

Curriculum Vitae

Personal Information

Qing Shen **Professor and Ph.D. Supervisor** with Beijing Institute of Technology, China

Gender: Male

Birth: 05/05/1988

Email: qing-shen@outlook.com; q.shen@bit.edu.cn

Website: <https://qing-shen.github.io/>

Google Scholar Profile: <https://scholar.google.com/citations?user=Znthst0AAAAJ&hl=en>

Education

- | | | |
|--------------|---|-----------------|
| Ph.D. | Signal and Information Processing, Beijing Institute of Technology, China
National key disciplines of first class
Dissertation: Underdetermined Direction of Arrival Estimation Based on Sparse Signal Reconstruction (Two Excellent Ph.D. Dissertation Awards) | 09/2009-07/2016 |
| B.E. | Information Engineering, Beijing Institute of Technology, China
Top 3% among all students | 09/2005-07/2009 |

Working Experience

- | | | |
|--------------------------------------|--|-----------------|
| Professor | School of Information and Electronics,
Beijing Institute of Technology, China | 04/2024-present |
| Associate Professor | School of Information and Electronics,
Beijing Institute of Technology, China | 07/2019-04/2024 |
| Post-Doctoral Research Fellow | School of Information and Electronics,
Beijing Institute of Technology, China
Working in the area of Radar system design and underdetermined direction of arrival (DOA) estimation. | 01/2017-07/2019 |
| Visiting Research Associate | Dept. of Electronic and Electrical Engineering,
University of Sheffield, UK
Working in the area of distributed sensor array signal processing. | 03/2018-03/2019 |
| Visiting Researcher | Dept. of Electronic and Electrical Engineering,
University of Sheffield, UK
Working in the area of compressive sensing based underdetermined direction of arrival (DOA) estimation.
Sponsored by China Scholarship Council. | 10/2013-10/2015 |

Research Areas

- Sensor array signal processing, statistical signal processing, adaptive signal processing, and their various applications to acoustics, radar, sonar, and wireless communications.

Skills

- Software development with MATLAB.
- Software development for Field Programmable Gate Array (FPGA) using VHDL/Verilog language.
- Software development for Microblaze, ARM, and Digital Signal Processor (DSP) using C language.

Awards

- **Special Award (as the primary advisor)** of the 2025 "Challenge Cup" China Youth Science and Technology Innovation "Open Bidding for Selecting the Best Candidates " Competition. 11/2025
- **Second Award (as the primary advisor)** of the 2025 "Challenge Cup" China Youth Science and Technology Innovation "Open Bidding for Selecting the Best Candidates " Competition. 11/2025
- **Young Scientist Award**, 2021 IEEE International Conference on Electronics Technology (ICET 2021) 05/2021
- **Second-Class Prize of the National Award for Technological Invention**, the State Council of the People's Republic of China, China 12/2019
The most important award for all researchers in China.
- **First-Class Prize of the Science and Technology (Technological Invention) Award**, Chinese Institute of Electronics, China. 11/2018
- **Excellent Ph.D. Dissertation Award**, Chinese Institute of Electronics, China 12/2016
The most important award for all Ph.D. students in China.
- **Excellent Ph.D. Dissertation Award**, Beijing Institute of Technology, China 07/2016
- **Second-Class Prize of the Ministerial Level Science and Technology Progress Award**, China 12/2014

Journal Papers

- [1] Lei Liu, Shiwei Ren, Xiangnan Li, **Qing Shen**, Guiyu Wang, Weijiang Wang. "Gridless wideband DOA estimation using group-sparse weighted atomic norm minimization," *IEEE Transactions on Aerospace and Electronic Systems*, to appear.
- [2] Hantian Wu, **Qing Shen**, Wei Liu, Junwei Zhou, Wei Cui. "Bearing-only localization for wideband off-grid sources with distributed sensor array networks," *IEEE Sensors Journal*, to appear.
- [3] Wenmeng Xiong, Maoshen Jia, Jing Zhou, Jing Zhang, **Qing Shen**. "Joint learning for simultaneous DOA estimation and speech enhancement in noisy and reverberant environments," *IEEE Transactions on Audio, Speech and Language Processing*, vol. 34, pp. 596-611, 2026.
- [4] Wei Liu, Maria Sabrina Greco, Rodrigo C. de Lamare, **Qing Shen**, Mojtaba Soltanalian, Pu Wang. "Guest Editorial: Special issue on low-bit-resolution signal processing: Algorithms, implementations, and applications," *IEEE Journal of Selected Topics in Signal Processing*, vol. 19, no. 6, pp. 874-880, 2025.

- [5] Tianyuan Gu, Xuejing Zhang, Kejiang Wu, Kangning Li, Wei Cui, **Qing Shen**, “A novel method for beampattern synthesis with auto-determined minimum mainlobe width,” *IEEE Transactions on Antennas and Propagation*, vol. 73, no. 12, pp. 10901-10906, Dec. 2025.
- [6] Kangning Li, **Qing Shen**, Wei Liu, Zexiang Zhang, Tianyuan Gu, Wei Cui, “Underdetermined DOA estimation of quasi-stationary signals via virtual array interpolation,” *Signal Processing*, vol. 237, 110076, Dec. 2025.
- [7] Yangfang Li., Wei Li, Jing Tian, **Qing Shen**, “Object tracking in satellite videos: a survey,” *Chinese Space Science and Technology*, vol. 45, no. 5, pp. 60-74, 2025.
- [8] Kangning Li, **Qing Shen**, Wei Liu, Kejiang Wu, Wei Cui, “Underdetermined DOA estimation of wideband quasi-stationary signals via tensor completion,” *IEEE Transactions on Aerospace and Electronic Systems*, vol. 61, no. 5, pp. 15122-15129, Oct. 2025.
- [9] Zexiang Zhang, **Qing Shen**, Wei Liu, Kangning Li, Kejiang Wu, Wei Cui, “Shift-based symmetric coprime planar arrays with increased degrees of freedom and reduced mutual coupling,” *IEEE Transactions on Vehicular Technology*, vol. 74, no. 8, pp. 12222-12237, Aug. 2025.
- [10] Hua Chen, Haodong Guo, Wei Liu, **Qing Shen**, Gang Wang, Hing Cheung So, “Fourth-order sparse array design from a sum-difference co-array perspective,” *IEEE Transactions on Signal Processing*, vol. 73, pp. 2243-2254, 2025.
- [11] Hantian Wu, **Qing Shen**, Junwei Zhou, Wei Liu, Wei Li, Wei Cui, “Group sparsity based wideband 3D localization using a distributed linear array network,” *IEEE Transactions on Aerospace and Electronic Systems*, vol. 61, no. 2, pp. 5454-5460, Apr. 2025.
- [12] Kangning Li, **Qing Shen**, Wei Liu, Zexiang Zhang, Yunpeng Zhao, Wei Li, Wei Cui, “Underdetermined DOA estimation of quasi-stationary signals exploiting frequency pairs,” *IEEE Transactions on Aerospace and Electronic Systems*, vol. 61, no. 2, pp. 2828-2842, Apr. 2025.
- [13] Hanzheng Wang, Wei Li, Xiang-Gen Xia, Qian Du, Jing Tian, **Qing Shen**, “Transformer-based band regrouping with feature refinement for hyperspectral object tracking,” *IEEE Transactions on Geoscience and Remote Sensing*, vol. 62, Art no. 5522314, 2024.
- [14] Zexiang Zhang, **Qing Shen**, Wei Liu, Wei Cui, “2-D DOA estimation based on sparse linear arrays exploiting arbitrary linear motion,” *IEEE Transactions on Vehicular Technology*, vol. 73, no. 9, pp. 13248 - 13262, Sep. 2024.
- [15] Min Wang, **Qing Shen**, Wei Liu, Wei Cui, “Wideband DOA Estimation with frequency decomposition via a unified GS-WSpSF framework,” *IEEE Transactions on Aerospace and Electronic Systems*, vol. 60, no. 2, pp. 2453-2460, 2024.
- [16] Hua Chen, Hongguang Lin, Wei Liu, Qing Wang, **Qing Shen**, Gang Wang, “Augmented multi-subarray dilated nested array with enhanced degrees of freedom and reduced mutual coupling,” *IEEE Transactions on Signal Processing*, vol. 72, pp. 1387-1399, 2024.
- [17] Kejiang Wu, **Qing Shen**, Wei Cui, “3-D tomographic circular SAR imaging of targets using scattering phase correction,” *IEEE Transactions on Geoscience and Remote Sensing*, 2023, vol. 61, pp. 1-14.

- [18] Zixiang Yang, **Qing Shen**, Wei Liu, Yonina C. Eldar, Wei Cui, “High-order cumulants based sparse array design via fractal geometries—Part II: Robustness and mutual coupling,” *IEEE Transactions on Signal Processing*, vol. 71, pp. 343-357, 2023.
- [19] Zixiang Yang, **Qing Shen**, Wei Liu, Yonina C. Eldar, Wei Cui, “High-order cumulants based sparse array design via fractal geometries—Part I: Structures and DOFs,” *IEEE Transactions on Signal Processing*, vol. 71, pp. 327-342, 2023.
- [20] Wei Liu, Arjuna Madanayake, Lei Yu, **Qing Shen**, Jingjing Cai, “Recent advances in design and signal processing for antenna arrays 2020 (Editorial),” *International Journal of Antennas and Propagation*, vol. 2023, Article ID 9843456, 2023.
- [21] Zixiang Yang, **Qing Shen**, Wei Liu, Wei Cui, “A sum-difference expansion scheme for sparse array construction based on the fourth-order difference co-array,” *IEEE Signal Processing Letters*, vol. 29, pp. 2647-2651, 2022.
- [22] Hantian Wu, **Qing Shen**, Wei Cui, Wei Liu, “DOA estimation with nonuniform moving sampling scheme based on a moving platform,” *IEEE Signal Processing Letters*, vol. 28, pp. 1714-1718, 2021.
- [23] Yibao Liang, Wei Cui, **Qing Shen**, Wei Liu, Siliang Wu, “Cramér-Rao bound analysis of underdetermined wideband DOA estimation under the subband Model via Frequency Decomposition,” *IEEE Transactions on Signal Processing*, vol. 69, pp. 4132-4148, 2021.
- [24] Yibao Liang, Wei Cui, **Qing Shen**, Wei Liu, Hantian Wu, “Cramér-Rao bound for DOA estimation exploiting multiple frequency pairs,” *IEEE Signal Processing Letters*, vol. 28, pp. 1210-1214, 2021.
- [25] **Qing Shen**, Wei Liu, Li Wang, Yin Liu, “Group sparsity based localization for far-field and near-field sources based on distributed sensor array networks”, *IEEE Transactions on Signal Processing*, vol.68, pp. 6493-6508, 2020.
- [26] Yibao Liang, Wei Liu*, **Qing Shen**, Wei Cui, Siliang Wu, “A review of closed-form Cramér-Rao bounds for DOA estimation in the presence of Gaussian noise under a unified framework,” *IEEE Access*, vol.8, pp. 175101-175124, 2020.
- [27] Wei Cui, Shuang Wu, **Qing Shen**, Jing Tian, Siliang Wu, Xiang-Gen Xia, “Parameter estimation method for radar maneuvering target with arbitrary migrations,” *IEEE Transactions on Aerospace and Electronic Systems*, vol. 55, no. 5, pp. 2195-2213, Oct. 2019.
- [28] Wei Cui, **Qing Shen**, Wei Liu, Siliang Wu, “Low complexity DOA estimation for wideband off-grid sources based on re-focused compressive sensing with dynamic dictionary,” *IEEE Journal of Selected Topics in Signal Processing*, vol. 13, no. 5, pp. 918-930, Sep. 2019.
- [29] **Qing Shen**, Wei Liu, Wei Cui, Siliang Wu, Piya Pal, “Simplified and enhanced multiple level nested arrays exploiting high order difference co-arrays,” *IEEE Transactions on Signal Processing*, vol. 67, no. 13, pp. 3502-3515, Jul. 2019.
- [30] Ahsan Raza, Wei Liu, **Qing Shen**, “Thinned coprime array for second-order difference co-array generation with reduced mutual coupling,” *IEEE Transactions on Signal Processing*, vol. 67, no. 8, pp. 2052-2065, Apr. 2019.
- [31] Junwei Zhou, **Qing Shen**, Wei Cui, “A novel carrier leakage cancellation algorithm for multiple target detection,” *Chinese Journal of Electronics*, vol. 28, no. 1, pp. 100–106, Jan. 2019.

- [32] **Qing Shen**, Wei Liu, Li Wang, Yin Liu, “Adaptive beamforming for target detection and surveillance based on distributed unmanned aerial vehicle platforms,” *IEEE Access*, vol. 6, pp. 60812-60823, 2018.
- [33] Tong Qian, Wei Cui, **Qing Shen**, “Sparse reconstruction method for DOA estimation based on dynamic dictionary and negative exponent penalty,” *Chinese Journal of Electronics*, vol. 27, no. 2, pp. 386-392, Mar. 2018.
- [34] Jinzhi Xiang, Wei Cui, **Qing Shen**, “Flexible and accurate frequency estimation for complex sinusoid signal by interpolation using DFT samples,” *Chinese Journal of Electronics*, vol. 27, no. 1, pp. 109-114, Jan. 2018.
- [35] Shuang Wu, Wei Cui, **Qing Shen**, Jiangang Hou, Siliang Wu, “Efficient parameter estimation method for maneuvering targets in discrete randomly-modulated radar,” *Digital Signal Processing*, vol. 67, pp.91-106, Aug. 2017.
- [36] Jingjing Cai, Wei Liu, Ru Zong, **Qing Shen**, “An expanding and shift scheme for constructing fourth-order difference co-arrays,” *IEEE Signal Processing Letters*, vol. 24, no. 4, pp. 480-484, Apr. 2017.
- [37] **Qing Shen**, Wei Liu, Wei Cui, Siliang Wu, Yimin D. Zhang, Moeness G. Amin, “Focused compressive sensing for underdetermined wideband DOA estimation exploiting high-order difference coarrays,” *IEEE Signal Processing Letters*, vol. 24, no. 1, pp. 86-90, Jan. 2017.
- [38] **Qing Shen**, Wei Cui, Wei Liu, Siliang Wu, Yimin D. Zhang, Moeness G. Amin, “Underdetermined wideband DOA estimation of off-grid sources employing the difference co-array concept,” *Signal Processing*, vol. 130, pp. 299-304, Jan. 2017.
- [39] **Qing Shen**, Wei Liu, Wei Cui, Siliang Wu, “Underdetermined DOA estimation under the compressive sensing framework: A review,” *IEEE Access*, 2016, 4: 8865-8878.
- [40] **Qing Shen**, Wei Liu, Wei Cui, Siliang Wu, “Extension of co-prime arrays based on the fourth-order difference co-array concept,” *IEEE Signal Processing Letters*, vol. 23, no. 5, pp. 615-619, May 2016.
- [41] **Qing Shen**, Wei Liu, Wei Cui, Siliang Wu, Yimin D. Zhang, Moeness G. Amin, “Low complexity direction-of-arrival estimation based on wideband co-prime arrays,” *IEEE/ACM Transactions on Audio, and Speech, Language Processing*, vol. 23, no. 9, pp. 1445–1456, Sep. 2015.
- [42] Jing Tian, Wei Cui, **Qing Shen**, Zixiang Wei, Siliang Wu, “High-speed maneuvering target detection approach based on joint RFT and keystone transform,” *Science China Information Sciences*, vol. 56, no. 6, pp. 1-13, 2013.
- [43] Wei Cui, Xinguo Zhu, **Qing Shen**, “A new parameter design method for 3rd-order range tracking loop,” *Acta Armamentar II*, vol. 31, no. 6, pp. 807-810, 2010.

Conference Papers

- [1] Yunpeng Zhao, **Qing Shen**, Jing Tian, Wei Liu. “Connectivity-probability-driven multi-RIS placement in irregular regions,” in *Proc. IEEE Workshop on Signal Processing Systems (SiPS)*, Hong Kong, Nov. 2025.

- [2] Chenxi Liao, **Qing Shen**, Qining Feng, Min Wang, Wei Liu. “A two-step wideband DOA estimation method based on one-bit measurements,” in *Proc. IEEE Workshop on Signal Processing Systems (SiPS)*, Hong Kong, Nov. 2025.
- [3] Youhao Kong, **Qing Shen**, Qining Feng, Chenxi Liao, Wei Liu. “Tensorial hankel reconstruction for multi-frequency sparse array with sensor failure,” in *Proc. IEEE Workshop on Signal Processing Systems (SiPS)*, Hong Kong, Nov. 2025.
- [4] Yizhe Wang, Qining Feng, **Qing Shen**, Wei Liu, Hantian Wu. “Ziv-Zakai bound for wideband two-dimensional DOA estimation with a single source,” in *Proc. IEEE Workshop on Signal Processing Systems (SiPS)*, 2025.
- [5] Yuzheng Bao, **Qing Shen**, Zejun Yang, Zheng Fu, Li Shen, Wei Liu. “Model-based deep learning for underdetermined DOA estimation exploiting high-order difference co-arrays,” in *Proc. IEEE Workshop on Signal Processing Systems (SiPS)*, Hong Kong, Nov. 2025.
- [6] Jiaming Yang, **Qing Shen**, Kangning Li, Tianyuan Gu and Yuzheng Bao. “Blind calibration against mutual coupling and parameter estimation of non-circular sources with polarization sensitive arrays,” in *Proc. IEEE Workshop on Signal Processing Systems (SiPS)*, Hong Kong, Nov. 2025.
- [7] Tianyuan Gu, Wenbo Li, Kejiang Wu, **Qing Shen**. “Optimization of mainlobe width and array geometry via mixed-integer programming,” in *Proc. IEEE Workshop on Signal Processing Systems (SiPS)*, Hong Kong, Nov. 2025.
- [8] Yuxiang Jiang, Qining Feng, Chenxi Liao, **Qing Shen**. “Matched filtering based wideband DOA estimation method for active sensing,” in *Proc. IEEE Workshop on Signal Processing Systems (SiPS)*, Hong Kong, Nov. 2025.
- [9] Zejun Yang, Yuzheng Bao, **Qing Shen**, “Model-based deep learning for multi-source 2D-DOA estimation with uniform circular array,” in *Proc. IEEE Workshop on Signal Processing Systems (SiPS)*, Hong Kong, Nov. 2025.
- [10] Zexiang Zhang, **Qing Shen**, Wei Liu, Jiaming Yang, Chenxi Liao, Yizhe Wang, “Explicit asymptotic performance analysis of ESPRIT-type methods exploiting the difference co-array concept,” in *Proc. European Signal Processing Conference (EUSIPCO)*, Isola delle Femmine, Palermo, Italy, Sep. 2025.
- [11] Zijun Zhang, Weiqi Zhao, **Qing Shen**, Wei Cui, Kejiang Wu. “Fast 3-D reconstruction of complex scenario using mmWave MIMO ArcSAR,” in *Proc. of the IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, Brisbane, Australia, Aug. 2025.
- [12] Chenhao Zhai, Youhao Kong, Chenxi Liao, **Qing Shen**, “Optimized interpolation-based methods with inverse filtering for time delay estimation,” in *Proc. of the IEEE International Conference on Electronics Technology (ICET)*, Chengdu, China, May 2025.
- [13] Kangning Li, **Qing Shen**, Jiaming Yang, “A self-calibration method for DOA estimation of quasi-stationary signals with a partly calibrated array,” in *Proc. of the IEEE International Conference on Electronics Technology (ICET)*, Chengdu, China, May 2025.

- [14] Min Wang, Chenxi Liao, Yizhe Wang, Bohong Shu, **Qing Shen**, “Efficient underdetermined wideband DOA estimation based on a uniform linear array,” in *Proc. of the IEEE International Conference on Signal, Information and Data Processing (ICSIDP)*, Zhuhai, China, Nov. 2024.
- [15] Jianbin Ye, Yunpeng Zhao, **Qing Shen**, “An efficient multi-antenna wideband digital channelization structure for FPGA implementation,” in *Proc. of the IEEE International Conference on Signal, Information and Data Processing (ICSIDP)*, Zhuhai, China, Nov. 2024.
- [16] Yizhe Wang, Yuning Peng, Chenxi Liao, Min Wang, **Qing Shen**, “Ziv-Zakai bound for wideband single-source direction-of-arrival estimation,” in *Proc. of the IEEE International Conference on Signal, Information and Data Processing (ICSIDP)*, Zhuhai, China, Nov. 2024.
- [17] Jiaming Yang, Zheng Fu, Zexiang Zhang, Aoxuan Zhou, **Qing Shen**, “Calibration-based 2-D DOA estimation exploiting 2qth-order cumulants for polarimetric arrays,” in *Proc. of the IEEE International Conference on Signal, Information and Data Processing (ICSIDP)*, Zhuhai, China, Nov. 2024.
- [18] Tianyuan Gu, Bohong Shu, Yuxiang Jiang, Jiaming Yang, **Qing Shen**, “Sparse array optimization for beampattern synthesis with low-bit phase quantization,” in *Proc. of the IEEE International Conference on Signal, Information and Data Processing (ICSIDP)*, Zhuhai, China, Nov. 2024.
- [19] Zexiang Zhang, Qing Shen, Wei Liu, Kangning Li, Kejiang Wu, Wei Cui, “Shift-based symmetric coprime planar arrays for direction finding with enhanced uniform degrees of freedom,” in *Proc. of the IEEE/CIC International Conference on Communications in China*, Hangzhou, China, Aug. 2024.
- [20] Yuhang Li, Hantian Wu, Jiangang Hou, **Qing Shen**, “2-D DOA estimation with circular arrays based on the fourth-order difference co-array,” in *Proc. of the IEEE International Conference on Electronics Technology (ICET)*, Chengdu, China, May 2024.
- [21] Yiwei Liu, Yunpeng Zhao, Yuzheng Bao, Jiangang Hou, **Qing Shen**, “Interpolation-based time delay estimation for moving targets,” in *Proc. of the IEEE International Conference on Electronics Technology (ICET)*, Chengdu, China, May 2024.
- [22] Kangning Li, **Qing Shen**, Wei Liu, Min Wang, “Wideband DOA estimation based on tensor completion and decomposition,” in *Proc. of the IEEE International Symposium on Circuits and Systems (ISCAS)*, Singapore, May 2024.
- [23] Hantian Wu, **Qing Shen**, Wei Liu, Zheng Fu, Chenxi Liao, “2-D wideband DOA estimation with circular arrays based on the difference co-array concept,” in *Proc. of the IEEE International Symposium on Circuits and Systems (ISCAS)*, Singapore, May 2024.
- [24] Haodong Guo, Hua Chen, Hongguang Lin, Wei Liu, **Qing Shen**, Gang Wang, “A new fourth-order sparse array generator based on sum-difference co-array analysis,” in *Proc. of the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Seoul, Korea, April 2024.
- [25] Yue Ma, Yan Liu, **Qing Shen**, “Off-grid chirp-rate estimation for LFM signals based on dynamic dictionary,” in *Proc. IEEE International Conference on Electronics Technology (ICET)*, Chengdu, China, May 2023.

- [26] Hantian Wu, **Qing Shen**, Wei Liu, Yibao Liang, “Underdetermined two-dimensional localization for wideband sources based on distributed sensor array networks,” in *Proc. IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Singapore, May 2022.
- [27] Chun Zhu, Yuwei Wang, **Qing Shen**, “Two-dimensional DOA estimation based on two-parallel arrays exploiting nonuniform array motions,” in *Proc. IEEE International Conference on Electronics Technology (ICET)*, Chengdu, China, May 2022.
- [28] Xiang Zhang, Dali Liu, Chun Zhu, **Qing Shen**, “Generalized non-iterative time delay estimation based on Taylor interpolation model,” in *Proc. CIE International Conference on Radar*, Haikou, China, Dec. 2021.
- [29] Yilin Huang, Dali Liu, Shilei Yuan, **Qing Shen**, “A low-complexity migration compensation method based on long-term integration,” in *Proc. CIE International Conference on Radar*, Haikou, China, Dec. 2021.
- [30] Zixiang Yang, **Qing Shen**, Wei Liu, Yonina C. Eldar, Wei Cui, “Extended Cantor arrays with hole-free fourth-order difference co-arrays,” in *Proc. IEEE International Symposium on Circuits and Systems (ISCAS)*, Daegu, Korea, May 2021.
- [31] Yanxin Li, Qiaodi Wang, **Qing Shen**, Wei Cui, “An improved multiple threshold decision method based on long-term integration,” in *Proc. IEEE International Conference on Electronics Technology (ICET)*, Chengdu, China, May 2021.
- [32] Yibao Liang, Wei Liu, **Qing Shen**, Wei Cui, Siliang Wu, “On the Cramer-Rao bound and the number of resolvable sources in the presence of nonuniform noise for underdetermined DOA estimation,” in *Proc. IEEE International Conference on Signal Processing (ICSP)*, Beijing, China, Oct. 2020, pp. 93-98.
- [33] Hantian Wu, **Qing Shen**, Wei Liu, Wei Cui, “Underdetermined low-complexity wideband DOA estimation with uniform linear arrays,” in *Proc. IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM)*, Hangzhou, China, Jun. 2020.
- [34] Yechen Li, Jie Yao, **Qing Shen**, Wei Cui, “Dual-channel monopulse angle estimation method for weak target based on reference signal,” in *Proc. IEEE International Conference on Signal, Information and Data Processing (ICSIDP)*, Chongqing, China, Dec. 2019.
- [35] Yibao Liang, **Qing Shen**, Wei Cui, Wei Liu, “Cramer-Rao bound for wideband DOA estimation with uncorrelated sources,” in *Proc. IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, Ottawa, Canada, Nov. 2019.
- [36] **Qing Shen**, Wei Liu, Li Wang, Yin Liu, “Group sparsity based target localization for distributed sensor array networks,” in *Proc. IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Brighton, UK, May 2019, pp. 4190-4194..
- [37] Ahsan Raza, Wei Liu, **Qing Shen**, “Displaced thinned coprime arrays with an additional sensor for DOA estimation,” in *Proc. IEEE International Symposium on Signal Processing and Information Technology (ISSPIT)*, Louisville, Kentucky, USA, Dec. 2018, pp. 95-100.

- [38] **Qing Shen**, Wei Liu, Li Wang, Yin Liu, “Joint adaptive beamforming based on distributed moving platforms”, in *Proc. IEEE International Conference on Digital Signal Processing (DSP)*, Shanghai, China, Nov. 2018.
- [39] Ahsan Raza, Wei Liu, **Qing Shen**, “Thinned coprime arrays for DOA estimation”, in *Proc. European Signal Processing Conference (EUSIPCO)*, Kos Island, Greece, Aug. 2017, pp. 415–419. (Oral Presentation)
- [40] Jinzhi Xiang, **Qing Shen**, Wei Cui, “A novel single tone frequency estimation by interpolation using DFT samples with zero-padding”, in *Proc. IEEE International Conference on Signal Processing*, Chengdu, China, Nov. 2016, pp. 277-281.
- [41] **Qing Shen**, Wei Liu, Wei Cui, Siliang Wu, “Extension of nested arrays with the fourth-order difference co-array enhancement,” in *Proc. IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Shanghai, China, Mar. 2016, pp. 2991-2995.
- [42] **Qing Shen**, Wei Liu, Wei Cui, Siliang Wu, Yimin D. Zhang, Moeness G. Amin, “Wideband DOA estimation for uniform linear arrays based on the co-array concept,” in *Proc. European Signal Processing Conference (EUSIPCO)*, Nice, France, Sep. 2015, pp. 2885-2889.
- [43] **Qing Shen**, Wei Liu, Wei Cui, Siliang Wu, “Low-complexity compressive sensing based DOA estimation for co-prime arrays,” in *Proc. IEEE International Conference on Digital Signal Processing*, Hong Kong, China, Aug. 2014, pp. 754-758.
- [44] **Qing Shen**, Wei Liu, Wei Cui, Siliang Wu, Yimin D. Zhang, Moeness G. Amin, “Group sparsity based wideband DOA estimation for co-prime arrays,” in *Proc. IEEE China Summit and International Conference on Signal and Information Processing (ChinaSIP)*, Xi’an, China, Jul. 2014, pp. 252-256.
- [45] **Qing Shen**, Wei Cui, Jiangang Hou, Siliang Wu, Hongbao Li, “Carrier leakage cancellation in pulse Doppler radar applied for single target detection,” in *Proc. IET International Radar Conference*, Xi’an, China, 2013, pp. 972-976.

Patents

- **More than 50 Chinese patents** published in total.

Professional Activities

• Membership

- ✧ Senior Member, IEEE
- ✧ IEEE Signal Processing Society
- ✧ IEEE Circuits and Systems Society

• Technical Committee

- ✧ Member (12/2025-present), Applied Signal Processing Systems Technical Committee, IEEE Signal Processing Society
- ✧ Member (09/2025-present), Signal Processing Technical Committee, Chinese Institute of Electronics
- ✧ Member (12/2024-present), Vision Computation Simulation Technical Committee (VCSTC), China Simulation Federation

- ✧ Member (03/2024-present), Educational Conference Programs Committee, IEEE Signal Processing Society
- ✧ Member (05/2021-present), Digital Signal Processing Technical Committee (DSPTC), IEEE Circuits and Systems Society
- **Journal Editorship**
 - ✧ **Guest Editor:** IEEE Journal of Selected Topics in Signal Processing
 - ✧ **Guest Editor:** International Journal of Antennas and Propagation
 - ✧ **Preview Expert:** Frontiers of Information Technology & Electronic Engineering in the Information and Communication Technology area
 - ✧ **Young Editorial Board Member:** Journal of Radars
- **Conference Organizing Committee Member**
 - ✧ **Financial Chair** of the 2025 IEEE Workshop on Signal Processing Systems (IEEE SiPS 2025), Hong Kong.
 - ✧ **Financial Chair** of the 2023 IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (IEEE CAMSAP 2023), Costa Rica.
- **Special Session/Workshop Organizer**
 - ✧ **Session Chair** of the IEEE Workshop on Signal Processing Systems (SiPS 2025), Hong Kong, 1-4 Nov. 2025.
 - ✧ **Session Chair** of the 2024 IEEE International Symposium on Circuits and Systems (ISCAS 2024), Singapore, 19-22 May, 2024.
 - ✧ **Session Chair** of the 2022 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Singapore, 22-27 May, 2022.
 - ✧ **Special Session Organizer** of the 2021 International Conference on Control, Automation and Information Sciences (ICCAIS 2021), Xi'an, China, 14-17 October, 2021.
 - ✧ **Session Chair** of the 2021 IEEE International Symposium on Circuits and Systems (ISCAS 2021), Daegu, Korea, 22-28 May, 2021.
 - ✧ **Workshop Chair** of the 2020 International Conference on Communications, Signal Processing, and Systems (CSPS 2020), Changbaishan, China, 4-5 July, 2020.
- **Journal Paper Reviewer**
 - ✧ IEEE Transactions on Signal Processing
 - ✧ IEEE Wireless Communications
 - ✧ IEEE Transactions on Wireless Communications
 - ✧ IEEE Transactions on Aerospace and Electronic Systems
 - ✧ IEEE Transactions on Vehicular Technology
 - ✧ IEEE Internet of Things Journal
 - ✧ IEEE Signal Processing Letters
 - ✧ IEEE Communications Letters
 - ✧ IEEE Access
 - ✧ Signal Processing (Elsevier)
 - ✧ Neural Networks (Elsevier)
 - ✧ Digital Signal Processing (Elsevier)
 - ✧ International Journal of Electronics and Communications (Elsevier)
 - ✧ Physical Communication (Elsevier)
 - ✧ Multidimensional Systems and Signal Processing

- ✧ IET Signal Processing
- ✧ IET Radar, Sonar, & Navigation
- ✧ IET Communications
- ✧ IET Electronics Letters
- ✧ SCIENCE CHINA Information Sciences
- ✧ Frontiers of Information Technology & Electronic Engineering
- ✧ EURASIP Journal on Advances in Signal Processing
- ✧ Sensors

• **Technical/Program/Review Committee Member**

- ✧ IEEE International Symposium on Circuits and Systems (ISCAS)
- ✧ IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)
- ✧ IEEE International Conference on Electronics Technology (ICET)
- ✧ IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM)
- ✧ IEEE Workshop on Signal Processing Systems (SiPS)
- ✧ IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP)
- ✧ IEEE International Conference on Digital Signal Processing (DSP)
- ✧ IEEE International Symposium on Signal Processing and Information Technology (ISSPIT)
- ✧ International Conference on Control, Automation and Information Sciences (ICCAIS)
- ✧ International Conference on Communications, Signal Processing, and Systems (CSPS)

• **Reviewer for grant applications**

- ✧ National Natural Science Foundation of China