

Hongqing Liu

Present Contact Information

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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. 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
- Image restoration
- Speech 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.

Student 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 depth-wise 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.

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**
 - ◇ Fundamentals of Signal Processing (both in Chinese and English)
3. **International Graduate Course**
 - ◇ Fundamentals of Signal Processing (English)

Publications (2005-current)

Journal papers

1. 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.
2. L. Wan, **H. Q. Liu**, L. Shi, Y. Zhou, and L. Gan, Cross Domain Optimization for Speech Enhancement: Parallel or Cascade?, *IEEE/ACM Transactions on Audio, Speech and Language Processing*, vol. 32, pp. 4328-4341, 2024.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. **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.

10. S. Liu, **H. Q. Liu**, Simultaneous non-convex low rank regularization for fast magnetic resonance spectroscopy reconstruction, *Digital Signal Processing*, vol. 132, Jan. 2023.
11. 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.
12. 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.
13. 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.
14. 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**).
15. 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.
16. 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.
17. 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.
18. 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.
19. 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.
20. 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.
21. 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**).
22. 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**).
23. 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.
24. J. Cao, S. Liu, **H.Q. Liu**, and K. Zhang, MRI reconstruction based on Bayesian group sparse representation, *Signal Processing*, vol. 187, Oct. 2021.

25. 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.
26. 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.
27. 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.
28. 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.
29. 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**).
30. 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.
31. 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.
32. 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.
33. 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.
34. **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.
35. 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**).
36. 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.
37. 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.
38. 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.
39. 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.
40. 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.

41. 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)
42. 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.
43. **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.
44. 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.
45. 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.
46. 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)
47. 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.
48. 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.
49. **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).
50. 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.
51. 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).
52. 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.
53. 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.
54. 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.
55. 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.

56. 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.
57. 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.
58. 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.
59. **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.
60. **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.
61. 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.
62. 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.
63. 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)**.
64. 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.
65. 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.
66. 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.
67. **H.Q.Liu**, Ruiibo 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.
68. Dong Li, Muiyang 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.
69. Shujun Liu, Ting Yang, **H.Q.Liu**, Optimal Detection under the Restricted Bayesian Criterion, *Entropy*, 19(7), 370, 2017. **(Corresponding author)**.
70. **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.

71. 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.
72. 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.
73. 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.
74. 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.
75. 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.
76. 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.
77. 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)
78. 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.
79. 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).
80. **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.
81. **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.
82. 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.
83. 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.
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Conference papers

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2. 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.
3. 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.
4. 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.
5. 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.

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7. 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**).
8. 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.
9. 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.
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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

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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

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*
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- *International Journal of Remote Sensing*
- *Signal Processing*, (*Outstanding reviewer*, Mar. 2017)
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- *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

References

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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.