Dr. Chao TIAN

Department of Electrical and Computer Engineering
Texas A&M University
Tel: 979-458-7822(o) 607-229-8734 (c)
Email: chao.tian@tamu.edu
https://tiangroup.engr.tamu.edu/

EDUCATION

Cornell University, Electrical and Computer Engineering, Ithaca, NY.
M.S. degree, May 2003, Ph.D. degree, Jul. 2005; Minor: Computer Science
Thesis adviser: Prof. Sheila S. Hemami

Tsinghua University, Electronic Engineering, Beijing, China.
B.E. degree, Jul. 2000

RESEARCH AND WORKING EXPERIENCE

Associate Professor Sep. 2017-present
Department of Electrical and Computer Engineering
Texas A&M University, College Station, TX

Associate Professor Aug. 2014-Jul. 2017
Department of Electrical Engineering and Computer Science
The University of Tennessee Knoxville, Knoxville, TN

Adjunct Assistant/Associate Professor Jan. 2011-Dec. 2013
Dept. Electrical Engineering, Columbia University, New York, NY.

Member of Technical Staff-Research Oct. 2007-Jul. 2014
AT&T Labs-Research, Florham Park, NJ.

Post-Doctoral Researcher Sep. 2005-Sep. 2007
School of Computer and Communication Sciences, EPFL, Lausanne, Switzerland.
Supervisor: Prof. Suhas Diggavi

Summer Research Intern Jun. 2004-Aug. 2004
AT&T Labs-Research, Florham Park, NJ.

TEACHING EXPERIENCE

Associate Professor 2017-present
Dept. Electrical and Computer Engineering, Texas A&M University, College Station, TX.

- ECEN-689: Advanced Optimization Techniques and Analysis / Spring '22, '24
- ELEN-489: Information Theory, Inference, and Learning Algorithms (Spring '18, Fall '18, '20-'23)
- ELEN-601: Mathematical Methods for Signal Processing (Fall '22, '23)

- ELEN-314: Signals and Systems (Fall '19)
- ELEN-629: Convex Optimization for Electrical Engineering (Spring '18)
- ELEN-629: Applied Convex Optimization (Spring '19, Spring '20, Spring '21)
- ELEN-681(605): ISS Seminar Series (Fall '17, Spring '18, Fall '18)
- ELEN-681(600): Department Seminar Series (Fall '19, Spring '20, Fall '20)

Associate Professor 2014-2017
Dept. Electrical Engineering and Computer Science, The University of Tennessee, Knoxville, TN.

- ECE-342: Analog Communications, AM and FM (Fall 2014, Spring 2015)
- ECE-644: Coding and Information Theory (Fall 2015)
- ECE-342: Fundamentals of Communications (Spring 2016, Spring 2017)
- ECE-611: Convex Optimization (Fall 2016)

Adjunct Assistant/Associate Professor 2011-2013
Dept. Electrical Engineering, Columbia University, New York, NY.

- ELEN E6884: Topics in Data Compression (Spring 2011)
- ELEN E6718: Algebraic Coding Theory (Fall 2011, Fall 2012, Fall 2013)
- ELEN E6712: Communication Theory (Spring 2013)

Course Lecturer Winter 2006
School of Computer and Communication Sciences, EPFL, Lausanne, Switzerland.

- IC-62: Source Coding Theory and Practice

HONORS AND AWARDS

Best Paper Award at 'Machine Learning and Compression' Workshop @ NeurIPS 2024
For the paper "Transformers learn variable-order Markov chains in context," by Ruida Zhou, Chao Tian, and Suhas Diggavi, Vancouver, Canada, Dec. 2024.

Best Paper Award at First 'Learn to compress' Workshop @ ISIT 2024
For the paper "Staggered quantizers for perfect perceptual quality: A connection between quantizers with common randomness and without," by Ruida Zhou and Chao Tian, Athens, Greece, Jul. 2024.

2023-2024 IEEE Information Theory Society Distinguished Lecturer
As one of the prominent information theory researchers to speak at information-theoretic chapters.

2022 TAMU Electrical and Computer Engineering Faculty Award
For exemplary service, research, and teaching in the department.

2020-2021 IEEE Data Storage Best Student Paper Award
Awarded for the paper "Capacity-achieving private information retrieval codes from MDS-coded databases with minimum message size", by Ruida Zhou (student), Chao Tian, Hua Sun, and Tie Liu, IEEE Transactions on Information Theory 2020.

2019 Netapp Faculty Fellowship
Award grant to exceptional faculty whose research aligns with NetApp and merits support.

2017 Jack Weil Wolf ISIT Student Best Paper Award
Awarded to student Jie Li for paper "A generic transformation for optimal repair bandwidth and rebuilding access in MDS codes", IEEE International Symposium on Information Theory 2017.

2014 IEEE Data Storage Best Paper Award
Awarded for the sole author paper "Characterizing the rate region of the (4, 3, 3) exact-repair regenerating codes," IEEE JSAC May 2014.

AT&T Key Contributor Award AT&T Labs-Research 2010, 2011 and 2013
For technical contributions to AT&T

Liu-Memorial Award Cornell University, 2004
For excellence in graduate study and research

STUDENT AND POSTDOC ADVISING

Ph.D. Students

- Mohhamad Rahimi, ELEN-Ph.D. program, TAMU, 09/24-present.
- Yu-Shin Huang, ELEN-Ph.D. program, TAMU, 06/24-present.
- Wenyuan Zhao, ELEN-Ph.D. program, TAMU, 08/23-present.
- Yuting Cai, ELEN-Ph.D. program, TAMU, 08/22-present.
- Ruida Zhou, ELEN-Ph.D. degree, TAMU, 09/18-08/23; currently Applied Scientist at Amazon Inc.
- Kai Zhang, EE-Ph.D. degree, TAMU, 08/15-5/20; currently Senior Research Scientist at MD-Anderson.
- Tianli Zhou, CE-Ph.D. degree, TAMU, 08/15-5/20; currently with Google Inc.

Postdoctoral Researcher

- Tao Guo, TAMU, 12/18-4/20, currently Associate Professor at Southeast University, China.

M.S. Students

- Peter Just, ELEN-M.S. program, TAMU, 1/24-
- Tianle Zhang, ELEN-M.S. degree, TAMU 12/24; currently pursuing Ph.D. degree at TAMU.
- Chandra Sekhar Tedla, ELEN-M.S. program, TAMU 05/23; currently with Aira Techonologies Inc.
- Wenjing Chen, ELEN-M.S. degree, TAMU 12/22.
- Tianrui Chen, ELEN-M.S. degree, TAMU 12/21.
- Lizi Zhang, ELEN-M.S. degree, TAMU 5/20.
- Hsing-Tze Yeh, ELEN-M.S. degree, TAMU 12/19; currently Software Engineer at Michaels Inc.
- Sanjeev Narayanan, ELEN-M.S. degree, TAMU 12/19.
- Vineet Garg, ELEN-M.S. degree, TAMU 05/19; next coordinate: Apple Inc.
- Siqi Fan, ELEN-M.S. degree, TAMU 12/19; obtained Ph.D. degree at TAMU 2024.
- Jianfeng Song, ELEN-M.S. degree, TAMU 12/19; obtained Ph.D. degree at TAMU 2023.
- Sara Mousavi, CS-M.S. Degree, UTK 12/17; obtained Ph.D. degree at UTK.

Visiting Students

- Jie Li, visiting Ph.D. student, Southwest Jiaotong University, Chengdu China, 10/15-10/16; currently with Huawei Technology Hong Kong.

- Lei Zheng, visiting Ph.D. student, Southwest Jiaotong University, Chengdu China, 9/17-5/19; currently Assistant Professor at Guangzhou University, China.
- Wenjing Chen, visiting undergraduate student (summer research), University of Science and Technology of China, Hefei China, 7/18-9/18.
- Min Cheng, visiting undergraduate student (summer research), University of Science and Technology of China, Hefei China, 8/19-12/19.
- Zekuan Zhang, visiting undergraduate student (summer research), Southeast University, Nanjing China, 7/19-9/19.

GRANTS AWARDED

***Internal*: Large Language Models for Electricity System**

- TAMU Renewable Energy Grant; Role: co-PI (internal)
- Date: 2024-2025; Amount $80,000 (Tian-share: $53,333).

***Internal*: Networking Coding for Security Primitives**

- TAMU GCRI Seed-Grant; Role: PI (internal)
- Date: 2024; Amount $10,000 (Tian-share: $5,000).

***External*: CDS&E-MSS: Sparsely Activated Bayesian Neural Networks from Deep Gaussian Processes**

- NSF award number CCF-2312173; Role: co-PI
- Date: 08/01/2023-07/31/2026; Amount $360,000 (Tian-share: $140,000) .

***Internal*: Demand Flexibility from Crypto-Mining**

- TEES Blockchain and energy consortium; Role: PI (internal)
- Date: 2023-2024; Amount $40,000 (Tian-share: $40,000).

***Internal*: Secure and Sustainable Energy for Blockchain**

- TAMU GCRI Seed-Grant; Role: co-PI (internal)
- Date: 2023; Amount $10,000 (Tian-share: $3,333).

***External*: REU Supplement: A Software Toolbox for Computing and Exploring the Fundamental Limits of Information Systems**

- Supplement for NSF award number CCF-1816546
- Date: 2021; Amount $16,000.

***External*: Video Retrieval from Low-Latency Storage Systems**

- Gift grant from AirMettle Inc. (industrial fund)
- Date: 09/01/2021-12/31/2021; Amount $18,000.

***External*: Communication, Storage, Complexity, and Security: A Holistic View on the Fundamental Limits and Code Designs for Private Information Retrieval**

- NSF award number CCF-2007067; Role: PI

- Date: 10/01/2020-09/30/2023; Amount $281,704 (Tian-share: $195,000).

External: Fast Erasure Array Codes via Bitmatrix Optimization: Algorithms and Implementation

- NetApp Faculty Fellowship Grant (industrial fund)
- Date: 07/01/2019-06/30/2020; Amount $50,000.

External: A Software Toolbox for Computing and Exploring the Fundamental Limits of Information Systems

- NSF award number CCF-1816546; Role: PI (sole-PI)
- Date: 10/01/2018-09/30/2021; Amount $319,215.

External: Fundamental Limits of Information Systems: A Computational Approach

- NSF award number CCF-1526095; Role: PI (sole-PI)
- Date: 09/2015-08/2019; Amount $368,354.

External: Quality-of-Service and Performance Isolation in Data Storage Systems for High Performance Computing

- Research sub-contract: Oak Ridge National Laboratory;
- Date: Mar. 2017-Mar. 2018; Amount $33,950.

Internal: SARIF Equipment and Infrastructure Award

- The University of Tennessee Knoxville (internal);
- Date: Fall 2016; Amount $10,000.

SELECTED PUBLICATIONS on MACHINE LEARNING

1. W.-Y. Zhao, H.-Y. Chen, T. Liu, R. Tuo, and C. Tian, "From deep additive kernel learning to last-layer Bayesian neural networks via induced prior approximation," 2025 International Conference on Artificial Intelligence and Statistics (**AISTATS**) (acceptance rate: 31.3%).
2. M. Fan, R. Zhou, C. Tian, X. Qian, "Path-guided particle-based sampling," Forty-first International Conference on Machine Learning (**ICML**), Vienna, Austria, Jul. 2024 (acceptance rate: 27.5%).
3. Y. You, R. Zhou, J. Park, H. Xu, C. Tian, Z.Wang, and Y. Shen, "Latent 3D graph diffusion," 2024 International Conference on Learning Representations (**ICLR**), Vienna, Austria, Jul. 2024 (acceptance rate: 31%).
4. M. Cheng, R. Zhou, C. Tian, and P. R. Kumar, "Provable policy gradient methods for average-reward Markov potential games," 2024 International Conference on Artificial Intelligence and Statistics (**AISTATS**), Valencia, Spain, May 2024 (acceptance rate: 27.6%).
5. R. Zhou, T. Liu, M. Cheng, D. Kalathil, P.R. Kumar, C. Tian, "Natural actor-critic for robust reinforcement learning with function approximation," Thirty-seventh Annual Conference on Neural Information Processing Systems (**NeurIPS**), Dec. 2023 (acceptance rate: 26.1%).
6. L. Fan, R. Zhou, C. Tian, and C. Shen, "Federated linear bandits with finite adversarial actions," Thirty-seventh Annual Conference on Neural Information Processing Systems (**NeurIPS**), Dec. 2023 (acceptance rate: 26.1%).
7. R. Zhou, T. Liu, D. Kalathil, P.R. Kumar, C. Tian, "Anchor-changing regularized natural policy gradient for multi-objective reinforcement learning," Thirty-sixth Annual Conference on Neural Information Processing Systems (**NeurIPS**), Dec. 2022 (acceptance rate: 25.6%).

8. R. Zhou and C. Tian, "Approximate top-m arm identification with heterogeneous reward variances," 2022 International Conference on Artificial Intelligence and Statistics (**AISTATS**), Mar. 2022 (acceptance rate: 29.2%).
9. T. Liu, R.-D. Zhou, D. Kalathil, P.R. Kumar, C. Tian, "Learning policies with zero or bounded constraint violation for constrained MDPs," Thirty-fifth Annual Conference on Neural Information Processing Systems (**NeurIPS**), Dec. 2021 (acceptance rate: 26%).

MONOGRAPHS and BOOK CHAPTERS

M-1. S. Avestimehr, S. N. Diggavi, **C. Tian**, and D. N. C. Tse, "An Approximation Approach to Network Information Theory", *Foundations and Trends in Communications and Information Theory*, Vol. 12:, No. 1-2, pp. 1-183.

B-1. Information Theory and Machine Learning, MDPI, 2022, L. Zheng and C. Tian (Eds.)

REFERRED JOURNAL PUBLICATIONS

***Bold**: after joining TAMU; <u>underlined</u>: first authored by students under supervision.*

J-66. C. Tian, and S. Shamai, "," *MDPI-Entropy* (invited), Vol. 27, No. 3, pp. 310 (1-10), Mar. 2025.

J-65. S. Majumder, L. Dong, F. Doudi, Y.-T Cai, **C. Tian**, D. Kalathil, K. Ding, A. A. Thatte, N. Li, and L. Xie, "Exploring the capabilities and limitations of large language models in the electric energy sector," *Joule*, Vol. 8, No. 6, pp. 1544-1549, Jun. 2024.

<u>J-64.</u> R.-D. Zhou, **C. Tian**, and T. Liu, "Exactly tight information-theoretic generalization error bound for the quadratic Gaussian problem," *IEEE Journal on Selected Areas in Information Theory (JSAIT)*, Vol. 5, pp. 94-104, Mar. 2024.

<u>J-63.</u> R. Zhou, **C. Tian**, and T. Liu, "Stochastic chaining and strengthened information-theoretic generalization bounds," *Journal of the Franklin Institute - Engineering and Applied Mathematics*, Vol. 360, No. 6, pp. 4114-4134, Apr. 2023.

J-62. C. Tian, Hua Sun, and J. S. Plank, "A Shannon-theoretic approach to the storage–retrieval trade-off in PIR systems," *MDPI-Information* (invited), Vol. 14, No. 1, 2023.

<u>J-61.</u> R.-D. Zhou, **C. Tian**, H. Sun, and J. S. Plank, "Two-level private information retrieval," *IEEE Journal on Selected Areas in Information Theory*, 2022.

<u>J-60.</u> R.-D. Zhou, **C. Tian**, and T. Liu, "Individually conditional individual mutual information bound on generalization error," *IEEE Trans. Inform. Theory*, Vol. 68, No. 5, pp. 3304-3316, May 2022.

<u>J-59.</u> W.-J. Chen, R.-D. Zhou, **C. Tian**, and C. Shen, "On top-k selection from m-wise partial rankings via Borda counting," *IEEE Trans. Signal Processing,* Vol. 70, pp. 2031-2045, 2022.

<u>J-58.</u> L. Zheng, **C. Tian**, and Q. Chen, "Coding overhead analysis of decentralized coded caching," *IEEE Communications Letters*, Vol. 26, No. 2, pp. 254-258, Feb. 2022.

J-57. S. Ulukus, S. Avestimehr, M. Gastpar, S. Jafar, R. Tandon, and **C. Tian**, "Private retrieval, computing and learning: Recent progress and future challenges," *IEEE Journal on Selected Areas in Communications (JSAC)*, Vol. 40, No. 3, pp. 729-748, Mar. 2022.

<u>J-56.</u> M. Makovenko, M. Cheng, and C. Tian, "Revisiting the optimization of Cauchy Reed-Solomon coding matrix for fault-tolerant data storage", *IEEE Transactions on Computers*, Vol. 71, No. 8, pp. 1839-1846, Aug. 2022.

<u>J-55.</u> T. Guo, R. Zhou, **C. Tian**, "New results on the storage-retrieval tradeoff in private information retrieval systems," *IEEE Journal on Selected Areas in Information Theory*, Vol. 2, No. 1, pp. 403-414, Mar. 2021.

J-54. C. Tian, J.S. Plank, B. Hurst, R. Zhou, "Computational techniques for investigating information theoretic limits of information systems (invited)," *MDPI Information*, Vol. 12, No. 2, p. 82.1-14, Feb. 2021.

J-53. S. Shao, J. Gómez-Vilardebó, K. Zhang, **C Tian**, "On the fundamental limits of coded caching systems with restricted demand types," *IEEE Trans. on Communications*, Vol 69, No. 2, pp. 863-873, Feb. 2021.

J-52. **C. Tian**, "On the storage cost of private information retrieval," *IEEE Trans. Inform. Theory*, Vol. 66, No. 11, pp. 7539-7549, Dec. 2020.

J-51. T. Guo, **C. Tian**, T. Liu, and R. Yeung, "Weakly secure symmetric multilevel diversity coding," *IEEE Trans. Inform. Theory*, Vol. 66, No. 11, pp. 7033-7055, Nov. 2020.

J-50. R.-D. Zhou, **C. Tian**, H. Sun, and T. Liu, "Capacity-achieving private information retrieval codes from MDS-coded databases with minimum message size," *IEEE Trans. Inform. Theory*, Vol. 66, No. 8, pp. 4904-4916, Aug. 2020.

J-49. J. Ren, K. Yang, **C. Tian**, J. Wang, and H. V. Poor, "Decoding binary linear codes over channels with synchronization errors," *IEEE Journal of Selected Areas in Communications*, Special issue on 5G Wireless Communications with High Mobility, Vol. 38, No. 12, pp. 2853-2863, Jul. 2020.

J-48. T. Guo, R.-D. Zhou, and **C. Tian**, "On the information leakage in private information retrieval systems," *IEEE Trans. on Information Forensics and Security*, Vol. 15, pp. 2999-3012, Mar. 2020.

J-47. T.-L. Zhou and **C. Tian**, "Fast erasure coding for data storage: A comprehensive study of the acceleration techniques," *ACM Transactions on Storage*, Vol. 16, No. 1, pp. 7:1–24, Mar. 2020..

J-46. **C. Tian**, H. Sun, and J. Chen, "Capacity-achieving private information retrieval codes with optimal message size and upload cost," *IEEE Trans. Inform. Theory*, , Vol. 65, No. 11, pp. 7613-7627, Nov. 2019.

J-45. H. Sun and **C. Tian**, "Breaking the MDS-PIR capacity barrier via joint storage coding," *MDPI-Information* (invited), Vol. 10, No. 9, 265.1-16, Sep. 2019.

J-44. S. Shao, T. Liu, **C. Tian**, and C. Shen, "New results on multilevel diversity coding with secure regeneration," *Science China–Information Sciences: Special Focus on Distributed Storage Coding*, Vol. 61, No. 10, Oct. 2018.

J-43. S. Shao, T. Liu, **C. Tian**, and C. Shen, "Multilevel diversity coding with secure regeneration: Separate coding achieves the MBR point," *MDPI Entropy*, Vol. 20, No. 10, 751.1-23, Sep. 2018.

J-42. J. Li, X.H. Tang, **C. Tian**, "A generic transformation to enable optimal repair in MDS codes for distributed storage systems, " *IEEE Trans. Inform. Theory*, Vol. 64, No. 9 pp. 6257-6267, Sep. 2018.

J-41. **C. Tian**, "Symmetry, outer bounds, and code constructions: A computer-aided investigation on the fundamental limits of caching," *MDPI Entropy*, Vol. 20, No. 8, 603.1-43, Aug. 2018.

J-40. K. Zhang and **C. Tian**, "Fundamental limits of coded caching: From uncoded prefetching to coded prefetching, " *IEEE Journal on Selected Areas in Communications*, Vol. 36, No. 6, pp. 1153-1164, Jun. 2018.

J-39. K. Zhang and **C. Tian**, "On the symmetry reduction of information inequalities, " *IEEE Trans. Communications*, Vol. 66, No. 6, pp. 2396-2408, Jun. 2018.

J-38. **C. Tian** and J. Chen, "Caching and delivery via inference elimination, " *IEEE Trans. Inform. Theory*, Vol. 64, No. 3, pp. 1548-1560, Mar. 2018.

J-37. S. Shao, T. Liu, **C. Tian**, and C. Shen, "On the tradeoff region of secure exact-repair regenerating codes ," *IEEE Trans. Inform. Theory*, Vol. 63, No. 11, pp. 7253-7266, Nov. 2017.

J-36. **C. Tian**, J. Chen, S. Diggavi, and S. Shamai, "Matched multiuser Gaussian source-channel communications via uncoded schemes," *IEEE Trans. Inform. Theory*, Vol. 63, No. 7, pp. 4155-4171, Jul. 2017.

J-35. **C. Tian** and T. Liu, "Multilevel diversity coding with regeneration," *IEEE Trans. Inform. Theory*, Vol. 62, No. 9, pp. 4833-4847, Sep. 2016.

J-34. **C. Tian**, B. Bandemer, and S. Shamai, "Gaussian state amplification with noisy observations," *IEEE Trans. Inform. Theory*, Vol. 61, No. 9, pp. 4587-4597, Sep. 2015.

J-33. L. Song, J. Chen, and **C. Tian**, "Broadcasting correlated vector Gaussians," *IEEE Trans. Inform. Theory*, Vol. 61, No. 5, pp. 2465-2477, May 2015.

J-32. **C. Tian**, B. Sasidharan, V. Aggarwal, P. Vijay Kumar, and V. Vaishampayan, "Layered exact-repair regenerating codes via embedded erasure correction and block designs," *IEEE Trans. Inform. Theory*, Vol. 61, No. 4, pp. 1933-1947, Apr. 2015.

J-31. Q. Shi, L. Song, **C. Tian**, J. Chen, and S. Dumitrescu,"Polar codes for multiple descriptions," *IEEE Trans. Inform. Theory*, Vol. 61, No. 1, pp. 107-119, Jan. 2015.

J-30. **C. Tian**, "Characterizing the rate region of the (4,3,3) exact-repair regenerating codes," *IEEE Journal on Selected Areas in Communications–Communication Methodologies for the Next-Generation Storage Systems*, Vol. 32, No. 5, 967-975, May 2014.

J-29. **C. Tian**, J. Chen, S. N. Diggavi, and S. Shamai, "Optimality and approximate optimality of source-channel separation in networks," *IEEE Trans. Inform. Theory*, Vol. 60, No. 2, pp. 904-918, Feb. 2014.

J-28. J. W. Yoo, T. Liu, S. Shamai, and **C. Tian**, "Worst-case expected-capacity loss of slow-fading channels," *IEEE Trans. Inform. Theory*, Vol. 59, No. 6, pp. 3764-3779, Jun. 2013.

J-27. **C. Tian** and S. Krishnan, "Accelerated bilateral filtering with block skipping," *IEEE Signal Processing Letters*, Vol. 20, No. 5, pp. 419-422, May 2013.

J-26. E. Hof, I. Sason, S. Shamai, and **C. Tian**, "Capacity-achieving polar codes for arbitrarily-permuted parallel channels," *IEEE Trans. Inform. Theory*, Vol. 59, No. 3, pp. 1505 -1516, Mar. 2013.

J-25. C. T. K. Ng, **C. Tian**, A. Goldsmith, and S. Shamai, "Distortion minimization in Gaussian source coding with fading side-information channel," *IEEE Trans. Inform. Theory*, Vol. 58, No. 9, pp. 5725-5739, Sep. 2012.

J-24. **C. Tian**, S. N. Diggavi, and S. Shamai, "The achievable distortion region of sending a bivariate Gaussian source on the Gaussian broadcast channel," *IEEE Trans. Inform. Theory*, Vol. 57, No. 10, pp. 6419-6427, Oct. 2011.

J-23. **C. Tian**, "Latent capacity region: a case study on symmetric broadcast with common messages," *IEEE Trans. Inform. Theory*, Vol. 57, No. 6, pp. 3273-3285, Jun. 2011.

J-22. **C. Tian**, S. N. Diggavi, and S. Shamai, "Approximate characterizations for the Gaussian source broadcast distortion region," *IEEE Trans. Inform. Theory*, Vol. 57, No. 1, pp. 124-136, Jan. 2011.

J-21. U. Samarawickrama, J. Liang, and **C. Tian**, "A three-layer scheme for M-channel multiple description image coding," *Signal Processing (Elsevier)*, Vol. 91, No. 10, pp. 2277-2289, Oct. 2011.

J-20. **C. Tian** and J. Chen, "New coding schemes for the symmetric K-description problem," *IEEE Trans. Inform. Theory*, Vol. 56, No. 10, pp. 5344-5365, Oct. 2010.

J-19. S. Mohajer, **C. Tian**, and S. N. Diggavi, "Asymmetric multilevel diversity coding and asymmetric multiple descriptions," *IEEE Trans. Inform. Theory*, Vol. 56, No. 9, pp. 4367-4387, Sep. 2010.

J-18. U. Samarawickrama, J. Liang, and **C. Tian**, "M-channel multiple description coding with two-rate predictive coding and staggered quantization," *IEEE Trans. Circuits and Systems for Video Technology,* Vol. 20, No. 7, pp. 933-944, Jul. 2010.

J-17. Y. Li, **C. Tian**, S. N. Diggavi, M. Chiang, and R. Calderbank, "Network resource allocation for competing multiple description transmissions," *IEEE Trans. Communications,* Vol. 58, No. 5, pp. 1493-1504, May 2010.

J-16. Z. Sun, **C. Tian**, J. Chen, and K. M. Wong, "LDPC code design for asynchronous Slepian-Wolf coding," *IEEE Trans. Communications*, Vol. 58, No. 2, pp. 511-520, Feb. 2010.

J-15. **C. Tian** and J. Chen, "Remote vector Gaussian source coding with decoder side information under mutual information and distortion constraints," *IEEE Trans. Inform. Theory*, Vol. 55, No. 10, pp. 4676-4680, Oct. 2009.

J-14. **C. Tian**, S. Mohajer, and S. N. Diggavi, "Approximating the Gaussian multiple description rate region under symmetric distortion constraints," *IEEE Trans. Inform. Theory*, Vol. 55, No. 8, pp. 3869-3891, Aug. 2009.

J-13. J. Chen, **C. Tian**, and S. N. Diggavi, "Multiple description coding for stationary Gaussian sources," *IEEE Trans. Inform. Theory*, Vol. 55, No. 6, pp. 2868-2881, Jun. 2009.

J-12. G. Sun, U. Samarawickrama, J. Liang, **C. Tian**, C. Tu, and T. D. Tran, "Multiple description coding with prediction compensation," *IEEE Trans. Image Processing,* Vol. 18, No. 5, pp. 1037-1047, May 2009.

J-11. **C. Tian**, V. Vaishampayan, and N. J. A. Sloane, "A coding algorithm for constant weight vectors: a geometric approach based on dissections," *IEEE Trans. Inform. Theory*, Vol. 55, No. 3, pp. 1051-1060, Mar. 2009.

J-10. **C. Tian**, M. Masry, and H. Lipson, "Physical sketching: reconstruction and analysis of 3D objects from freehand sketches," *Journal of Computer Aided Design, Special Issue on Computer Support for Conceptual Design*, Vol. 41, No. 3, pp. 147-158, Mar. 2009.

J-09. **C. Tian** and S. N. Diggavi, "Side-information scalable source coding," *IEEE Trans. Inform. Theory*, Vol. 54, No. 12, pp. 5591-5608, Dec. 2008.

J-08. **C. Tian** and J. Chen, "Successive refinement for hypothesis testing and lossless one-helper problem,", *IEEE Trans. Inform. Theory*, Vol. 54, No. 10, pp. 4666-4681, Oct. 2008.

J-07. **C. Tian**, A. Steiner, S. Shamai, and S. N. Diggavi, "Successive refinement via broadcast: optimizing expected distortion of a Gaussian source over a Gaussian fading channel," *IEEE Trans. Inform. Theory*, Vol. 54, No. 7, pp. 2903-2918, Jul. 2008.

J-06. **C. Tian**, J. Chen, and S. N. Diggavi, "Multiuser successive refinement and multiple description coding," IEEE Trans. Inform. Theory, Vol. 54, No. 2, pp. 921-931, Feb. 2008.

J-05. **C. Tian** and S. N. Diggavi, "On multistage successive refinement for Wyner-Ziv source coding with degraded side information," *IEEE Trans. Inform. Theory* ,Vol. 53, No. 8, pp. 2946-2960, Aug. 2007.

J-04. J. Chen and **C. Tian**, "Multiple description quantization via Gram-Schmidt orthogonalization," *IEEE Trans. Inform. Theory*, Vol. 52, No. 12, pp. 5197-5217, Dec. 2006.

J-03. **C. Tian** and S. S. Hemami, "A new class of multiple description scalar quantizers and its application to image coding," *IEEE Signal Processing Letters*, Vol 12, No. 4, pp. 329-332, Apr. 2005.

J-02. **C. Tian** and S. S. Hemami, "Optimality and sub-optimality of multiple description vector quantization with a lattice codebook," *IEEE Trans. Inform. Theory*, Vol. 50, No. 10, pp. 2458-2468, Oct. 2004.

J-01. **C. Tian** and S. S. Hemami, "Universal multiple description scalar quantization: analysis and design," *IEEE Trans. Inform. Theory*, Vol. 50, No. 9, pp. 2089-2102, Sep. 2004.

PATENTS

P-1. N. J. A. Sloane, C. Tian, and V. Vaishampayan, "Encoding of data into constant weight codes." U.S. Patent No. 7587641, Sep. 2009.

P-2. C. Tian and J. Chen, "Quantization splitting multiple description encoder." U.S. Patent No. 7944388, May 2011.

P-3. C. Tian, V. Vaishampayan, and Y. Zhang, "Apparatus and method for providing three dimensional media content." US Patent No. 8,428,342, May 2013; US Patent No. 8,977,038, Mar. 2015; US Patent No. 9,153,018, Oct. 2015; US Patent No. 9,674,506, Jun. 2017.

P-4. C. Tian, "Method and apparatus for improving transmission of data on a bandwidth mismatched channel." US Patent No. 8,774,308, Jul. 2014; US Patent No. 9,356,627, May 2016.

P-5. C. Tian, "Method and apparatus for improving transmission of data on a bandwidth expanded channel." US Patent No. 8,781,023, Jul. 2014; US Patent No. 9,356,629, May 2016.

P-6. C. Tian and S. Krishnan "System and method of bilateral image filtering." U.S. Patent No. 8737735, May 2014.

P-7. A. Reibman, K. Shirley, and C. Tian, "Method and apparatus for generating quality estimations." US Patent No. 9008427, Apr. 2015; US Patent No. 9,521,443, Dec. 2016.

P-8. C. Tian and S. Krishnan "System and method for image filtering." U.S. Patent No. 9111336, Aug. 2015; US Patent No. 9,514,520, Dec. 2016.

P-9. C. Tian, "Distributed storage of data." US Patent No. 9,575,846, Feb. 2017; US Patent No. 9,952,952, Apr. 2018.

CONFERENCE PUBLICATIONS

Year 2025

1. W.-Y. Zhao, H.-Y. Chen, T. Liu, R. Tuo, and C. Tian, "From deep additive kernel learning to last-layer Bayesian neural networks via induced prior approximation," 2025 International Conference on Artificial Intelligence and Statistics (AISTATS) (acceptance rate: 31.3%).

Year 2024

1. R. Zhou, C. Tian, and S. Diggavi, "Transformers learn variable-order Markov chains in-context," Neurips 2024 Workshop on Compression and Machine Learning, Dec. 2024
2. M. Zeid, S. Majumder, H. Ibrahim, P. Enjeti, L. Xie, C. Tian, "Predicting DC-link capacitor current ripple in AC-DC rectifier circuits using fine-tuned large language models," Annual Conference of IEEE Industrial Electronics Society 2024 (IECON), Dec. 2024.
3. M. Fan, R. Zhou, C. Tian, X. Qian, "Path-guided particle-based sampling," Forty-first International Conference on Machine Learning (ICML 2024), Vienna, Austria, Jul. 2024 (acceptance rate: 27.5%).
4. Y.-S Huang, W.-Y. Zhao, R-D. Zhou, and C. Tian, "Weakly private information retrieval from heterogeneously trusted servers," IEEE Int. Symp. Information Theory (ISIT), Athens, Greece, Jul. 2024.
5. R-D. Zhou and C. Tian, "Staggered quantizers for perfect perceptual quality: A connection between quantizers with common randomness and without," IEEE Workshop on Learning to Compress @ ISIT 2024, Athens, Greece, Jul. 2024.
6. Y. You, R. Zhou, J. Park, H. Xu, C. Tian, Z.Wang, and Y. Shen, "Latent 3D graph diffusion," 2024 International Conference on Learning Representations (ICLR), Vienna, Austria, Jul. 2024 (acceptance rate: 31%).
7. M. Cheng, R. Zhou, C. Tian, and P. R. Kumar, "Provable policy gradient methods for average-reward Markov potential games," 2024 International Conference on Artificial Intelligence and Statistics (AISTATS), Valencia, Spain, May 2024 (acceptance rate: 27.6%).
8. A. Menati, Y.-T Cai, R. E. Helou, C. Tian, and L. Xie, "Optimization of cryptocurrency mining demand for ancillary services in electricity markets," 57th Hawaii International Conference on System Sciences, Jan. 2024.

Year 2023

1. R. Zhou, T. Liu, M. Cheng, D. Kalathil, P.R. Kumar, C. Tian, "Natural actor-critic for robust reinforcement learning with function approximation," NeurIPS 2023, Dec. 2023 (acceptance rate: 26.1%).
2. L. Fan, R. Zhou, C. Tian, and C. Shen, "Federated linear bandits with finite adversarial actions," NeurIPS 2023, Dec. 2023 (acceptance rate: 26.1%).
3. R.-D. Zhou, C. Tian, and T. Liu, "Exactly tight information-theoretic generalization error bound for the quadratic Gaussian problem," IEEE Int. Symp. Information Theory (ISIT), Taipei, Jun. 2023.

Year 2022

1. R. Zhou, T. Liu, D. Kalathil, P.R. Kumar, C. Tian, "Anchor-changing regularized natural policy gradient for multi-objective reinforcement learning," NeurIPS 2022, Dec. 2022 (acceptance rate: 25.6%).
2. W.-J. Chen and C. Tian, "A new approach to compute information theoretic outer bounds and its application to regenerating codes," IEEE Int. Symp. Information Theory (ISIT), Espoo, Finland, Jun. 2022.
3. C.-Y. Qian, R.-D. Zhou, C. Tian, and T. Liu, "Improved weakly private information retrieval codes," IEEE Int. Symp. Information Theory (ISIT), Espoo, Finland, Jun. 2022.
4. R.-D. Zhou, C. Tian, and T. Liu, "Stochastic chaining and strengthened information-theoretic generalization bounds," IEEE Int. Symp. Information Theory (ISIT), Espoo, Finland, Jun. 2022.
5. R. Zhou and C. Tian, "Approximate top-m arm identification with heterogeneous reward variances," AISTATS 2022, Mar. 2022 (acceptance rate: 29.2%).

Year 2021

1. R.-D. Zhou, C. Tian, and T. Liu, "Individually conditional individual mutual information bound on generalization error," IEEE Int. Symp. Information Theory (ISIT), Melbourne, Victoria, Australia, Jun. 2021.
2. R.-D. Zhou, C. Tian, H. Sun, J.S. Plank, "Two-level private information retrieval", IEEE Int. Symp. Information Theory (ISIT), Melbourne, Victoria, Australia, Jun. 2021.
3. T. Liu, R.-D. Zhou, D. Kalathil, P.R. Kumar, C. Tian, "Learning policies with zero or bounded constraint violation for constrained MDPs," Thirty-fifth Annual Conference on Neural Information Processing Systems (NeurIPS-2021), Dec. 2021 (acceptance rate: 26%).

Year 2020

1. T. Guo, R.-D. Zhou, C. Tian, "On the Information Leakage in Private Information Retrieval Systems," IEEE Int. Symp. Information Theory (ISIT), Los Angeles CA, Jun. 2020.
2. C. Tian, "On the storage cost of private information retrieval", IEEE Int. Symp. Information Theory (ISIT), Los Angeles CA, Jun. 2020.
3. W.-J. Chen, R.-D. Zhou, C. Tian, and C. Shen, "On top-k selection from m-wise partial rankings via Borda counting," IEEE Int. Symp. Information Theory (ISIT), Los Angeles CA, Jun. 2020.
4. R.-D. Zhou, T. Guo, and C. Tian, "Weakly private information retrieval under the maximal leakage metric," IEEE Int. Symp. Information Theory (ISIT), Los Angeles CA, Jun. 2020.

Year 2019

1. T.-L. Zhou and C. Tian, "Fast erasure coding for data storage: A comprehensive study of the acceleration techniques," 17th USENIX Conference on File and Storage Technologies (FAST'19), Boston MA, Feb. 2019 (acceptance rate: 18%).
2. C. Tian, H. Sun, and J. Chen, "Capacity-achieving private information retrieval codes with optimal message size and upload cost," 2019 IEEE International Conference on Communications (ICC'19), Shanghai China, May 2019.
3. R.-D. Zhou, C. Tian, T. Liu, and H. Sun, "Capacity-achieving private information retrieval codes from MDS-coded databases with minimum message size," 2019 IEEE International Symposium on Information Theory (ISIT'19), Paris France, Jul. 2019.
4. S. Shao, J. Gomez-Vilardebo, K. Zhang, and C. Tian, "On the fundamental limit of coded caching systems with a single demand type," 2019 IEEE Information Theory Workshop (ITW'19), Visby, Gotland, Sweden, Aug. 2019.
5. T. Guo, C. Tian, T. Liu, and R. Yeung, "Weakly secure symmetric multilevel diversity coding," (invited) 2019 IEEE Information Theory Workshop (ITW'19), Visby, Gotland, Sweden, Aug. 2019.

Year 2018

1. C. Tian, H. Sun, and J. Chen, "A Shannon-theoretic approach to the storage-retrieval tradeoff in PIR systems," IEEE Int. Symp. Information Theory (ISIT), Vail CO, Jun. 2018.
2. K. Zhang, C. Tian, "From uncoded prefetching to coded prefetching in coded caching systems," IEEE Int. Symp. Information Theory (ISIT), Vail CO, Jun. 2018.
3. S. Mousavi, T.-L. Zhou, and C. Tian, "Delayed parity generation in MDS storage codes," IEEE Int. Symp. Information Theory (ISIT), Vail CO, Jun. 2018.
4. S. Shao, T. Liu, C. Tian, and C. Shen, "New results on multilevel diversity coding with secure regeneration," IEEE Int. Symp. Information Theory (ISIT), Vail CO, Jun. 2018.
5. J. Li, X. Tang, C. Tian, "An alternative generic transformation for optimal repair bandwidth and rebuilding access in MDS codes," IEEE Int. Symp. Information Theory (ISIT), Vail CO, Jun. 2018.
6. Y.-W. Fan, H. Li, and C. Tian, "A stochastic framework of millimeter wave signal for mobile users: experiment, modeling and application in beam tracking," 11th Global Symposium on Millimeter Waves, Boulder Colorado, May. 2018.

Year 2017

1. J. Li, X.H. Tang, and C. Tian, "A generic transformation for optimal repair bandwidth and rebuilding access in MDS codes," IEEE Int. Symp. Information Theory (ISIT), Aachen Germany, Jun. 2017.
2. C. Tian, "A computer-aided investigation on the fundamental limits of caching," IEEE Int. Symp. Information Theory (ISIT), Aachen Germany, Jun. 2017.
3. S. Shao, T. Liu, and C. Tian, "On the tradeoff region of secure exact-repair regenerating codes," IEEE Int. Symp. Information Theory (ISIT), Aachen Germany, Jun. 2017.
4. K. Zhang, C. Tian, and H. Li, "Coded prefetching and efficient delivery in decentralized caching systems (invited)," 2017 IEEE 18th International Workshop on Signal Processing Advances in Wireless Communications (SPAWC), Sapporo Japan, Jul. 2017.

Year 2016

1. S. Shao, T. Liu, and C. Tian, "Multilevel diversity coding with regeneration: Separate coding achieves the MBR point," 50th Conference on Information Sciences and Systems (CISS), Princeton NJ, Mar. 2016.
2. C. Tian, "Symmetry, demand types and outer bounds in caching systems," IEEE Int. Symp. Information Theory (ISIT), Barcelona Spain, Jul. 2016.
3. C. Tian and J. Chen, "Caching and delivery via interference elimination," IEEE Int. Symp. Information Theory (ISIT), Barcelona Spain, Jul. 2016.
4. J. Chen, A. Salimi, T. Liu, and C. Tian, "Orbit-Entropy cones and extremal pairwise orbit-entropy inequalities," IEEE Int. Symp. Information Theory (ISIT), Barcelona Spain, Jul. 2016.
5. J. Chen, H. Ye, C. Tian, T. Liu, and Z. Xiao, "Cyclically symmetric entropy inequalities," IEEE Int. Symp. Information Theory (ISIT), Barcelona Spain, Jul. 2016.
6. Y.-W. Fan, H. Li, and C. Tian, "Selective sampling based efficient classifier representation in distributed learning," IEEE Globecom, Washington DC, Dec. 2016.

Year 2015

1. C. Tian, "On the fundamental limits of coded caching and exact-repair regenerating codes," 2015 IEEE International Symposium on Network Coding (NetCod), Sydney Australia, Jul. 2015, pp. 56-60.
2. C. Tian and T. Liu, "Multilevel diversity coding with regeneration," IEEE Int. Symp. Information Theory (ISIT), Hong Kong, Jun. 2015.

3. C. Tian, J. Chen, S. Diggavi, and S. Shamai, "Matched multiuser Gaussian source-channel communications via uncoded schemes," IEEE Int. Symp. Information Theory (ISIT), Hong Kong, Jun. 2015.

Year 2014

1. C. Tian, "A C library of repair-efficient erasure codes for distributed data storage systems," 2014 IEEE International Conference on BigData (IEEE BigData), Washington DC, Oct. 2014, pp. 21-26.
2. C. Tian, "Repair-efficient distributed storage codes with heterogeneous reliability requirements," 2014 52nd Annual Allerton Conference on Communication, Control, and Computing, Sep. 2014, Monticello IL.
3. Q. Shi, L. Song, C. Tian, J. Chen, and S. Dumitrescu, "Polar codes for multiple descriptions," 2014 IEEE International Symposium on Information Theory (ISIT), Honolulu HI, Jun. 2014.
4. V. Aggarwal, C. Tian, V. A. Vaishampayan, and Y. F. R. Chen, "Distributed data storage systems with opportunistic repair," 2014 Proceedings IEEE INFOCOM, Apr. 2014, Toronto, Canada (acceptance rate: 19.7%).

Year 2013

1. A. R. Reibman, K. Shirley, and C. Tian, "A probabilistic pairwise-preference predictor for image quality," IEEE International Conference on Image Processing (ICIP), Sep. 2013, Melbourne, Australia.
2. Y.-F. Chen, S. Daniels, M. Hadjieleftheriou, P. Liu, C. Tian, and V. Vaishampayan, "Distributed storage evaluation on a three-wide inter-data center deployment," Workshops in 2013 IEEE International Conference on BigData (IEEE BigData), Santa Clara CA, Oct. 2013.
3. B. Bandemer, C. Tian, and S. Shamai, "Gaussian state amplification with noisy state observations," Proceedings of 2013 IEEE International Symposium on Information Theory (ISIT), Istanbul Turkey, Jul. 2013, pp. 181-185.
4. C. Tian, V. Aggarwal, and V. A. Vaishampayan, "Exact-repair regenerating codes via layered erasure correction and block designs," Proceedings of 2013 IEEE International Symposium on Information Theory (ISIT), Istanbul Turkey, Jul. 2013, pp. 1431-1435.
5. C. Tian, "Rate region of the (4, 3, 3) exact-repair regenerating codes," Proceedings of 2013 IEEE International Symposium on Information Theory (ISIT), Istanbul Turkey, Jul. 2013, pp. 1426-1430.

Year 2012

1. C. Tian, "Amplification of the hidden Gaussian channel states," IEEE International Symposium on Information Theory (ISIT) 2012, Boston, MA, Jul. 2012.
2. L. Song, J. Chen, and C. Tian, "Broadcast correlated Gaussians: the vector-scalar case," IEEE International Symposium on Information Theory (ISIT) 2012, Boston, MA, Jul. 2012.
3. L. Yang, C. Tian, V. Vaishampayan, and A. Reibman, "An automatic grid corner extration technique for camera calibration," IEEE International Conference on Image Processing (ICIP) 2012, Orlando, FL, Sep.-Oct., 2012.

Year 2011

1. C. Tian, V. Vaishampayan, and Y. Zhang, "Upsampling range camera depth maps using high-resolution vision camera and pixel-level confidence classification," IS&T/SPIE's International Symposium on Electronic Imaging–Stereoscopic Displays and Applications XXII, San Francisco, CA, Jan. 2011.
2. C. Tian and S. Shamai, "Sending Gaussian source on bandwidth-mismatched Gaussian channel with improved robustness," IEEE International Conference on Communications (ICC) 2011, Kyoto, Japan, Jun. 2011.

3. C. Tian, "Inequalities for entropies of sets of subsets of random variables," IEEE International Symposium on Information Theory (ISIT) 2011, Petersburg, Russia, Aug. 2011.
4. V. Vaishampayan, C. Tian, and M. Feuer, "On the capacity of a hybrid broadcast multiple access system for WDM networks," IEEE International Symposium on Information Theory (ISIT) 2011, Petersburg, Russia, Aug. 2011.

Year 2010

1. S. Mohajer, C. Tian, and S. Diggavi, "On source transmission over deterministic networks,"(invited) IEEE Information Theory Workshop (ITW), Cairo, Egypt, Jan. 2010.
2. C. Tian, J. Chen, S. Diggavi, and S. Shamai, "Optimality and approximate optimality of source-channel separation in networks," IEEE International Symposium on Information Theory (ISIT), Austin, TX, Jun. 2010.
3. C. Tian, S. Diggavi, and S. Shamai, "The achievable distortion region of bivariate Gaussian source on Gaussian broadcast channel," IEEE International Symposium on Information Theory (ISIT), Austin, TX, Jun. 2010.
4. C. Tian, J. Chen, S. Diggavi, and S. Shamai, "On source-channel separation in networks,"(invited) International Conference on Signal Processing and Communications (SPCOM), Bangalore, India, Jul. 2010.
5. U. Samarawickrama, J. Liang, and C. Tian, "A three-layer algorithm for M-channel multiple description image coding," IEEE International Conference on Image Processing (ICIP), Hongkong, China, Sep. 2010.

Year 2009

1. C. Tian and J. Chen, "Quantization splitting for symmetric K-channel multiple descriptions," IEEE Information Theory Workshop (ITW), Volos, Greece, Jun. 2009.
2. C. Tian, S. Diggavi, and S. Shamai, "Approximate characterizations for the Gaussian broadcasting distortion region," IEEE International Symposium on Information Theory (ISIT), Seoul, Korea, Jul. 2009.
3. C. Tian, "Latent capacity region: a case study on symmetric broadcast with common messages," IEEE International Symposium on Information Theory (ISIT), Seoul, Korea, Jul. 2009.
4. Z. Sun, C. Tian, J. Chen, and Kon Max Wong, "Asynchronous Slepian-Wolf code design," IEEE International Symposium on Information Theory (ISIT), Seoul, Korea, Jul. 2009.
5. J. Chen and C. Tian, "Capacity region of reversely degraded Gaussian MIMO broadcast channel," IEEE Globecom 2009, Honolulu, HI, Nov.-Dec. 2009.

Year 2008

1. Y. Li, C. Tian, S. Diggavi, M. Chiang, and A. R. Calderbank, "Network resource allocation for competing multiple description transmissions," IEEE Globecom 2008, New Orleans, LA, Dec. 2008.
2. C. Tian, S. Mohajer, and S. Diggavi, "Approximating the Gaussian multiple description rate region under symmetric distortion constraints," 2008 IEEE International Symposium on Information Theory (ISIT), Toronto, Canada, Jul. 2008.
3. C. Tian and J. Chen, "A novel coding scheme for symmetric multiple description coding," 2008 IEEE International Symposium on Information Theory (ISIT), Toronto, Canada, Jul. 2008.
4. C. Tian and S. Shamai, "A unified coding scheme for hybrid transmission of Gaussian source over Gaussian channel," 2008 IEEE International Symposium on Information Theory (ISIT), Toronto, Canada, Jul. 2008.

5. S. Mohajer, C. Tian, and S. Diggavi, "Asymmetric Gaussian multiple descriptions and asymmetric multilevel diversity coding," 2008 IEEE International Symposium on Information Theory (ISIT), Toronto, Canada, Jul. 2008.
6. C. Tian, S. Mohajer, and S. Diggavi, "On the Gaussian K-description problem under symmetric distortion constraints,"(invited) Information Theory and Applications Workshop (ITA), UCSD, Jan. 2008.
7. C. Tian, S. Mohajer, and S. Diggavi, "On the symmetric Gaussian multiple description rate-distortion function," IEEE Data Compression Conference (DCC), Snowbird, Utah, Mar. 2008.
8. S. Mohajer, C. Tian, and S. Diggavi, "Asymmetric multi-level diversity coding," IEEE Data Compression Conference (DCC), Snowbird, Utah, Mar. 2008.

Year 2007

1. C. Ng, C. Tian, A. Goldsmith, and S. Shamai, "Minimum expected distortion in Gaussian source coding with uncertain side information," IEEE Information Theory Workshop (ITW), Lake Tahoe, CA, Sep. 2007.
2. C. Tian, A. Steiner, S. Shamai, and S. Diggavi, "Expected distortion for Gaussian source with a broadcast transmission strategy over a fading channel," IEEE Information Theory Workshop (ITW) on Wireless Networks, Bergen, Norway, Jul. 2007.
3. C. Tian and S. Diggavi, "On scalable source coding with decoder side informations," IEEE International Symposium on Information Theory (ISIT), Nice, France, Jun. 2007.
4. C. Tian and J. Chen, "Hypothesis testing under successive refinement communication constraint," IEEE International Symposium on Information Theory (ISIT), Nice, France, Jun. 2007.
5. J. Chen, C. Tian, and S. Diggavi, "Multiple description coding for stationary sources," IEEE Data Compression Conference (DCC), Snowbird, Utah, Mar. 2007.

Year 2006

1. C. Tian, J. Chen and S. Diggavi, "Multiuser successive refinement and multiple description coding," IEEE Information Theory Workshop (ITW), Chengdu China, Oct. 2006.
2. C. Tian and S. Diggavi, "A calculation of the Heegard-Berger rate-distortion function for a binary source," IEEE Information Theory Workshop (ITW), Chengdu China, Oct. 2006.
3. D. Vasudevan, C. Tian, and S. Diggavi, "Lossy source coding for a cascade communication system with side informations," Allerton conference, UIUC, Sep. 2006.
4. C. Tian and S. Diggavi, "Multistage successive refinement for Wyner-Ziv source coding with degraded side informations," IEEE International Symposium on Information Theory (ISIT), Seattle WA, Jul. 2006.
5. C. Tian and S. Hemami, "Visually optimized multiple description image coding," IEEE International Conference on on Acoustics, Speech, and Signal Processing (ICASSP), Toulouse France, May 2006.
6. C. Tian and S. Diggavi, "On scalable source coding for multiple decoders with side information,"(invited) UCSD ITA Center Inaugural Workshop, San Diego CA, Feb. 2006.

Year 2005

1. J. Chen, C. Tian, T. Berger, and S. Hemami, "A new class of universal multiple description lattice quantizers," IEEE International Symposium on Information Theory (ISIT), Adelaide, Australia, Sep. 2005.
2. C. Tian, V. Vaishampayan, and N.J.A. Sloane, "Constant weight codes: a geometric approach," IEEE International Symposium on Information Theory (ISIT), Adelaide, Australia, Sep. 2005.
3. C. Tian and S. Hemami, "Staggered lattices in multiple description quantization," IEEE Data Compression Conference (DCC), Snowbird, Utah, Mar. 2005.

Year 2004

1. C. Tian and S. Hemami, "An embedded image coding system based on tarp filter with classification," IEEE International Conference on on Acoustics, Speech, and Signal Processing (ICASSP), Montreal, Quebec, Canada , May 2004.
2. C. Tian and S. Hemami, "A special class of multiple description scalar quantizers," IEEE Information Theory Workshop (ITW), San Antonio TX, Oct. 2004.
3. C. Tian and S. Hemami, "Sequential design of multiple description scalar quantizers," IEEE Data Compression Conference (DCC), Snowbird, Utah, Mar. 2004.

Year 2003

1. C. Tian and S. Hemami, "Universal multiple description scalar quantization: analysis and design," IEEE Data Compression Conference (DCC), Snowbird, Utah, March 2003.
2. C. Tian and S. Hemami, "On the asymptotic analysis of multiple description scalar quantization," Conference on Information Sciences and Systems(CISS), Baltimore, MD, Mar. 2003.

SERVICES AND MEMBERSHIP

Editorship:

- Associate Editor for the IEEE Signal Processing Letters: 2012-2014
- Editor for IEEE Transaction on Communications: 2016-2021
- Guest Editor for Science China–Special Issue on Distributed Storage Coding: 2018
- Guest Editor for Entropy–Special Issue on Information and Coding for Distributed Storage: 2018-2019
- Associate Editor for IEEE Transaction on Information Theory: 2020-2023
- Guest Editor for IEEE Journal on Selected Areas in Information Theory (JSAIT)- Special Issue on Distributed Coding and Computation, 2021-2022
- Guest Editor for IEEE Journal on Selected Areas in Communications (JSAC)- Special Issue on Private Information Retrieval, Private Coded Computing over Distributed Servers, and Privacy in Distributed Learning, 2021
- Guest Editor for Entropy–Special Issue on Information Theory and Machine Learning: 2020-2022
- Associate Editor for IEEE BITS Magazine: 2024-present

General Co-chairs:

- 2024 IEEE Information Theory Workshop

Technical Program Committee Member:

- ChinaCom-08
- IEEE 2012 International Symposium on Network Coding
- NVMW-2014 (Non-Volatile Memories Workshop)
- 2015, 2016, 2017 IEEE BIGDATA Conference-Workshop on Distributed Storage
- 2018 IEEE Information Theory Workshop
- 2019 16th Canadian Workshop on Information Theory
- 2019 IEEE Information Theory Workshop Special Session Organizer
- IEEE International Symposium on Information Theory 2015, 2020, 2021
- 20th USENIX Conference on File and Storage Technologies (FAST '22)
- 2019, 2022 Globecom SAC Symposium

- 2022 CCDWN Workshop
- 2021-2023 IEEE International Conference on Communications SAC Symposium
- 2024 AAAI Conference

IEEE Senior Member

Outreach Efforts:

- Led HITES-11 high school student summer projects in 2015 and 2017.
- Short 3-day course on "Machine learning techniques in power systems", for industrial researchers and leaders; Mar. 2024, College Station TX.

Service on External Ph.D. Thesis Committee

- Candidate Congduan Li; Drexel, Philadelphia PA; Thesis advisor: Dr. John M. Walsh, Oral Thesis Proposal Exam: Oct. 2014, and Oral Thesis Defense: Jun. 2015.
- Candidate Jayant Apte; Drexel, Philadelphia PA; Thesis advisor: Dr. John M. Walsh, Oral Thesis Proposal Exam: Jun. 2015, and Oral Thesis Defense: Aug. 2016.
- Candidate Toni Ernvall; University of Turku, Finland; Thesis advisor: Dr. Camilla Hollanti; Ph.D. Thesis examiner, Jan. 2015.
- Candidate Adel Zahedi; Aalborg University, Denmark; Thesis advisor: Dr. Jan Ostergaard; Ph.D. Thesis defense opponent, Jul. 2016.
- Candidate Fangwei Ye, Chinese University of Hongkong; Thesis Advisor: Raymond Yeung, Oral Thesis Proposal Defense: Jul. 2018.
- Mahdi Haghifam, University of Toronto: Thesis Advisor: Daniel Roy, Oral Thesis Proposal Defense: Aug. 2023

Service on Internal Ph.D. Thesis Committee

- Ph.D Thesis Defense: Xiaodong Wang, EECS Department, UTK; Advisor: Dr. Husheng Li, May 2016.
- Ph.D. Qualifying Exam: Mustafa Sadiq Al-Jumaily, EECS Department, UTK; Advisor: Dr. Wei Gao, May 2016.
- Ph.D. Qualifying Exam: Zi Wang, EECS Department, UTK; Advisor: Dr. Husheng Li, Jun. 2016.
- Ph.D. Qualifying Exam: Chengcheng Li, EECS Department, UTK; Thesis advisor: Hairong Qi, Aug. 2106
- Ph.D. Thesis Defense: Daojing Guo, ECE Department TAMU; PHD in CEEN; Thesis advisor: Dr. I-Hong Hou, Oct. 2021
- Ph.D. Thesis Defense: Fatemeh Kazemikordasiabi, ECE Department TAMU; PHD in CEEN; Thesis advisor: Dr. Alex Sprintson, Nov. 2021
- Ph.D. Prelim Exam: Pengchang Pi, ECE Department TAMU; PHD in ECEN; Thesis advisor: Dr. Zixiang Xiong, Nov. 2021
- Ph.D. Thesis Defense: Hanyue Li, ECE Department TAMU; PHD in ECEN; Thesis advisor: Dr. Thomas Overbye, Jun. 2021
- Ph.D. Thesis Defense: Mykyta Makovenko, ISE Department TAMU; PHD in ISE; Thesis advisor: Dr. Sergiy I Butenko, May 2022
- Ph.D. Prelim Exam: Ningze Wang, ECEN Department TAMU; PHD in CE; Thesis advisor: Alex Sprintson, Dec. 2022
- Ph.D. Prelim Exam: Siqi Fan, ECEN Department TAMU; PHD in CE; Thesis advisor: Ihong Hou, Apr. 2023

- Ph.D. Thesis Defense: Yehor Blokhin, ISE Department TAMU; PHD in ISE; Thesis advisor: Dr. Sergiy I Butenko, Nov. 2023
- Ph.D. Prelim Exam: Zhiyong Fang, CSE Department TAMU; PHD in CSE; Thesis advisor: Yupeng Zhang, Mar. 2024
- Ph.D. Defense: Sirui Ding, CSE Department TAMU; PHD in CSE; Thesis advisor: Ben Hu, Feb. 2024

Journal Reviewer:

- IEEE Trans. on Inform. Theory, IEEE Trans. on Signal Processing, IEEE Trans. on Circuit and Systems for Video Technology, IEEE Trans. on Image Processing, IEEE Signal Processing Letters, ACM Trans. on Multimedia computing, communications and applications, IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Trans. on Computers.

Internal Services:

- ISS group seminar series organizer, Texas A&M University: Fall 2017, Spring 2018, Fall 2018.
- Department seminar series organizer, Texas A&M University: Fall 2019, Spring 2020, Fall 2020.
- Department seminar committee chair, Texas A&M University: Fall 2019, Spring 2020.
- Department seminar committee member, Texas A&M University: Fall 2020 Spring 2021.
- ECEN graduate study committee member, Texas A&M University: Fall 2017, Spring 2018
- ECEN recruiting committee member, Texas A&M University: Fall 2018, Spring 2019
- CoE cybersecurity recruiting committee member, Texas A&M University: Fall 2018, Spring 2019
- ECEN internal award committee member, Texas A&M University: Fall 2021
- ECEN ISLS group leader, Texas A&M University: 2021-2022
- ECEN graduate study committee member, Texas A&M University: 2022-2023
- ECEN undergraduate outreach committee member, Texas A&M University: 2022-2023
- ECEN graduate study committee member, Texas A&M University: 2023-2024
- ECEN hiring committee member, Texas A&M University: 2023-2024
- ECEN ISLS group leader, Texas A&M University: 2023-2024

Other Services:

- Invited Session Orgainizer: IEEE Information Theory Workshop 2019 Sweden.
- Award Committee Co-Chair (2018): 2016-17 IEEE Data Storage Best Paper Award Committee.
- Award Committee Member (2016): 2015 IEEE Data Storage Best Paper Award Committee.
- Panelist: "Academia or Industry", Round Table Session at IEEE ISIT, Jul. 2016.
- Panelist: "Future of Information Theory Research", Workshop on Core and Frontier of Information Theory, University of Science and Technology of China, Jun. 2016.
- Panelist: "Retrospect and Prospect on Information Theory Research", Southwest Jiaotong University, Chengdu, China, Jun. 2016.
- Panelist: "Future of Bigdata in wireless communications", Workshop on Bigdata in Wireless Communications, University of Science and Technology of China, Jul. 2018.
- Panelist: "Future of information theory research", Workshop on Learning and Information Theory, Shenzhen TBSI, Jul. 2023.
- IEEE Information Theory Society College Station Chapter Chair: 2022-
- Award Committee member (2023-2024): IEEE Information Theory Society Paper Award Committee.
- Conference Committee member (2024-): IEEE Information Theory Society Conference Committee

- IEEE Information Theory Society Secretary 2025-