAS22: Machine Learning for 3D Audio Signal Processing - 3D Sound Event Localization and Detection, second place (Global), ICASSP, Singapore, 2022.
- Robust Anomaly Sound Detection Framework for Machine Condition Monitoring, DCASE Task 2, First place (Global), 2022.
- Chongqing Gold Medal, 踏“铁”寻声 – 高铁底盘稳定速检供应商, The 8th China College Students 'Internet Plus' Innovation and Entrepreneurship Competition, Chongqing, 2022.
- Attention mechanism network and data augmentation for sound event localization and detection, DCASE Task 3.A, Second place (Global), 2023.
- Audio-visual sound event localization and detection based on CRNN using depthwise separable convolution, DCASE Task 3.B, Fourth place (Global), 2023.
- 第三届成渝地区双城经济圈留学生创新创业大赛,二等奖,重庆市教育委员会,四川省教育厅, 2023.
- Power cue enhanced network and audio-visual fusion for sound event localization and detection of DCASE2024 Challenge, DCASE Task 3.A&B, Fourth place (Global), 2024.
- Interspeech 2025 URGENT (Universal, Robust, and Generalizable speech EnhancemeNT systems) Challenge, Fourth place (Global), 2025.

- Dynacp: Dynamic Parallel Selective Convolution in Cp-Mobile Under Multi-Teacher Distillation for Acoustic Scene Classification, DCASE Task 1, Third place (Global), 2025.
- A Semi-Supervised Acoustic Scene Classification Network Based on Multi-Modal Information Fusion, City and Time-Aware Semi-supervised Acoustic Scene Classification, APSIPA ASC 2025 Grand Challenge, Third place (Global), 2025.

Work Experience

- **Senior Tutor** (Sept. 2018-), Trans-national Education (TNE) Program, Chongqing University of Posts and Telecommunications, Brunel University London.
- **Professor** (Mar. 2013-), School of Communication and Information Engineering, Chongqing University of Posts and Telecommunications, Chongqing, China.
- **Research Fellow** (Oct. 2009 - Jan. 2013), Acoustic Research Laboratory, Tropical Marine Science Institute, Electrical and Computer Engineering Department, National University of Singapore, Singapore.
- **Research Associate** (Sept. 2009 - Oct. 2009), Signal Processing Laboratory, Electronic Engineering Department, City University of Hong Kong, Hong Kong.
- **Lab. Demonstrator** (06-07 Sem.A, 08-09 Sem.B),
  Courses: *Principles of Communications, Digital Signal Processing*, City University of Hong Kong, Hong Kong.
- **Teaching Assistant** (06-07 07-08 08-09 Sem.B, 07-08 Sem.A, 08-09 Sem.A),
  Courses: *WANs and Communication Protocols, Digital Image Processing, Information and Coding*, City University of Hong Kong, Hong Kong.
- **Instructor** (2003-2006),
  Course: *Analog and Digital Circuit Design Experiments*, Xidian University, Xi'an, Shaanxi, China.
- **Teaching Assistant** (02-03 Sem.B),
  Course: *Digital Signal Processing*, Xidian University, Xi'an, Shaanxi, China.

Teaching

1. **Undergraduate Courses**
   ◇ Signals and Systems (both in Chinese and English)
   ◇ Digital Signal Processing (English)
2. **Graduate Course**
   ◇ Modern Signal Processing (both in Chinese and English)
3. **International Graduate Course**
   ◇ Fundamentals of Signal Processing (English)

Publications (2005-current)

Journal papers

1. H. Zhou, Y. Zhou, Y. Liu, **H. Q. Liu**, MSANet: Multi-Stage Attention Network for Anomalous Sound Detection in Machine Condition Monitoring, *Digital Signal Processing*, accepted.

2. J. Yuan, X. Jing, **H. Q. Liu**, C. Liang, Q. Chen, R. Yu, and W. Zhang, Resource Allocation for STAR-RIS Assisted NOMA-SR with Hybrid Active-Passive Communication, *IEEE Transactions on Wireless Communications*, accepted.
3. J. Cao, S. Liu, **H. Q. Liu**, S. Hu, MRI reconstruction via manifold constrained low rank regularization, *Applied Mathematical Modelling*, 116382, 2025.
4. W. Zhou, S. Zhou, Y. Cao, J. Yang, and **H. Q. Liu**, Unsupervised Anomaly Detection Method for Electrical Equipment Based on Audio Latent Representation and Parallel Attention Mechanism, *Applied Sciences*, 15(15), 2025.
5. X. Jing, R. Wang, H. Lei, **H. Q. Liu**, and Q. Chen, Multi-Agent Discrete Soft Actor-Critic Algorithm-Based Multi-User Collaborative Anti-Jamming Strategy, *IEEE Transactions on Information Forensics & Security*, vol. 20, pp. 5025-5038, 2025.
6. Z. Luo, F. Xie, R. Zhang, and **H. Q. Liu**, Beamforming Designs for Hybrid Relaying in mmWave Systems Based on Deep Unfolding, *IEEE Signal Processing Letters*, vol. 32, pp. 2050-2054, 2025. (**Corresponding Author**)
7. X. Jing, **H. Q. Liu**, Resource Allocation Scheme for Multi-Cluster NOMA-SWIPT Systems with Multiple IRSs, *Physical Communication*, accepted. (**Corresponding Author**)
8. X. Jing, J.Yuan, **H. Q. Liu**, C. Liang, Q. Chen, Resource Allocation for IoT Communication in A Full-Duplex NOMA-SR System with α-Fairness Principle, *IEEE Transactions on Green Communications and Networking*, accepted. (**Corresponding Author**)
9. H. Li, X. Jing, **H. Q. Liu**, H. Lei, and Q. Chen, Adaptive Anti-Jamming Resource Allocation Scheme in Dynamic Jamming Environment, *IEEE Transactions on Vehicular Technology*, accepted.
10. J. Yang, **H. Q. Liu**, L. Gan, X. Jing, Spectral network based on lattice convolution and adversarial training for noise-robust speech super-resolution, The Journal of the Acoustical Society of America, 156, 3143 – 3157, 2024.
11. L. Wan, **H. Q. Liu**, L. Shi, Y. Zhou, and L. Gan, Cross Domain Optimization for Speech Enhancement: Parallel or Cascade?, *IEEE Transactions on Audio, Speech and Language Processing*, vol. 32, pp. 4328-4341, 2024.
12. 刘宏清,谢奇洲, 赵宇, 周翊, 基于扩张卷积和Transformer的视听融合语音分离方法, *信号处理*, Mar. 2024.
13. A. Ashurov, Z. Yi, **H. Q. Liu**, Z. Yu, and M. Li, Concatenation-based pre-trained convolutional neural networks using attention mechanism for environmental sound classification, *Applied Acoustics*, Vol. 216, Jan. 2024.
14. X. Kang, J. Wan, D. Li, Q. Liu, **H. Q. Liu**, R. Hu, Z. Chen, Spaceborne Distributed Aperture Radar Maneuvering Target Detection Approach with Space-Time 2D Hybrid Integration Technique, *Signal Processing*, Dec. 2023.
15. Y.Liu, **H. Q. Liu**, Y. Zhao, Y. Zhou, A Novel Earprint: Stimulus-Frequency Otoacoustic Emission for Biometric Recognition, *IEEE Transactions on Information Forensics & Security*, vol. 18, pp. 5484-5494, 2023.
16. Q. Liu, D. Li, R. Jiang, S. Liu, **H. Q. Liu**, S. Li, MT-FANet: A Morphology and Topology-based Feature Alignment Network for SAR Ship Rotation Detection, *Remote Sensing*, 15(12), 2023.

17. J. Wan, X. Kang, X. Tan, D. Li, Z. Chen, **H. Q. Liu**, An Efficient Approach for Coherent Integration Detection of High-speed Maneuvering Targets with Arbitrary-Order Doppler Frequency Migrations, *IEEE Transactions on Aerospace and Electronic Systems*, vol. 59, iss. 5, pp. 6729 - 6748, Oct. 2023.
18. **H. Q. Liu**, W. Zhu, Y. Zhou, L. Shi, L. Gan, Nonintrusive wind blade fault detection using deep learning approach by exploring acoustic information, The Journal of the Acoustical Society of America, 153, 538-547, 2023.
19. S. Liu, **H. Q. Liu**, Simultaneous non-convex low rank regularization for fast magnetic resonance spectroscopy reconstruction, *Digital Signal Processing*, vol. 132, Jan. 2023.
20. J. Wan, Z. He, X. Tan, D. Li, **H. Q. Liu**, Y. Shu, and Z. Chen, Coherent Integration for Maneuvering Target Detection via Fast Nonparametric Estimation Method, *Signal Processing*, vol. 203, Feb. 2023.
21. Jian Pang, Hongcheng Li, Tao Jiang, Hui Wang, Xiangning Liao, Le Luo, and **H.Q. Liu**, A Dual-Channel End-to-End Speech Enhancement Method Using Complex Operations in the Time Domain, *Applied Sciences*, 13(13), 2023.
22. S. Berthe, X. Jing, **H. Q. Liu**, and Q. Chen, Low-complexity soft-output signal detector based on adaptive pre-conditioned gradient descent method for uplink multiuser massive MIMO systems, *Digital Communications and Networks*, Vol. 9, iss. 2, Apr. 2023.
23. Z. Luo, T. Liu, Y. Xiang, and **H. Q. Liu**, Robust Hybrid Beamforming in Full-Duplex Broadband mmWave Relay Systems, *Digital Signal Processing*, vol. 129, Sept. 2022 (**Corresponding author**).
24. A. Ashurov, Y. Zhou, L. Shi, Y, Zhao, and **H. Q. Liu**, Environmental sound classification based on transfer learning techniques with multiple optimizers, *Electronics*, 11(15):2279, 2022.
25. Y. Shu, J. Wan, D. Li, Z. Chen and **H. Q. Liu**, Fast Approach for SAR Imaging of Ground Moving Target Based on Range Azimuth Joint Processing, *Remote Sensing*, Jul. 2022.
26. R. Liu, Y. Zhou, **H. Q. Liu**, X. Xu, J. Jia, and B. Chen, A New Neural Beamformer for Multi-channel Speech Separation, *Journal of Signal Processing Systems*, 94, pp. 977-987, 2022.
27. Z. Luo, L. Zhao, **H.Q. Liu**, MmWave Relay Systems with Robust Hybrid Transceiver Designs Under Correlated Channel Estimation Errors, *Digital Signal Processing*, Vol. 127, Jul. 2022.
28. D. Li, J. Ren, **H.Q. Liu**, Z. Yang, J. Wan, and Z. Chen, A Novel ISAR Imaging Approach for Maneuvering Targets with Satellite-borne Platform, *IEEE Geoscience and Remote Sensing Letters*, vol. 19, pp. 1-8, 2022.
29. X. Jing, H. Li, **H.Q. Liu**, and Q. Chen, Precoder and Combiner Design for Dynamically Sub-Connected Hybrid Architecture with Low-Resolution DACs/ADCs in mmWave Massive MIMO Systems, *SCIENCE CHINA Information Sciences*, 2022, 65: 119301.
30. Dong Li, Quanhuan Liang, **H.Q. Liu**, Qinghua Liu, Haijun Liu, and Guisheng Liao, A Novel Multi-Dimensional Domain Deep Learning Network for SAR

Ship Detection, *IEEE Trans. Geoscience and Remote Sensing*, vol. 60, pp. 1-13, 2022. **(ESI paper)**.

31. Y. Zhou, C. Huang, **H.Q.Liu**, D. Li, Trieu-Kien Truong, Front wall clutter removal in through-the-wall radar based on weighted nuclear norm minimization, *IEEE Geoscience and Remote Sensing Letters*, vol. 19, pp. 1-5, 2022. (**Corresponding author**).
32. S. Liu, J. Cao, **H.Q. Liu**, and K. Zhang, MRI reconstruction based on Bayesian piecewise sparsity constraint and adaptive 3D transform, *Knowledge-Based Systems*, vol. 232, Nov. 2021.
33. J. Cao, S. Liu, **H.Q. Liu**, and K. Zhang, MRI reconstruction based on Bayesian group sparse representation, *Signal Processing*, vol. 187, Oct. 2021.
34. T. Yang, S. Liu, and **H.Q. Liu**, Stochastic Resonance Benefits in Signal Detection under MAP Criterion, *Communications in Nonlinear Science and Numerical Simulation*, vol. 102, Nov. 2021.
35. Z. Yang, D. Li, **H.Q. Liu**, G. Liao, An Efficient ISAR Imaging Approach for Highly Maneuvering Targets Based on Subarray Averaging and Image Entropy, *IEEE Trans. Geoscience and Remote Sensing*, vol. 60, Jul. 2021.
36. Y. Gong, L. Gan, **H.Q. Liu**, Multi-Channel Modulo Samplers Constructed from Gaussian Integers, *IEEE Signal Processing Letters*, vol. 28, pp. 1828-1832, 2021.
37. Z. Yang, D. Li, X. Tan, **H.Q. Liu**, Y. Liu, G. Liao, ISAR Imaging for Maneuvering Targets with Complex Motion based on Generalized Radon-Fourier Transform and Gradient-based Descent under Low SNR, *Remote Sensing*, 13(11), 2021.
38. Z. Luo, L. Zhao, T. Li, **H.Q. Liu**, and R. Zhang, Robust Hybrid Precoding/Combining Designs for Full-Duplex Millimeter Wave Relay Systems, *IEEE Trans. on Vehicular Technology*, vol. 70, iss.99, pp. 9577-9582, Sept. 2021. (**Corresponding author**).
39. Y. Zhou, H. Wang, Y. Chu, and **H.Q.Liu**, A Robust Dual-Microphone Generalized Sidelobe Canceller Using a Bone-Conduction Sensor for Speech Enhancement, *Sensors*, 21(5), Mar. 2021.
40. Z. Luo, L. Zhao, **H.Q.Liu**, Y .Li, Robust Hybrid Beamforming in Millimeter Wave Systems With Closed-form Least-square Solutions, *IEEE Wireless Communications Letters*, vol. 10, iss. 1, pp. 156-160, Jan. 2021.
41. X. Jing, J. Wen, and **H.Q.Liu**, Low-Complexity Soft-Output Signal Detector for Massive MIMO with Higher Order QAM Constellations, *Digital Signal Processing*, vol. 108, Jan. 2021.
42. 李帅, 刘宏清, 彭鹏, 罗臻, 周翊, Underdetermined Blind Source Separation based on Convolution Model in Reverberant Environment-混响环境下基于卷积模型的欠定盲源分离. 信号处理, 2021, 37(04): 624-632.
43. **H.Q.Liu**, H. Meng, L. Gan, D. Li, Y. Zhou, and T.-K.Truong, Subspace and Sparse Reconstruction based Near-field Sources Localization in Uniform Linear Array, *Digital Signal Processing*, vol. 106, Nov. 2020.
44. Y. Zhou, Y. Chen, Y. Ma, and **H.Q.Liu**, A Real-Time Dual-Microphone Speech Enhancement Algorithm Assisted by Bone Conduction Sensor, *Sensors*, 20(18), Sept., 2020 (**Corresponding author**).

45. Z. Yang, D. Li, X. Tan, **H.Q.Liu**, G. Liao, A Fast Bistatic ISAR Imaging Approach for Rapidly Spinning Targets via Exploiting SAR Technique, *Remote Sensing*, 12(13), Jun., 2020.

46. X. Luo, L. Guo, D. Li, **H.Q.Liu**, M. Qin, A Novel 2-D Geometry Reconstruction Approach for Space Debris via Interpolation-Free Operation under Low SNR Conditions, *Remote Sensing*, 12(13), Jun., 2020.

47. D. Li, H. Ma, **H.Q.Liu**, Z. Chen, J. Su, X. Zhou, and Z. Yang, An efficient ground maneuvering target refocusing method based on principal component analysis and motion parameter estimation, *Remote Sensing*, 12(3), Jan. 2020.

48. X. Shu, Y. Zhou, **H.Q.Liu**, and Trieu-Kien Truong, A human auditory perception loss function using modified bark spectral distortion for speech enhancement, *Neural Processing Letters*, 51, pp. 2945-2957, 2020.

49. J. Cao, S. Liu, **H.Q.Liu**, and H. Lu, CS-MRI reconstruction based on analysis dictionary learning and manifold structure regularization, *Neural Networks*, vol. 123, pp. 217-233, Mar. 2020.

50. L. Li, L. Yan, L. Zhou, D. Li, and **H.Q.Liu**, ℓ_p-norm regularization optimization of impulsive disturbance removal, *Journal of Xidian University*, vol. 44 (2): 165-170, 2020. (In Chinese: ℓ_p 范数约束的去冲击干扰优化算法)

51. X. Tan, Z. Yang, D. Li, **H.Q.Liu**, G. Liao, Y. Wu, and Y. Liu, An efficient range-Doppler domain ISAR imaging approach for rapidly spinning targets, *IEEE Trans. Geoscience and Remote Sensing*, vol. 58, iss. 4, pp. 2670-2681, Apr. 2020.

52. **H.Q.Liu**, C. Huang, L. Gan, Y. Zhou, and Trieu-Kien Truong, Clutter reduction and target tracking in through-the-wall radar, *IEEE Trans. Geoscience and Remote Sensing*, vol. 58, iss. 1, pp. 486-499, Jan. 2020.

53. C. Zeng, D. Li, X. Luo, D. Song, **H.Q.Liu**, and J. Su, Ground maneuvering targets imaging for synthetic aperture radar based on second-order Keystone transform and high-order motion parameter estimation, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 12, iss. 11, pp. 4486-4501, Nov., 2019.

54. L. Li, L. Yan, D. Li, **H.Q.Liu**, and C. Zhang, A Novel ISAR Imaging Method for Maneuvering Target Based on AM-QFM Model under Low SNR Environment, *IEEE Access*, vol. 7, 2019.

55. C. Huang, **H.Q.Liu**, Z. Luo and Y. Zhou, A mitigating clutter method with joint low-rank and sparse model, *Journal of Xidian University*, vol. 44 (2): 165-170, 2019 . (In Chinese: 一种低秩联合稀疏模型下的杂波抑制方法)

56. D. Li, C. Zhang, H. Ma, **H.Q.Liu**, J. Su, Q. Liu, An Efficient SAR Ground Moving Target Refocusing Method Based on PPFFT and Coherently Integrated CPF, *IEEE Access*, vol. 7, pp. 114102-114115, Dec. 2019.

57. D. Xue, X. Jing, and **H.Q.Liu**, Detection of false data injection attacks in smart grid utilizing ELM-based OCON framework, *IEEE Access*, vol. 7, iss. 1, pp. 31762-31773, Dec. 2019.

58. **H.Q.Liu**, L. Hou, Z. Luo, Y. Zhou, X. Jing, and Trieu-Kien Truong, Image recovery with data missing in the presence of salt-and-pepper noise, *Applied Sciences*, vol. 9, no. 7, Apr. 2019. (**invited**).

59. J. Cao, S. Liu, **H.Q.Liu**, X. Tan, and X. Zhou, Sparse representation of classified patches for CS-MRI reconstruction, *Neurocomputing*, vol. 339, pp. 255 – 269, 2019.

60. D. Li, C. Zhang, **H.Q.Liu**, J. Su, X. Tan, Q. Liu, and Guisheng Liao, A fast cross-range scaling algorithm for ISAR images based on the 2D discrete wavelet transform and pseudopolar fourier transform, *IEEE Trans. Geoscience and Remote Sensing*, vol. 57, no. 7, pp. 4231-4245, Jul. 2019. (**Corresponding author**).

61. Y. Li, X. Huang, J. He, **H.Q.Liu**, and Trieu-Kien Truong, On soft-information-based error and erasure decoding of Reed-Solomon codes in burst Rayleigh fading channels, *IEEE Trans. on Communications*, vol. 67, iss. 1, pp. 50-60, Jan. 2019.

62. X. Wu, Y. Li and **H.Q.Liu**, LDPC编码的MIMO-OFDM系统中的联合半盲均衡与解码研究, *系统工程与电子技术*, vol. 40, iss. 8, pp. 1866-1872, 2018.

63. X. Jing, H. Li, **H.Q.Liu**, and S. Li, Dynamically-Connected Hybrid Precoding Scheme for Millimeter Wave Massive MIMO Systems, *IEEE Communications Letters*, vol. 22, iss. 12, pp. 2583-2586, Dec. 2018.

64. X. Jing, L. Wan, **H.Q.Liu**, S. Li, and G. Pan, Superimposed pilot optimization design and channel estimation for multiuser massive MIMO systems, *IEEE Trans. on Vehicular Technology*, vol. 67, iss. 12, pp. 11818-11832, Dec. 2018.

65. Cao Zeng, Mengyi Qin, Dong Li, **H.Q.Liu**, Yi Chai, An Efficient ISAR Imaging of Targets with Complex Motions Based on a Quasi-Time-Frequency Analysis Bilinear Coherent Algorithm, *Sensors*, 2018, 18(9), 2814.

66. X. Zhang, Z. Tan, G. Liu, **H.Q.Liu**, Y. Wang, S. Liu, Y. Li, H. Xu, and J. Xia, Adaptive Local Aspect Dictionary Pair Learning Based SAR Target Images Classification, *Sensors*, 2018, 18(9), 2940.

67. Z. Luo, **H.Q.Liu**, Y. Li, H. Wang, and L. Zhang, Robust Hybrid Transceiver Design for AF Relaying in Millimeter Wave Systems under Imperfect CSI, *IEEE Access*, vol. 6, pp. 29739-29746, Dec. 2018.

68. **H.Q.Liu**, Y. Li, Y. Zhou, X. Jing, and Trieu-Kien Truong, Joint Power Line Interference Suppression and ECG Signal Recovery in Transform Domains, *Biomedical Signal Processing and Control*, vol. 44, pp. 58-66, Jul. 2018.

69. **H.Q.Liu**, D. Li, Y. Zhou, and Trieu-Kien Truong, Simultaneous Radio Frequency and Wideband Interference Suppression in SAR Signals via Sparsity Exploitation in Time-Frequency Domain, *IEEE Trans. Geoscience and Remote Sensing*, vol. 56, iss. 10, pp. 5780-5793, Oct. 2018.

70. S. Liu, J. Cao, **H.Q.Liu**, X. Tan, and X. Zhou, Group sparsity with orthogonal dictionary and nonconvex regularization for exact MRI reconstruction, *Information Sciences*, vol. 451-452, pp. 161-179, Jul. 2018.

71. Y. Li, Y. Duan, H.-C. Chang, **H.Q.Liu**, and Trieu-Kien Truong, Using the difference of syndromes to decode quadratic residue codes, *IEEE Trans. Information Theory*, vol. 64, iss. 7, pp. 5179-5190, Jul. 2018.

72. T.-C. Lin, L. Hou, **H.Q.Liu**, Y. Li, and Trieu-Kien Truong, Reconstruction of single image from multiple blurry measured images, *IEEE Trans. Image Processing*, vol. 27, iss. 6, pp. 2762-2776, Jun. 2018. (**Corresponding author**) (**Top 25 downloaded articles in 2020 on IEEE** *Xplore*).

73. S. Liu, J. Cao, G. Wu, **H.Q.Liu**, X. Tan, and X. Zhou, CS-MRI reconstruction via group-based eigenvalue decomposition and estimation, *Neurocomputing*, vol. 283, pp. 166-180, Mar. 2018.

74. X. Jing, L. Mo, **H.Q.Liu**, and C. Zhang, Linear Space-Time Interference Alignment for K-user MIMO Interference Channels, *IEEE Access*, vol. 6, pp. 3085-3095, 2018.

75. T. Yang, Shujun Liu, **H.Q.Liu**, M. Tang, X. Tan, and X. Zhou, Noise Benefits Parameter Estimation in LMMSE Sense, *Digital Signal Processing*, vol. 73, pp. 153-163, Feb. 2018.

76. **H.Q.Liu**, Ruibo Zhang, Yi Zhou, Xiaorong Jing, and Trieu-Kien Truong, Speech denoising using Transform Domains in the Presence of Impulsive and Gaussian Noises, *IEEE Access*, vol. 5, iss. 1, pp. 21193 -21203, Dec., 2017.

77. Dong Li, Muyang Zhan, Jia Su, **H.Q.Liu**, Xuepan Zhang, and Guisheng Liao, Performances Analysis of Coherently Integrated Cubic Phase Function for LFM Signal and Its Application to Ground Moving Target Imaging, *IEEE Trans. Geoscience and Remote Sensing*, vol. 55, no. 11, pp. 6402-6419, Nov., 2017.

78. Shujun Liu, Ting Yang, **H.Q.Liu**, Optimal Detection under the Restricted Bayesian Criterion, *Entropy*, 19(7), 370, 2017. (**Corresponding author**).

79. **H.Q.Liu**, D. Li, Y. Zhou and T.-K. Truong, Joint Wideband Interference Suppression and SAR Signal Recovery based on Sparse Representations, *IEEE Geoscience and Remote Sensing Letters*, vol. 14, no. 9, pp. 1542-1546, Sep. 2017.

80. X. Jing, A. Li, **H.Q.Liu**, A Low-Complexity Lanczos-Algorithm-Based Detector with Soft-Output for Multiuser Massive MIMO Systems, *Digital Signal Processing*, vol. 69, pp. 41-49, Oct. 2017.

81. Shujun Liu, Jianxin Cao, **H.Q.Liu**, Xichuan Zhou, Kui Zhang, and Zhengzhou Li, MRI reconstruction via enhanced group sparsity and nonconvex regularization, *Neurocomputing*, vol. 272, pp. 108-121, Jan. 2018.

82. Shujun Liu, Jianxin Cao, **H.Q.Liu**, Xiaodong Shen, Kui Zhang, and Pin Wang, MRI Reconstruction Using a Joint Constraint in Patch-Based Total Variational Framework, *Journal of Visual Communication and Image Representation*, vol.46, pp. 150-164, Jul. 2017.

83. D. Li, M. Zhan, **H.Q.Liu**, G. S. Liao and Y. Liao, A Translational Motion Compensation Method for ISAR Imaging Based on Keystone Transform and Fractional Fourier Transform under Low SNR Environment, *IEEE Trans. Aerospace and Electronic Systems*, vol. 53, iss. 5, pp. 2140-2156, Oct. 2017.

84. X. Jing, M. Wang, W. Zhou and **H.Q.Liu**, Improved QRD-M Detection Algorithm for Generalized Spatial Modulation Scheme, *International Journal of Antennas and Propagation*, vol.2017 (2017), Article ID 3581592.

85. D. Li, **H.Q.Liu**, Muyang Zhan, Xinzheng Zhang and Zhiping Fang, ISAR Imaging of Nonuniformly Rotating Target Based on the Multi-Component CPS Model under Low SNR Environment, *IEEE Trans. Aerospace and Electronic Systems*, vol. 53, iss. 3, pp. 1119-1135, 2017.

86. W. Yang, **H.Q.Liu**, Y. Li and Y. Zhou, Joint estimation algorithms based on LMS and RLS in the presence of impulsive noise, *Journal of Xidian University*, vol.

44 (2): 165-170, 2017 . (In Chinese: 冲击噪声下的LMS和RLS联合滤波算法, 20172103687750)

87. Shujun Liu, Guoqing Wu, **H.Q.Liu**, Xinzheng Zhang, Image restoration using joint sparse representation in 3D-transform domain, *Digital Signal Processing*, vol. 60, pp. 307-323, Jan. 2017.
88. Shujun Liu, Ting Yang, Mingchun Tang, **H.Q.Liu**, Kui Zhang and Xinzheng Zhang, Optimal noise benefit in composite hypothesis testing under different criteria, *Entropy*, 2016, 18(8).
89. **H.Q.Liu**, Y. Li, Y. Zhou, H.-C. Chang and T.-K. Truong, Impulsive noise suppression in the case of frequency estimation by exploring signal sparsity, *Digital Signal Processing*, vol.57, pp. 34-45, Oct. 2016.
90. **H.Q.Liu**, L. Zhao, Y. Li, X. R. Jing and T.-K. Truong, A sparse based approach for DOA estimation and array calibration in uniform linear array, *IEEE Sensors Journal*, vol. 16, iss. 15, pp. 6018 - 6027, Aug. 2016.
91. D. Li, W. Wang, **H.Q.Liu**, H. Cao and H. Lin, Focusing highly squinted azimuth variant bistatic SAR, *IEEE Trans. Aerospace and Electronic Systems*, vol. 52, no. 6, pp. 2715-2730, Dec. 2016.
92. D. Li, H. Lin, **H.Q.Liu**, G. Liao and X. Tan, Focus improvement for high-resolution highly squinted SAR imaging based on 2-D spatial-variant linear and quadratic RCMs correction and azimuth-dependent doppler equalization, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol.10, iss.1, pp.168-183, Jan., 2017.
93. X. Jing, X. Liu and **H.Q.Liu**, A sparse recovery method for DOA estimation based on the sample covariance vectors, *Circuits, Systems and Signal Processing*, pp.1-19, May, 2016.
94. D.Li, X.Gui, **H.Q.Liu**, J.Su and H.Xiong, An ISAR imaging algorithm for maneuvering targets with low SNR based on parameter estimation of multi-component quadratic FM signals and nonuniform FFT, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol.9, iss.12, pp.5688-5702, Dec. 2016.
95. D. Li, H. Lin, **H.Q.Liu** and H. Wu, Focus improvement for squint FMCW-SAR data using modified inverse Chirp-Z transform based on spatial-variant linear range cell migration correction and series inversion, *IEEE Sensors Journal*, vol.16, iss. 8, pp.2564-2574, Apr. 2016.
96. **H.Q.Liu**, L. Zhao, D. Ding, Y. Li and Y. Zhou, A study on off-grid issue in DOA and frequency estimations, *Multidimensional Systems and Signal Processing*, vol. 28, iss. 2, pp 735–755, Apr. 2017.
97. D. Li, **H.Q.Liu**, X. Gui and X. Zhang, An efficient ISAR imaging method for maneuvering target based on synchrosqueezing transform, *IEEE Antennas and Wireless Propagation Letters*, vol. 15, pp.1317-1320, 2016.
98. **H.Q.Liu** and D. Li, RFI suppression based on sparse frequency estimation for SAR imaging, *IEEE Geoscience and Remote Sensing Letters*, vol.13, no.1, pp.63-67, Jan. 2016.
99. P. Zhang, Y. Li, H.-C. Chang, **H.Q.Liu** and T.-K. Truong, Fast decoding of the (47, 24, 11) Quadratic Residue Code without determining the unknown syndromes, *IEEE Communications Letters*, vol. 19, iss.8, pp. 1279 - 1282, Aug. 2015.

100. **H.Q.Liu**, Y. Li and T.-K. Truong, "Robust sparse signal reconstructions against basis mismatch and their applications," *Information Sciences*, vol. 316, pp.1-17, Sep. 2015.

101. D.Li, **H.Q.Liu** and S. Li, "An efficient time-varying interference suppression method for SAR imaging based on time-frequency reconstruction and mask technique," *IET Radar, Sonar and Navigation*, vol. 9, iss. 7, pp. 827 – 834, 2015 (**Corresponding Author**).

102. D. Li, **H.Q.Liu**, Y. Liao, and X. Gui, "A novel helicopter-borne rotating SAR imaging model and algorithm based on inverse Chirp-Z transform using frequency modulated continuous wave," *IEEE Geoscience and Remote Sensing Letters*, vol. 12, no. 8, pp. 226-230, Aug. 2015.

103. Y. Li, **H.Q.Liu**, Q. Chen and T.-K. Truong "On decoding of the (73, 37, 13) Quadratic Residue Code," *IEEE Trans. Communications*, vol. 62, no. 8, pp. 2615-2625, Aug. 2014.

104. **H.Q.Liu** and Yuntao Wu, "Distributed source localization under anchor position uncertainty," *Chinese Journal of Electronics*, vol.23, no.CJE-1, pp.93-96, Jan. 2014.

105. H.C.So and **H.Q.Liu**, "Improved single-tone frequency estimation by averaging and weighted linear prediction," *ETRI Journal*, vol.33, no.1, pp.27-31, February 2011.

106. **H.Q.Liu**, H.C.So, Frankie K.W.Chan and Kenneth W.K.Lui, "Distributed particle filter for target tracking in sensor networks," *Progress In Electromagnetics Research C*, PIERC 11, pp.171-182,2009.

107. **H.Q.Liu**, Frankie K.W.Chan and H.C.So, "Non-line-of-sight mobile positioning using factor graphs," *IEEE Trans. Vehicular Technology*, vol.58, no.9, pp. 5279-5283, Nov. 2009.

108. **H.Q.Liu** and H.C.So, "Target tracking with line-of-sight identification in sensor networks under unknown measurement noises," *Progress In Electromagnetics Research*, PIER 97, pp.373-389, 2009.

109. **H.Q.Liu**, H.C.So, Kenneth W.K.Lui and Frankie K.W.Chan, "Sensor selection for target tracking in sensor networks," *Progress In Electromagnetics Research*, PIER 95, pp.267-282, 2009.

110. Y.Wu, **H.Q.Liu** and H.C.So, "Fast and accurate direction-of-arrival estimation for a single source,"*Progress In Electromagnetics Research C*, vol.6, pp.13-20, 2009.

111. Y.Wu, H.C.So and **H.Q.Liu**, "Subspace-based algorithm for parameter estimation of polynomial phase signals," *IEEE Trans. Signal Processing*, vol.56, no.10, pp.4977-4983, Oct. 2008

112. J.L.Zhan, G.S.Liao and **H.Q.Liu**, "A robust detection algorithm for V-BLAST OFDM systems," *Journal of Xidian University*, vol.34, no.5, Oct. 2007, pp.728-732. (In Chinese)

113. J.L.Zhan, G.S.Liao and **H.Q.Liu**, "Novel robust detection algorithm for V-BLAST systems," *Journal of Systems Engineering and Electronics*, vol.29, no.5, May 2007, pp.710-712. (In Chinese)

114. D.Xin, G.S.Liao and **H.Q.Liu**, "Recursive robust LCMV beamforming algorithm," *Journal of Systems Engineering and Electronics*, vol.29, no.3, Mar. 2007, pp.449-452. (In Chinese)

115. **H.Q.Liu**, G.S.Liao and J. Zhang, "A robust adaptive Capon beamforming," *Signal Processing*, vol. 86, no. 10, Oct. 2006, pp. 2820 - 2826.
116. G.S.Liao, **H.Q.Liu** and J. Ao, "Robust blind adaptive beamforming for Doppler signals," *Chinese Journal of Radio Science*, vol.21, no.5, Oct. 2006, pp.697-701. (In Chinese)
117. **H.Q.Liu**, G.S.Liao, Y.M.Xie and J.Zhang, " Unified framework for two robust beamforming methods," *Electronics Letters*, vol.42, no.7, Mar. 2006, pp.425 - 426.
118. J.Hu, G.S.Liao and **H.Q.Liu**, "Improved channel estimation method for LSTBC-OFDM," *Systems Engineering and Electronics*, vol.28, no.3, Mar. 2006, pp.454-458. (In Chinese)
119. **H.Q.Liu**, G.S.Liao and J. Zhang, "Robust adaptive beamforming," *Systems Engineering and Electronics*, vol.27, no.10, Oct. 2005, pp.1669-1672. (In Chinese)

Conference papers

1. J. Yang, **H.Q.Liu**, L. Shi, L. Gan, H. Nishizaki and C. S Leow, A Semi-Supervised Acoustic Scene Classification Network Based on Multi-Modal Information Fusion, Asia Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC), Singapore, Oct., 2025.
2. Z. Li, W. Yan, R. Zhu, L. Gan, and **H.Q.Liu**, Live Demonstration: Real-Time High-Amplitude Signal Acquisition with 2-Channel Modulo ADC, IEEE International Symposium on Circuits and Systems (ISCAS), London, United Kingdom, May, 2025.
3. Y. Zhu, L. Zhou, **H.Q.Liu**, L. Shi, and L. Gan, A Robust Hybrid ACC-PM Approach for Personal Sound Zones, INTERSPEECH, Rotterdam, The Netherlands, Aug., 2025.
4. W. Yan, R. Zhu, Z. Li, L. Gan, and **H.Q.Liu**, Parameter Selection in Complex-Valued Two-Channel Modulo ADC Sampling System, International Conference on Sampling Theory and Applications (SampTA), Vienna, Austria, 2025.
5. J. Yang, **H.Q.Liu**, L. Gan, Y. Zhou, X. Li, J. Jia, and J. Yao, SDNet: Noise-Robust Bandwidth Extension under Flexible Sampling Rates, Asia Pacific Signal and Information Processing Association (APSIPA), Macau, China, Dec. 2024.
6. J. Yao, **H.Q.Liu**, Y. Zhou, L. Gan, and J. Yang, Diverse Time-Frequency Attention Neural Network for Acoustic Echo Cancellation, Asia Pacific Signal and Information Processing Association (APSIPA), Macau, China, Dec. 2024.
7. Z. Luo, Y. Wang, **H.Q.Liu**, Hybrid Beamforming for Millimeter Wave Relay Systems: A Deep Unfolding Approach, IEEE 99th Vehicular Technology Conference (VTC), Singapore, Jun. 2024.
8. C. Shi, K. Huang, L. Gan, **H.Q.Liu**, M. Zhu, N.Wang, and X. Gao, On the Analysis of GAN-based Image-to-Image Translation with Gaussian Noise Injection, International Conference on Learning Representations (ICLR), Vienna, Austria, May 2024.
9. W. Yan, L. Gan, S. Hu, and **H.Q.Liu**, Towards optimized multi-channel modulo-ADCS: moduli selection strategies and bit depth analysis, IEEE International

Conference on Acoustics, Speech and Signal Processing (ICASSP), Seoul Korea, Apr., 2024.

10. K. Huang, C. Shi, L. Gan, and **H.Q.Liu**, Understanding Gaussian Noise Mismatch: A Hellinger Distance Approach, IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Seoul Korea, Apr., 2024.
11. L. Wan, **H.Q.Liu**, Multi-Loss Convolutional Network with Time-Frequency Attention for Speech Enhancement, International Conference on Information Communication and Signal Processing, Xi'an, China, Sept., 2023. **(Best presentation award).**
12. Y. Wang, **H.Q.Liu**, Audio-Visual Sound Event Localization and Detection based on CRNN using Depth-wise Separable Convolution, 18th EAI International Conference on Communications and Networking in China (Chinacom), Sanya, China, Nov. 2023.
13. L. Jiang, **H.Q.Liu**, A Neural Network Assisted FuLMS Algorithm for Active Noise Control System, 18th EAI International Conference on Communications and Networking in China (Chinacom), Sanya, China, Nov. 2023.
14. S. Chen, **H.Q.Liu**, Multi-Scale and Coordinate Attention Residual Network for Efficient Keyword Spotting, 18th EAI International Conference on Communications and Networking in China (Chinacom), Sanya, China, Nov. 2023.
15. T. Liu, **H.Q.Liu**, Yin Liu, and Yi Zhou, CNN-Conformer: Conformer in Channel Mapping Based Convolutional Neural Network for Stereophonic Acoustic Echo Cancellation, International Conference on Wireless Communications and Signal Processing (WCSP), Hangzhou, China, Nov. 2023.
16. L. Xue, **H.Q.Liu**, Yi Zhou, and Lu Gan, Resnet-Conformer Network Using Multi-Scale Channel Attention for Sound Event Localization and Detection in Real Scenes, International Conference on Wireless Communications and Signal Processing (WCSP), Hangzhou, China, Nov. 2023.
17. Z. Deng, Y. Zhou, **H.Q.Liu**, Time-frequency Domain Filter-and-sum Network for Multi-channel Speech Separation, INTERSPEECH, Dublin, Ireland, Aug., 2023.
18. C. Shuai, C. Shi, L. Gan, **H.Q.Liu**, mdctGAN: Taming transformer-based GAN for speech super-resolution with Modified DCT spectra, INTERSPEECH, Dublin, Ireland, Aug., 2023.
19. F. Bo, **H.Q.Liu**, CARN-Conformer: Conformer in Attention Spectral Mapping Based Convolutional Recurrent Networks for Speech Enhancement, 17th EAI International Conference on Communications and Networking in China (Chinacom), Virtual conference, Nov. 2022.
20. Z. Hu, **H.Q.Liu**, Robust Hybrid Beamforming for Full-Duplex OFDM mmWave Systems With Partially-connected Structure, 17th EAI International Conference on Communications and Networking in China (Chinacom), Virtual conference, Nov. 2022.
21. M. Liu, **H.Q.Liu**, FTDCN: Full Two-Dimensional Convolution Network for Speech Enhancement in Time-Frequency Domain, 17th EAI International Conference on Communications and Networking in China (Chinacom), Virtual conference, Nov. 2022.

22. J. Guo, **H.Q.Liu**, Convolutional Recurrent Neural Network Based on Short-time Discrete Cosine Transform for Monaural Speech Enhancement, 17th EAI International Conference on Communications and Networking in China (Chinacom), Virtual conference, Nov. 2022.
23. Y. Zeng, **H.Q.Liu**, Self-supervised Anomalous Sound Detection for Machine Condition Monitoring, 17th EAI International Conference on Communications and Networking in China (Chinacom), Virtual conference, Nov. 2022.
24. N. Sun, L. Gan, **H.Q.Liu**, Acoustic Echo Cancellation and Noise Suppression with a Full Time-Frequency Cascaded Neural Network, IEEE Workshop on Multimedia Signal Processing (MMSP), Shanghai, China, Sept. 2022.
25. Z. Wang, Y. Zhou, **H.Q.Liu**, L. Gan, X. Tang, and R. Chen, DE-DPCTNET: deep encoder dual-path convolutional transformer network for multi-channel speech separation, IEEE International Workshop on Signal Processing Systems (SiPS), Rennes, France, Nov. 2022.
26. Yihang Jiang, **H.Q.Liu**, Y. Zhou, An integration development of traditional algorithm and neural network for active noise cancelation, IEEE International Workshop on Machine Learning for Signal Processing (MLSP), Xi'an, Shaanxi, Aug. 2022.
27. Y. Mao, Y. Zeng, **H.Q.Liu**, W. Zhu, and Y. Zhou, Ensemble of ResNet-Conformers with Ambisonics Data Augmentation for Sound Event Localization and Detection in the L3DAS22 Challenge, IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Singapore, May, 2022.
28. T. Jiang, **H.Q.Liu**, A Complex Neural Network Adaptive Beamforming for Multi-Channel Speech Enhancement in Time Domain, 16th EAI International Conference on Communications and Networking in China (Chinacom), Virtual conference, Nov. 2021.
29. Z. Luo, X. Zhang, L. Gou, and **H.Q.Liu**, Full-Duplex mmWave Communications With Robust Hybrid Beamforming, IEEE Global Communications Conference (GLOBECOM), Madrid, Spain, Dec. 2021.
30. J. Xia, **H.Q.Liu**, Y. Zhou and Z. Luo, A Simultaneous Denoise and Dereverberation by a use of Two-stage Joint Network, IEEE 7th International Conference on Computer and Communications (ICCC), Chengdu, China, Dec. 2021.
31. J. Ou, **H.Q.Liu**, Robust Sound Event Detection by a Two-stage Network in the presence of Background Noise, 16th EAI International Conference on Communications and Networking in China (Chinacom), Virtual conference, Nov. 2021.
32. T. Jiang, **H.Q.Liu**, Dual-channel Speech Enhancement Using Neural Network Adaptive Beamforming, 16th EAI International Conference on Communications and Networking in China (Chinacom), Virtual conference, Nov. 2021.
33. R. Liu, Y. Zhou, **H.Q.Liu**, X. Xu, J. Jia, and B. Chen, DFBNet: Deep Neural Network based Fixed Beamformer for Multi-channel Speech Separation, IEEE International Workshop on Signal Processing Systems (SiPS), Coimbra, Portugal, Oct. 2021.
34. W. Zhu, **H.Q.Liu**, Y. Zhou, L. Gan, and Y. Ma, Wind turbine blade fault detection by acoustic analysis: preliminary results, IEEE International Conference on Sig-

nal Processing, Communications and Computing (ICSPCC), Xi'an, China, Aug. 2021.

35. S. Wang, Y. Zhou, **H.Q.Liu**, A Robust Blind Source Separation Algorithm Combining Non-negative Matrix Factorization and Frequency-Sliding Generalized Cross-Correlation, IEEE Statistical Signal Processing Workshop (SSP), Rio de Janeiro, Brazil, Jul. 2021.
36. Z. Xiong, **H.Q.Liu**, Y. Zhou and Z. Luo, Multi-Speaker tracking by fusing audio and video information, IEEE Statistical Signal Processing Workshop (SSP), Rio de Janeiro, Brazil, Jul. 2021.
37. C. Ammatmanee, L. Gan, and **H.Q.Liu**, Fast binary embedding of deep learning image features using Golay-Hadamard matrices, IEEE International Conference on Multimedia and Expo (ICME), Shenzhen, China, Jul. 2021.
38. Z. Lv, Y. Zhou, **H.Q.Liu**, X. Shu, and N. Zhang, A TCN Based Primary Ambient Extraction in Generating Ambisonics Audio from Panorama Video, IEEE International Symposium on Signal Processing and Information Technology (ISSPIT), Louisville, Kentucky, USA, Dec., 2020.
39. S. Li, **H.Q.Liu**, L. Gan, and Y. Zhou, Underdetermined Blind Source Separation in Reverberant Environment, International Conference on Wireless Communications and Signal Processing (WCSP), Nanjing, China, Oct. 2020.
40. S. Liu, **H.Q.Liu**, Z. Luo, and Y. Zhou, A Robust Sound Source Tracker in a Reverberant Environment using Multiple Hypothesis, IEEE International Conference on Signal Processing (ICSP), Beijing, China, Oct. 2020.
41. J. Xiao, **H.Q.Liu**, Z. Luo, and Y. Zhou, Low Signal-to-Noise Ratio Single Channel Speech Enhancement based on Deep Learning, IEEE International Conference on Signal Processing (ICSP), Beijing, China, Oct. 2020.
42. S. Li, **H.Q.Liu**, Y. Zhou, and Z. Luo, A SI-SDR Loss Function based Monaural Source Separation, IEEE International Conference on Signal Processing (ICSP), Beijing, China, Oct. 2020.
43. M. Qi, D. Li, **H.Q.Liu**, J. Ren, and Q. Gao, A Fast ISAR Imaging Method for Rapidly Spinning Targets Using Pseudo-Polar Coordinate in Range-Doppler Domain, IEEE Radar Conference (IEEE RadarConf20), Florence, Italy, Sept., 2020.
44. C. Huang, **H.Q.Liu**, L. Gan, Z. Luo, and Y. Zhou, Signal waveform design for high resolution target localization in through-the-wall radar, IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM), Hangzhou, China, Jun., 2020.
45. L. Gan and **H.Q.Liu**, High dynamic range sensing using multi-channel modulo samplers, IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM), Hangzhou, China, Jun., 2020.
46. P. Wu, Y. Zhou, Y. Ma, and **H.Q.Liu**, A Novel Fourth-order Adaptive Differential Microphone Array Beamformer for Speech Enhancement, International Conference on Information Science and Control Engineering (ICISCE), Shanghai, China, Dec., 2019.

47. Y. Liang, Y. Zhou, Y. Ma, and **H.Q.Liu**, Independent low-rank matrix analysis and Deep Xi for robust automatic speech recognition, IEEE International Symposium on Signal Processing and Information Technology (ISSPIT), Ajman, United Arab Emirates, Dec., 2019.
48. T. Wan, Y. Zhou, Y. Ma, and **H.Q.Liu**, Noise robust sound event detection using deep learning and audio enhancement, IEEE International Symposium on Signal Processing and Information Technology (ISSPIT), Ajman, United Arab Emirates, Dec., 2019.
49. Q. Jiang, Y. Zhou, and **H.Q.Liu**, A robust GSC for microphone array using coherence and signal-to-interference ratio, IEEE International Symposium on Signal Processing and Information Technology (ISSPIT), Ajman, United Arab Emirates, Dec., 2019.
50. H. Meng, **H.Q.Liu**, Y. Zhou, Z. Luo, and Trieu-Kien Truong, Near-field source localization by exploiting the signal sparsity, 14th EAI International Conference on Communications and Networking in China (Chinacom), Shanghai, China, Nov. 2019.
51. P. Wu, Y. Zhou, Y. Ma, and **H.Q.Liu**, A novel fourth-order adaptive differential microphone array beamformer for speech enhancement, International Conference on Information Science and Control Engineering (ICISCE), Shanghai China, Dec., 2019.
52. C. Huang, **H.Q.Liu**, Z. Luo, Y. Zhou, and Trieu-Kien Truong, A Joint Low-Rank and Sparse Approach for Mitigating Clutter in Through-the-Wall Radar, 11th International Conference on Wireless Communications and Signal Processing (WCSP), Xi'an China, Oct., 2019.
53. F. Ni, Y. Zhou, and **H.Q.Liu**, A Robust GSC Beamforming Method for Speech Enhancement using Linear Microphone Array, IEEE International Workshop on Multimedia Signal Processing (MMSP), Kuala Lumpur, Malaysia, Sept. 2019.
54. X. Zhang, **H.Q.Liu**, Z. Luo and Y. Zhou, Joint Image Deblur and Poisson Denoising based on Adaptive Dictionary Learning, IEEE International Workshop on Signal Processing Systems (SiPS), Nanjing, China, Oct. 2019.
55. Z. Luo and **H.Q.Liu**, Robust Hybrid Transceiver Designs for Millimeter Wave AF Cooperative Systems, VTC-fall, Honolulu, USA, Sept. 2019.
56. **H.Q.Liu**, L. Gan, D. Li, T.-K. Truong, RFI suppression based on atomic norm minimization in SAR signal recovery, IEEE International Conference on International Conference on Image Processing (ICIP), Taipei, Taiwan, Sept., 2019.
57. L. He, Y. Zhou, and **H.Q.Liu**, Phase time-frequency masking based speech enhancement algorithm using circular microphone array, IEEE International Conference on Multimedia and Expo (ICME), Shanghai, China, Jul., 2019
58. L. He, Y. Zhou, X. Shu, and **H.Q.Liu**, Robust MVDR Beamformer Based on Complex Gaussian Mixture Model With Phase Prior, IEEE International Conference on Digital Signal Processing (DSP), Shanghai, China, Nov., 2018.
59. **H.Q.Liu**, Shujun Liu, Yong Li, Dong Li and Trieu-Kien Truong, Speech denoising based on Group Sparse Representation in the case of Gaussian Noise, IEEE International Conference on Digital Signal Processing (DSP), Shanghai, China, Nov., 2018.

60. L. Zhou, **H.Q.Liu**, Z. Luo and Trieu-Kien Truong, Elimination of Impulsive Disturbance based on Nonconvex Regularization, IEEE International Conference on Digital Signal Processing (DSP), Shanghai, China, Nov., 2018.
61. X. Peng, **H.Q.Liu**, X. Xu and Y. Zhou, "Power Line Interference Suppression for ECG Signal Recovery", 10th EAI International Conference on Mobile Multimedia Communications (MOBIMEDIA), Chongqing, China, Jul., 2017.
62. X. Xu, **H.Q.Liu**, X. Peng, and X. Jing, "Sparsity Adaptive Joint Greedy Algorithm for Dual Signal Estimation", 10th EAI International Conference on Mobile Multimedia Communications (MOBIMEDIA), Chongqing, China, Jul., 2017.
63. L. Hou, **H.Q.Liu**, X. Jing, and Q. Guo, "Impulsive Noise Suppression for Single-Carrier Power Line Communication based on Turbo Equalisation", 10th EAI International Conference on Mobile Multimedia Communications (MOBIMEDIA), Chongqing, China, Jul., 2017.
64. R. Zhang, **H.Q.Liu**, Z. Luo, and Y. Zhou, "Speech denoising in the presence of Impulsive Noise", 10th EAI International Conference on Mobile Multimedia Communications (MOBIMEDIA), Chongqing, China, Jul., 2017.
65. X. Wang, Y. Zhou, W. Yuan, and **H.Q.Liu**, "A robust fast LMS/Netwon algorithm for generalized side-lobe canceller", 10th EAI International Conference on Mobile Multimedia Communications (MOBIMEDIA), Chongqing, China, Jul., 2017.
66. L. Hou, **H.Q.Liu**, Z. Luo, Y. Zhou and Trieu-Kien Truong, "Image Deblurring in the presence of Salt-and-Pepper Noise", IEEE International Conference on International Conference on Image Processing (ICIP), Beijing, China, Sept., 2017.
67. **H.Q.Liu**, Y. Li, Y. Zhou and Trieu-Kien Truong, "Greedy pursuit algorithms for sparse signal reconstruction in the case of impulsive noise", IEEE International Conference on Digital Signal Processing (DSP), Beijing, China, Oct., 2016. (Best Paper Honorable Mention)
68. Wei Yang, **H.Q.Liu**, Y. Li and Y. Zhou, "An LMS based group sparse online estimation approach in the case of impulsive noise", IEEE International Conference on Digital Signal Processing (DSP), Beijing, China, Oct., 2016.
69. Xianqiu Xu, **H.Q.Liu**, Y. Li and Y. Zhou, "Image deblurring with blur kernel estimation in RGB channels", IEEE International Conference on Digital Signal Processing (DSP), Beijing, China, Oct., 2016.
70. J. G. Liu, Y. Zhou, **H.Q.Liu** and L. M. Shi , "An improved generalized weighted Bayesian estimator for speech enhancement," IEEE International Conference on Digital Signal Processing (DSP), Beijing, China, Oct., 2016.
71. Jingang Liu, Yi Zhou, Yongbao Ma and **H.Q.Liu**, "MMSE Estimation of Speech Power Spectral Density Under Speech Presence Uncertainty for Automatic Speech Recognition," IEEE International Conference on Digital Signal Processing (DSP), Beijing, China, Oct., 2016.
72. **H.Q.Liu**, L. Zhao, Y. Li and Y. Zhou, "Frequency estimation without missing measurements under impulsive noise," The 2015 8th International Congress on Image and Signal Processing (CISP 2015), Shenyang, China, Oct., 2015.

73. **H.Q.Liu**, D. Ding, Y. Li and Y. Zhou, "Frequency estimation with missing measurements under impulsive noise," The 2015 8th International Congress on Image and Signal Processing (CISP 2015), Shenyang, China, Oct., 2015.
74. Yongbao Ma, Yi Zhou, Jingang Liu, Jie Xia, and **H.Q.Liu**, "An improved switch speech enhancement algorithm for automatic speech recognition," IEEE International Conference on Computer and Communications (ICCC), Chengdu, China, Oct., 2015.
75. Ruitang Mao,Yi Zhou, Wenyi Yuan, and **H.Q.Liu**, "An improved iterative wiener filtering algorithm for speech enhancement," IEEE International Conference on Computer and Communications (ICCC), Chengdu, China, Oct., 2015.
76. **H.Q.Liu**, Yong Li, Yi Zhou, Trieu-Kien Truong, "Sparse Kalman filter," Proceedings of IEEE China Summit and International Conference on Signal and Information Processing (ChinaSIP 2015), Chengdu, China, Jul., 2015.
77. **H.Q.Liu**, Luming Zhao, Yong Li, and Yi Zhou, "Off-grid DOA estimation," IEEE International Conference on Digital Signal Processing (DSP), Singapore, Jul., 2015.
78. W. Y. Yuan , Y. B. Ma, Y. Zhou, and **H.Q.Liu**, "A VAD-based Switch fast LMS/Newton Algorithm for Acoustic Echo Cancellation," IEEE International Conference on Digital Signal Processing (DSP), Singapore, Jul., 2015.
79. **H.Q.Liu**, Yong Li, Yi Zhou and Jianzhong Huang, "Robust Minimax MMSE for Sparse Signal Recovery Against System Perturbations," International Conference on Estimation, Detection and Information Fusion, Harbin, Heilongjiang, China, 10-11 Jan., 2015.
80. Luming Zhao, **H.Q.Liu**, Yong Li and Yi Zhou, "DOA estimation under sensor gain and phase uncertainties," International Conference on Estimation, Detection and Information Fusion, Harbin, Heilongjiang, China, 10-11 Jan., 2015.
81. Dongyan Ding, **H.Q.Liu**, Yong Li and Yi Zhou, "Frequency estimation with missing measurements," International Conference on Estimation, Detection and Information Fusion, Harbin, Heilongjiang, China, 10-11 Jan., 2015.
82. Cheng Lu, Furong Liu, **H.Q.Liu**, and Yi Zhou, "A new switch affine projection algorithm for acoustic echo cancellation," International Conference on Estimation, Detection and Information Fusion, Harbin, Heilongjiang, China, 10-11 Jan., 2015.
83. Furong Liu, Wenyi Yuan, Yongbao Ma, Yi Zhou and **H.Q.Liu**, "New enhanced robust kernel least mean square adaptive filtering algorithm," International Conference on Estimation, Detection and Information Fusion, Harbin, Heilongjiang, China, 10-11 Jan., 2015.
84. Yi Zhou, **H.Q.Liu** and Shing Chow Chan, "New partial update robust kernel least mean square adaptive filtering algorithm," International conference on Digital Signal Processing, Hong Kong, 20-23 Aug., 2014.
85. Yong Li, **H.Q.Liu**, Qianbin Chen and Trieu-Kien Truong, "Algebraic and Linear Programming decoding of the (73, 37, 13) Quadratic Residue code," IEEE International Conference on Communications (ICC 2014), Sydney, Australia, 10-14 Jun., 2014.

86. **H.Q.Liu**, Yong Li, Jianzhong Huang and Yi Zhou, "Target Imaging under Robust Sparsity Recovery," in IEEE Tencon'13, Xi'an, China, Oct. 2013.
87. **H.Q.Liu** and M. Chitre, "Minimax MMSE Estimator for Sparse System," in International Conference on Signal Processing and Imaging Engineering, San Francisco, USA, Oct. 2012 (Certificate of merit reward).
88. K. Pelekanakis, **H.Q.Liu** and M. Chitre, "An algorithm for sparse underwater acoustic channel identication under symmetric α-stable noise," in IEEE/MTS Oceans'11, Santander, Spain, June 2011.
89. **H.Q.Liu**, Mandar Chitre and Gao Rui, "AUV positioning based on Interactive Multiple Model", in IEEE/MTS OCEANS'10, Sydney, Australia, May 2010.
90. G.S.Liao, **H.Q.Liu** and J. Li, "A subspace-based robust adaptive Capon beamforming," *Progress In Electromagnetics Research Symposium*, Cambridge, USA, Mar. 2006, pp. 26-29.
91. **H.Q.Liu**, G.S.Liao, J. Zhang and J. Hu, "Robust blind adaptive beamforming for cyclostationary signals," *IEEE International Symposium on Microwave, Antenna, Propagation and EMC Technologies for Wireless Communications*, Beijing, 2005, pp.346-349.
92. J. Zhang, G.S.Liao and **H.Q.Liu**, "A novel maximum likelihood frequency synchronizer for OFDM systems," *TENCON 2005 IEEE Region 10*, Melbourne, Australia, Nov. 2005, pp. 1-6.
93. **H.Q.Liu**, G.S.Liao and J. Hu, "Combined adaptive beamforming and pattern synthesis," *Xidian University Annual Conference*, 2005 (Best paper award)

Invited talks

1. A Joint Low-Rank and Sparse Approach for Mitigating Clutter in Through-the-Wall Radar, International Symposium on Multi-modal Sensing and Information, Xi'an, Aug. 2020.

Patents

1. 黎勇,刘宏清, 李鹏华. 一种73平方剩余码的线性规划译码方法, 国家发明专利, 申请号：201410177335.0, 已公开.
2. 刘宏清，黎勇，赵陆明，一种阵列误差下的波达方向估计方法，国家发明专利，授权号：201510315734.3
3. 刘宏清，黎勇，丁东艳，冲击噪声且带有数据丢失的信号的频率估计方法，国家发明专利，授权号：201510315764.4
4. 刘宏清，杨威，黎勇，周翊，一种冲击噪声下的自适应联合滤波算法，国家发明专利，授权号：201610569440.8
5. 刘宏清，侯力铭，周翊，多幅模糊噪声图像下清晰图像的恢复方法，国家发明专利，授权号：201710502538.6
6. 黎勇，李程，刘宏清，LDPC码在MIMO信道下的联合检测与解码方法，国家发明专利，授权号：201710150158.0
7. 黎勇，陈高明，刘宏清，基于移位搜索算法的平方剩余码的软判决译码方法，国家发明专利，授权号：201510990822.3
8. 周翊，魏丹丹，师黎明，刘宏清，一种用于声学回声消除的多带结构自适应滤波器切换方法，国家发明专利，授权号：201710109956.9

9. 黎勇，刘宏清，METHODS, SYSTEMS AND COMPUTER-READABLE MEDIA FOR DECODING CYCLIC CODE，美国专利，US 10,742,236 B2
10. 药晋卓，况顺利，刘宏清，一种基于深度学习的多维度长江水质预测方法及装置，国家发明专利，授权号：202410511152.1
11. 万亮，况顺利，刘宏清，一种融合不同域数据特征的空气质量预测方法，国家发明专利，授权号：202410602392.2

Research Grants

1. Robust positioning in Wireless Sensor Network. The Key Laboratory of Intelligent Robot in Hubei Province. HBIR 201001, 01/2011-01/2012. (PI)
2. 稀疏信号处理及冲击噪声相消技术研究,重庆市科委,cstc2014jcyjA40017,2014.07-2017.06. (PI)
3. 压缩感知算法在频率估计中的应用,教育部留学回国基金, F201405, 2014.9.23-2016.12.31. (PI)
4. 冲击噪声抑制技术的研究与应用, 国家自然科学青年基金, 61501072, 2016.01-2018.12. (PI)
5. 稳健和稀疏的自适应滤波器研究, 科技部, 国科外字[2015] 170号-2, 2015-2017. (PI)
6. LDPC编码的MIMO-OFDM系统中基于线性规划的联合半盲均衡与解码研究, 国家自然科学青年基金, 61401050, 2015.1-2017.12. (参与)
7. 面向移动高清视频传输的广义LDPC码性能研究与优化设计, 国家自然科学基金, 61771081, 2018.1-2022.12. (参与)
8. LDPC编码的MIMO-OFDM系统的联合半盲均衡与解码研究, 重庆市科委, cstc2014jcyjA40027, 2014.7-2017.6. (参与)
9. 新型调制编码技术研究开发, 国家科技部863计划项目子项目. (参与)
10. X线阵列仿真，横向，重庆中电大宇卫星应用技术研究所有限公司
11. 人工智能信号处理模型推理工业化, 重庆中电大宇卫星应用技术研究所有限公司
12. 实时智能降噪算法系统实现, 横向，重庆和易电源技术研发有限公司
13. 电动汽车低速提示音系统设计及算法研究, 重庆长安汽车股份有限公司
14. 旋翼调制下AM话音的干扰抑制及增强软件, 西南电子技术研究所（中国电子科技集团公司第十研究所）
15. 仿生无人机智能识别集成软件仿真模块研制, 重庆大学
16. 融合声像调控的高隔离度物理声场合成合作项目, 华为
17. 非线性声场建模与控制技术合作项目, 华为

人才称号

1. 重庆市高层次人才
2. 重庆市英才

Reviewer

- *IEEE Transactions on Signal Processing*
- *IEEE Transactions on Image Processing*
- *IEEE Transactions on Wireless Communications*
- *IEEE Transactions on Vehicular Technology*
- *IEEE Transactions on Aerospace and Electronic Systems*
- *IEEE Transactions on Geoscience and Remote Sensing*
- *IEEE Transactions on Audio, Speech and Language Processing*
- *IEEE/ACM Transactions on Networking*
- *IEEE Signal Processing Letters*
- *IEEE Communications Letters*
- *IEEE Access*
- *IET Signal Processing*
- *IET Radar, Sonar and Navigation*
- *International Journal of Remote Sensing*
- *Signal Processing, (Outstanding reviewer, Mar. 2017)*
- *Digital Signal Processing, (Outstanding reviewer, Nov. 2016)*
- *Physical Communication, (Outstanding reviewer, Dec. 2016)*
- *EURASIP Journal on Advances in Signal Processing*
- *Journal of Electromagnetic Waves and Applications Progress in Electromagnetic Research (PIER, PIER B,C,M, PIER Letters)*
- *Information Fusion*

Services

- Technical Program Committee (TPC) member
  IEEE International Conference on Signal Processing, Communications and Computing, 2013
  11th EAI International Conference on Communications and Networking in China (Chinacom), 2016
  IEEE 85th Vehicular Technology Conference, 2017
  Chinacom, 2020
- Committees member
  International Conference on Communications, Signal Processing, and Systems (CSPS), 2016
- Track chair
  International Conference on Mobile Multimedia Communications, 2017
- Session chairs
  IEEE International Conference on Digital Signal Processing (DSP), 2018
  INTERSPEECH, 2020
- Organizing Committees
  International Conference on Signal Image Processing and Communication, 2021
- S-AE (Senior Area Editor)
  IEEE Signal Processing Letters, 2025-

References

- **Prof. Hing Cheung So (Ph.D. advisor)**,
  Department of Electronic Engineering, City University of Hong Kong, Tat Chee Avenue, Kowloon, Hong Kong, Phone: (+852) 2788 7780, Fax: (+852) 2788 7791, Email: hcso@ee.cityu.edu.hk
- **Dr. Lu Gan (Collaborator)**,
  College of Engineering, Design and Physical Science, Brunel University, London UB8 3PH, U.K.
  E-mail: lu.gan@brunel.ac.uk.
- **Prof. Trieu-Kien Truong (Collaborator)**,
  Department of Information Engineering, I-Shou University, Kaohsiung County 84001, Taiwan,
  Email: truong@isu.edu.tw
- **Prof. Yuntao Wu (Collaborator)**,
  School of Computer Science and Engineering, Wuhan Institute of Technology, Wuhan, China, Phone: (86)-27-87992077,
  Email: ytwu@mail.wit.edu.cn

Theses

- **Ph.D. Thesis**
  Bayesian Approaches for Target Positioning/Tracking in Sensor Networks, Department of Electronic Engineering, City University of Hong Kong, Oct. 2009.
- **M. Sc. Thesis**
  Study on Robust Beamforming and its Applications, Department of Electronic Engineering, Xidian University, Apr. 2006. (Best Thesis Award)

Hobbies

- fitness, badminton, swimming, hiking

Members

- Senior Member (2017), Member (2015), IEEE.
- Distinguished Member, EAI, 2022.