

Salim El Rouayheb

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USA

WORK & EXPERIENCE

Rutgers University
Associate Professor July 2020 - Present

Rutgers University
Assistant Professor September 2017 - July 2020

Illinois Institute of Technology
Assistant Professor August 2013 - August 2017

Princeton University
Associate Research Scholar January 2012 - July 2013

University of California, Berkeley
Postdoctoral Fellow September 2009 - December 2011

EDUCATION

Texas A&M University, College Station
Ph.D., Electrical and Computer Engineering, August 2009

American University of Beirut
M.S., Electrical and Computer Engineering, August 2004

Lebanese University
Diploma, Electrical Engineering, August 2002

AWARDS & HONORS

- ◇ **IEEE Information Theory Society**, Certificate in Recognition of Exemplary Service in the role of Newsletter Editor (2018-2020).
- ◇ **Rutgers University Walter Tyson Junior Faculty Chair**, 2019.
- ◇ **Google Faculty Research Award**, 2017.
- ◇ **NSF Faculty Early Career Development Program (CAREER)**, 2017.

ON-GOING RESEARCH GRANTS

1. **NSF Resilient & Intelligent NextG Systems (RINGS)**: *Walk For Resiliency Privacy: A Random Walk Framework for Learning at the Edge*, PI S. El Rouayheb collaboration with PI H. Seferoglu (UIC) and Co-PI E. Koyuncu (UIC); 1/1/22 to 12/31/24.
2. **Army Research Lab**: *Machine Learning Algorithms and Optimizations for Resource-Constrained Tactical Edge*, Co-PI S. El Rouayheb, Collaboration with PI H. Seferoglu (UIC) and Co-PI E. Koyuncu (UIC); 8/13/2021 to 8/12/2024.
3. **NSF SaTC**: Medium: *Secure Distributed Coded Computations for IoT: An Information Theoretic and Network Approach*, PI S. El Rouayheb collaboration with Y. Chen (Rutgers) and H. Seferoglu (UIC); 7/15/2018 to 6/30/2023.
4. **NSF CAREER**: *Information Theoretic Methods for Private Information Retrieval and Search in Distributed Storage Systems*, PI El Rouayheb; 1/1/2017 to 28/2/2023.

DISTINGUISHED
SPEAKER

- ◇ Keynote speaker at the IEEE International Workshop on Privacy and Security for Information Systems (WPS) 2020, France.
- ◇ Tutorial *Private Information Retrieval: Old and New*, with S. ulukus and E. Yaakobi, at the International Symposium on Information Theory (ISIT), 2019, France.
- ◇ Speaker at the NSF Computer and Information Science and Engineering (CISE) CAREER Workshop, DC, 2018.

PUBLICATIONS **Published Journal Papers**

1. F. Ye, H. Cho and **S. El Rouayheb**, “Mechanisms for Hiding Sensitive Genotypes with Information-Theoretic Privacy”, accepted to Transactions on Information Theory, February 2022.
2. C. Naim, R. G. L. D’Oliveira, and **S. El Rouayheb**, “Private Multi-Group Aggregation”, IEEE Journal on Selected Areas in Communications, Vol. 40, No. 3, March 2022.
3. F. Ye and **S. El Rouayheb**, “Intermittent Private Information Retrieval with Application to Location Privacy”, *IEEE Journal on Selected Areas in Communications*, Vol. 40, No. 3, March 2022.
4. F. Ye, C. Naim, and **S. El Rouayheb**, “ON-OFF Privacy in the Presence of Correlation”, *IEEE Transactions on Information Theory*, Vol. 67, No. 11, November 2021.
5. R.G.L D’Oliveira, **S. El Rouayheb**, D. Heinlein, D. Karpuk, “Degree Tables for Secure Distributed Matrix Multiplication”, *IEEE Journal on Selected Areas in Information Theory*, Vol. 2, No. 3, September 2021.
6. P. Kairouz, H. B. McMahan, B. Avent, A. Bellet, M. Bennis, A. N. Bhagoji, K. Bonawitz, Z. Charles, G. Cormode, R. Cummings, R. G.L. D’Oliveira, H. Eichner, **S. El Rouayheb**, D. Evans, J. Gardner, Z. Garrett, A. Gascón, B. Ghazi, P. B. Gibbons, M. Gruteser, Z. Harchaoui, C. He, L. He, Z. Huo, B. Hutchinson, J. Hsu, M. Jaggi, T. Javidi, G. Joshi, M. Khodak, J. Konecny, A. Korolova, F. Koushanfar, S. Koyejo, T. Lepoint, Y. Liu, P. Mittal, M. Mohri, R. Nock, A. Ozgur, R. Pagh, M. Raykova, H. Qi, D. Ramage, R. Raskar, D. Song, W. Song, S. U. Stich, Z. Sun, A. T. Suresh, F. Tramèr, P. Vepakomma, J. Wang, L. Xiong, Z. Xu, Q. Yang, F. X. Yu, H. Yu, S. Zhao, “Advances and Open Problems in Federated Learning”, *Foundations and Trends in Machine Learning*, Vol. 14, No. 1, July 2021.
7. R. Bitar, Y. Xing, Y. Keshtkarjahromi, V. Dasari, **S. El Rouayheb**, and H. Seferoglu, “Private and Rateless Adaptive Coded Matrix-Vector Multiplication”, *EURASIP Journal on Wireless Communications and Networking*, January 2021.
8. G. Ayache and **S. El Rouayheb**, “Private Weighted Random Walk Stochastic Gradient Descent”, *IEEE Journal on Selected Areas in Information Theory*, Vol. 2, No. 1, January 2021.
9. F. Ye, C. Naim and **S. El Rouayheb**, “ON-OFF Privacy Against Correlation Over Time”, *IEEE Transactions on Information Forensics and Security*, Vol. 16, January 2021.
10. S. Kas Hanna and **S. El Rouayheb**, “Codes for Correcting Localized Deletions”, *IEEE Transactions on Information Theory*, Vol. 67, No. 4, January 2021

11. R. Bitar, P. Parag, and **S. El Rouayheb**, “Minimizing Latency for Secure Coded Computing Using Secret Sharing via Staircase Codes”, *IEEE Transactions on Communications*, Vol. 68, No. 8, August 2020.
12. R.G.L. D’Oliveira, **S. El Rouayheb**, D. Karpuk, “GASP Codes for Secure Distributed Matrix Multiplication”, *IEEE Transactions on Information Theory*, Vol. 66, No. 7, July 2020.
13. R. Bitar, M. Wootters, and **S. El Rouayheb**, “Stochastic Gradient Coding for Straggler Mitigation in Distributed Learning”, *IEEE Journal on Selected Areas in Information Theory*, Vol. 1, No. 1, May 2020
14. R.G.L. D’Oliveira and **S. El Rouayheb**, “One-Shot PIR: Refinement and Lifting”, *IEEE Transactions on Information Theory*, Vol. 66, No. 4, April 2020.
15. S. Kadhe, B. Garcia, A. Heidarzadeh, **S. El Rouayheb** and A. Sprintson, “Private Information Retrieval with Side Information”, *IEEE Transactions on Information Theory*, Vol. 66, No. 4, April 2020.
16. S. Kadhe, **S. El Rouayheb**, I. Duursma and A. Sprintson, “Codes with Locality in the Rank and Subspace Metrics”, *IEEE Transactions on Information Theory*, Vol. 65, No. 9, September 2019.
17. S. Kas Hanna and **S. El Rouayheb**, “Guess & Check Codes for Deletions, Insertions, and Synchronization”, *IEEE Transactions on Information Theory*, Vol. 65, No. 1, January 2019.
18. R. Tajeddine, O. Gnilke and **S. El Rouayheb**, “Private Information Retrieval from MDS Coded Data in Distributed Storage Systems”, *IEEE Transactions on Information Theory*, Vol. 64, No. 11, November 2018.
19. R. Bitar and **S. El Rouayheb**, “Staircase Codes for Secret Sharing with Optimal Communication and Read Overheads”, *IEEE Transactions on Information Theory*, Vol. 64, No. 2, July 2017.
20. N. Milosavljevic, S. Pawar, **S. El Rouayheb**, M. Gastpar and K. Ramchandran, “Efficient Algorithms for the Data Exchange Problem”, *IEEE Transactions on Information Theory*, Vol. 62, No. 4, February 2016.
21. **S. El Rouayheb**, S. Goparaju, H. M. Kiah and O. Milenkovic, “Synchronization and Deduplication in Coded Distributed Storage Networks”, *IEEE/ACM Transactions on Networking*, No. 99, December 2015.
22. M. Effros, **S. El Rouayheb** and M. Langberg, “An Equivalence between Network Coding and Index Coding”, *IEEE Transactions on Information Theory*, Vol. 61, No. 5, May 2015.
23. T. Ernvall, **S. El Rouayheb**, C. Hollanti and H.V. Poor, “Capacity and Security of Heterogeneous Distributed Storage Systems”, *IEEE journal on Selected Areas in Communications*, Vol. 31, No.12, December 2013.
24. **S. El Rouayheb**, E. Soljanin and A. Sprintson, “Secure Network Coding for Wiretap Networks of Type II”, *IEEE Transactions on Information Theory*, Vol. 56, No. 9, March 2012.
25. S. Pawar, **S. El Rouayheb** and K. Ramchandran, “Securing Dynamic Distributed Storage Systems against Eavesdropping and Adversarial Attacks”, *Transactions on Information Theory*, Vol. 57, No. 9, September 2011.

26. **S. El Rouayheb**, A. Sprintson and C. N. Georghiades, “Robust Network Codes for Unicast Connections: A Case Study”, *IEEE/ACM Transactions on Networking*, Vol. 19, No. 3, June 2011.
27. **S. El Rouayheb**, A. Sprintson and C. N. Georghiades, “On the Index Coding Problem and its Relation to Network Coding and Matroid Theory”, *IEEE Transactions on Information Theory*, Vol. 56, No. 7, July 2010.

Preprints/submitted/Under Review

1. A. Severinson, E. Rosnes, **S. El Rouayheb**, and A. Graell i Amat, “DSAG: A mixed synchronous-asynchronous iterative method for straggler-resilient learning”, 2021.

Book Chapters

1. **S. El Rouayheb**, S. Goparaju and K. Ramchandran, “Security in Distributed Storage Systems”, book chapter in “Information Theoretic Security and Privacy of Information Systems”, Cambridge University Press, 2017.
2. **S. El Rouayheb**, and C. N. Georghiades, “Graph-Theoretic Methods in Coding Theory”, book chapter in “Classical, Semi-classical and Quantum Noise”, Springer, 1st Edition, October 2012.

Conferences

1. R. A. Machado, R. G. L. D’Oliveira, **S. El Rouayheb**, and D. Heinlein, “Field Trace Polynomial Codes for Secure Distributed Matrix Multiplication”, *XVII International Symposium Problems of Redundancy in Information and Control Systems*, 2021.
2. C. Naim, R. G. L. D’Oliveira, and **S. El Rouayheb**, “Private Multi-Group Aggregation”, *IEEE International Symposium on Information Theory (ISIT)*, 2021.
3. Y. Yang, R. G. L. D’Oliveira, **S. El Rouayheb**, X. Yang, H. Seferoglu, and Y. Chen, “Secure Coded Computation for Efficient Distributed Learning in Mobile IoT”, *IEEE International Conference on Sensing, Communication and Networking (SECON)*, 2021.
4. F. Ye, H. Cho and **S. El Rouayheb**, “Mechanisms For Hiding Sensitive Genotypes With Information-Theoretic Privacy”, *IEEE International Symposium on Information Theory (ISIT)*, 2020.
5. R.G.L. D’Oliveira, **S. El Rouayheb**, D. Heinlein and D. Karpuk, “Notes on Communication and Computation in Secure Distributed Matrix Multiplication”, *IEEE International Workshop on Privacy and Security for Information Systems (WPS)*, 2020.
6. S. Kas Hanna, R. Bitar, P. Parag, V. Dasari and **S. El Rouayheb**, “Adaptive Distributed Stochastic Gradient Descent for Minimizing Delay in the Presence of Stragglers”, *45th International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2020.
7. G. Ayache and **S. El Rouayheb**, “Random Walk Gradient Descent for Decentralized Learning on Graphs”, *IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW)*, 2019.
8. Y. Keshtkarjahromi, R. Bitar, V. Dasari, **S. El Rouayheb**, and H. Seferoglu, “Secure Coded Cooperative Computation at the Heterogeneous Edge against Byzantine Attacks”, *IEEE Global Communication Conference (GLOBECOM)*, Waikoloa, December 2019.

9. R.G.L D'Oliveira, **S. El Rouayheb**, D. Heinlein, D. Karpuk, "Degree Tables for Secure Distributed Matrix Multiplication", *Information Theory Workshop (ITW)*, August 2019.
10. F. Ye, C. Naim, **S. El Rouayheb**, "Preserving ON-OFF Privacy for Past and Future Requests", *Information Theory Workshop (ITW)*, August 2019.
11. R. Bitar, M. Wootters, **S. El Rouayheb**, "Stochastic Gradient Coding for Flexible Straggler Mitigation in Distributed Learning", *Information Theory Workshop (ITW)*, August 2019.
12. S. Kas Hanna, **S. El Rouayheb**, "List Decoding of Deletions Using Guess & Check Codes", *IEEE International Symposium on Information Theory (ISIT)*, August 2019.
13. R.G.L. D'Oliveira, **S. El Rouayheb**, D. Karpuk, "GASP Codes for Secure Distributed Matrix Multiplication", *IEEE International Symposium on Information Theory (ISIT)*, July 2019.
14. A. Heidarzadeh, S. Kadhe, **S. El Rouayheb**, A. Sprintson, "Single-Server Multi-Message Individually-Private Information Retrieval with Side Information", *IEEE International Symposium on Information Theory (ISIT)*, July 2019.
15. C. Naim, F. Ye, **S. El Rouayheb**, "ON-OFF Privacy with Correlated Requests", *IEEE International Symposium on Information Theory (ISIT)*, July 2019.
16. G. Ayache, S. El Rouayheb, Random Walk Gradient Descent for Decentralized Learning on Graphs, *IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW)*, May 2019.
17. R. Bitar, Y. Xing, Y. Keshtkarjahromi, V. Dasari, **S. El Rouayheb**, and H. Seferoglu, "PRAC: Private and Rateless Adaptive Coded Computation at the Edge", *SPIE Defense + Commercial Sensing*, April 2019.
18. R. Bitar and **S. El Rouayheb**, "Staircase-PIR: Universally Robust Private Information Retrieval", *Information Theory Workshop (ITW)*, November 2018.
19. R.G.L. D'Oliveira and **S. El Rouayheb**, "Lifting Private Information Retrieval from Two to any Number of Messages", *IEEE International Symposium on Information Theory (ISIT)*, 2018.
20. R.G.L. D'Oliveira, **S. El Rouayheb**, and M. Medard, "The Computational Wiretap Channel", *56th Annual Allerton Conference on Communication, Control, and Computing*, October 2018.
21. S. Kas Hanna and **S. El Rouayheb**, "Correcting Bursty and Localized Deletions Using Guess & Check Codes", *55th Annual Allerton Conference on Communication, Control, and Computing*, October 2017.
22. S. Kadhe, B. Garcia, A. Heidarzadeh, **S. El Rouayheb** and A. Sprintson, "Private Information Retrieval with Side Information: the Single Server Case", *55th Annual Allerton Conference on Communication, Control, and Computing*, October 2017.
23. S. Kas Hanna and **S. El Rouayheb**, "Guess & Check Codes for Deletions and Synchronization", *IEEE International Symposium on Information Theory (ISIT)*, 2017.
24. R. Tajeddine, O. Gnille, D. Karpuk, C. Hollanti and **S. El Rouayheb**, "Private Information Retrieval Schemes for Coded Data with Arbitrary Collusion Patterns", *IEEE International Symposium on Information Theory (ISIT)*, 2017.

25. R. Tajeddine, and **S. El Rouayheb**, “Robust Private Information Retrieval on Coded Data”, *IEEE International Symposium on Information Theory (ISIT)*, 2017.
26. R. Bitar, P. Parag and **S. El Rouayheb**, “Minimizing Latency for Secure Distributed Computing”, *IEEE International Symposium on Information Theory (ISIT)*, 2017.
27. S. Kadhe, **S. El Rouayheb**, I. Duursma and A. Sprintson, “Rank-Metric Codes with Local Recoverability”, *54th Annual Allerton Conference on Communication, Control, and Computing*, September, 2016.
28. R. Tajeddine and **S. El Rouayheb**, “Private Information Retrieval from MDS Coded Data”, *IEEE International Symposium on Information Theory (ISIT)*, Barcelona, July 2016.
29. R. Bitar and **S. El Rouayheb**, “Staircase Codes for Secret Sharing”, *IEEE International Symposium on Information Theory (ISIT)*, Barcelona, July 2016.
30. S. Goparaju, **S. El Rouayheb** and R. Calderbank, “Can linear minimum storage regenerating codes be universally secure?”, *49th Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, California, November 2015.
31. X. Huang and **S. El Rouayheb**, “Index Coding and Network Coding via Rank Minimization”, *IEEE Information Theory Workshop (ITW)*, Korea, October 2015.
32. **S. El Rouayheb**, S. Goparaju, H. M. Kiah and O. Milenkovic, “Synchronizing Edits in Distributed Storage Networks”, *IEEE International Symposium on Information Theory (ISIT)*, Hong Kong, June 2015.
33. R. Bitar and **S. El Rouayheb**, “Securing data against Limited-Knowledge Adversaries in Distributed Storage Systems”, *IEEE International Symposium on Information Theory (ISIT)*, Hong Kong, June 2015.
34. S. Goparaju, **S. El Rouayheb** and R. Calderbank, “New Codes and Inner Bounds for Exact Repair in Distributed Storage Systems”, *IEEE International Symposium on Information Theory (ISIT)*, Honolulu, Hawaii, July 2014.
35. S. Goparaju, **S. El Rouayheb**, R. Calderbank and H. Vincent Poor, “Data Secrecy in Distributed Storage Systems under Exact Repair”, *IEEE International Symposium on Network Coding (Netcod)*, Calgary, Canada, July 2013.
36. M. Effros, **S. El Rouayheb**, M. Langberg, “An Equivalence between Network Coding and Index Coding”, *IEEE International Symposium on Information Theory (ISIT)*, Istanbul, Turkey, July 2013.
37. T. Ernvall, **S. El Rouayheb**, C. Hollanti and H. Vincent Poor, “Capacity and Security of Heterogeneous Distributed Storage Systems”, *IEEE International Symposium on Information Theory (ISIT)*, Istanbul, Turkey, July 2013.
38. N. Milosavljevic, S. Pawar, **S. El Rouayheb**, M. Gastpar and K. Ramchandran, “Data Exchange Problem with Helpers”, *IEEE International Symposium on Information Theory (ISIT)*, Boston, Massachusetts, July 2012.
39. S. Pawar, **S. El Rouayheb**, H. Zhang, K. Lee and K. Ramchandran, “Codes for a Distributed Caching Based Video-On-Demand System”, *Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, November 2011.
40. S. Pawar, N. Noorshams, **S. El Rouayheb** and K. Ramchandran, “DRESS Codes for the Storage Cloud: Simple Randomized Constructions”, *IEEE International Symposium on Information Theory (ISIT)*, St Petersburg, Russia, August 2011.

41. S. Pawar, **S. El Rouayheb** and K. Ramchandran, “Securing Dynamic Distributed Storage Systems from Malicious Nodes”, *IEEE International Symposium on Information Theory (ISIT)*, St Petersburg, Russia, August 2011.
42. N. Milosavljevic, S. Pawar, **S. El Rouayheb**, M. Gastpar and K. Ramchandran, “Deterministic algorithm for the cooperative data exchange problem”, *IEEE International Symposium on Information Theory (ISIT)*, St Petersburg, Russia, August 2011.
43. **S. El Rouayheb** and K. Ramchandran, “Fractional Repetition Codes for Repair in Distributed Storage Systems”, *48th Annual Allerton Conference on Communication, Control and Computation*, Monticello, September 2010.
44. S. Pawar, **S. El Rouayheb** and K. Ramchandran, “On Secure Distributed Data Storage Under Repair Dynamics”, *IEEE International Symposium on Information Theory (ISIT)*, Austin, Texas, July 2010.
45. **S. El Rouayheb**, V. Prabhakaran and K. Ramchandran, “Secure Distributed Storage of Decentralized Source Data, Can Interaction Help?”, *IEEE International Symposium on Information Theory (ISIT)*, Austin, Texas, July 2010.
46. **S. El Rouayheb**, P. Sadeghi and A. Sprintson, “A Randomized Algorithm and Performance Bounds for Coded Cooperative Data Exchange”, *IEEE International Symposium on Information Theory (ISIT)*, Austin, Texas, July 2010.
47. A. Sprintson, P. Sadeghi, and **S. El Rouayheb** “Deterministic Algorithm for Coded Cooperative Data Exchange”, *IEEE Information Theory Workshop (ITW)*, Cairo, Egypt, January 2010.
48. **S. El Rouayheb**, A. Sprintson and P. Sadeghi, “On Coding for Cooperative Data Exchange”, *IEEE Information Theory Workshop (ITW)*, Cairo, Egypt, January 2010.
49. **S. El Rouayheb**, A. Sprintson and C. Georghiades, “A New Construction Method for Networks from Matroids”, *IEEE International Symposium on Information Theory (ISIT)*, Seoul, Korea, July 2009.
50. **S. El Rouayheb**, A. Sprintson and C. Georghiades, “Efficient Network Coding Algorithm for Dynamic Networks”, *IEEE International Workshop on Wireless Network Coding*, Rome, Italy, June 2009.
51. **S. El Rouayheb**, M. A. R. Chaudhry and A. Sprintson, “On the Minimum Number of Transmissions in Single-Hop Wireless Coding Networks”, *IEEE Information Theory Workshop*, Lake Tahoe, California, September 2007.
52. **S. El Rouayheb**, A. Sprintson and C. Georghiades, “On the Relation Between the Index Coding and the Network Coding Problems”, *IEEE International Symposium on Information Theory (ISIT)*, Toronto, Canada, July 2008.
53. **S. El Rouayheb**, C. N. Georghiades, E. Slobjanin and A. Sprintson, “Bounds on Codes Based on Graph Theory”, *IEEE International Symposium on Information Theory (ISIT)*, Nice, France, June 2007.
54. **S. El Rouayheb** and E. Soljanin, “On Wiretap Networks II”, *IEEE International Symposium on Information Theory (ISIT)*, Nice, France, June 2007.
55. A. Sprintson, **S. El Rouayheb** and C. Georghiades, “Robust Network Coding for Bidirected Networks”, *USCD Workshop on Information Theory and its Applications*, San Diego, California, February 2007 (Invited paper)

56. **S. El Rouayheb**, C. N. Georghiades and A. Sprintson, “Network Coding in Minimal Multicast Networks”, *IEEE Information Theory Workshop (ITW)*, Punta del Este, Uruguay, March 2006.
57. **S. El Rouayheb**, A. Sprintson and C. Georghiades, “Simple Network Codes for Instantaneous Recovery from Edge Failures in Unicast Connections”, *USCD Workshop on Information Theory and its Applications*, San Diego, California, February 2006 (Invited paper).

- INVITED TALKS
- ◇ “How to Turn Privacy ON and OFF and ON Again”, Google Workshop on Federated Learning and Analytics, November 2021.
 - ◇ “ON/OFF Privacy and Genomic Data”, CY Advanced studies, January 2021.
 - ◇ “GASP Codes for Secure Distributed Matrix Multiplication”, Technical University of Munich, November 2020.
 - ◇ “ON/OFF Privacy: How to Turn Privacy ON and OFF and ON Again”, ETIS-ICI, November 2020.
 - ◇ “How to Distribute the Multiplication of Secret Matrices?”, Joint Math Meetings, January 2020.
 - ◇ “How to Distribute the Multiplication of Secret Matrices?”, Harvard, September 2019.
 - ◇ “Secure Distributed Matrix Multiplication”, *Google Security and Privacy Workshop*, August 2019.
 - ◇ “Single Server PIR: A song of Computation & Information”, *Google Federated Learning Workshop*, June 2019.
 - ◇ “Codes for Secure distributed Matrix Multiplication”, *King’s College London and Imperial College*, May 2019.
 - ◇ “GASP Codes for Secure Distributed Matrix Multiplication”, *Information Theory and Applications Workshop (ITA)*, February 2019.
 - ◇ “GASP Codes for Secure Distributed Matrix Multiplication”, *Dagstuhl Seminar on Coding Theory for Storage, Networks, and Security*, December 2018.
 - ◇ “PIR in the Time of Collusions”, *Google NYC*, November 2018.
 - ◇ “The Curious Case of Single-Server Information Theoretic Private Information Retrieval”, *Munich Workshop on Coding and Cryptography*, April 2018.
 - ◇ “My CAREER,” CISE CAREER Workshop, April 2018.
 - ◇ “Private Information Retrieval in the Time of Collusions”, *Ecole Polytechnique Federale De Lausanne (EPFL)*, March 2018.
 - ◇ “Private Information Retrieval in the Time of Collusions”, *Technical University of Berlin*, December 2017.
 - ◇ “Correcting Bursty and Localized Deletions Using Guess & Check Codes”, 55th Annual Allerton Conference on Communication, Control, and Computing, October 2017.
 - ◇ “Private Information Retrieval with Side Information: the Single Server case”, 55th Annual Allerton Conference on Communication, Control, and Computing, October 2017.

- ◇ “Index Coding and Caching in Wireless Networks”, *10th Huawei University Day event*, Chicago, IL, August 2017.
- ◇ “Private Information Retrieval in Distributed Storage Systems”, *Information Theory and Coding Theory with Applications to Data Security and Privacy workshop*, Stockholm, May 2017.
- ◇ “Private Information Retrieval from MDS Coded Data”, *Private Information Retrieval, Distributed Storage, Network Coding Workshop*, London, July 2016.
- ◇ “Secret Sharing in Distributed Storage Systems”, *Nexus of Information and Computation Theories*, Paris, February 2016.
- ◇ “Index Coding Algorithms for Constructing Network Codes”, *DIMACS Workshop on Network Coding: The Next 15 Years*, New Jersey, December 2015.
- ◇ “How to Store a Secret”, *DIMACS Workshop on Coding Theoretic Methods for Network Security*, New Jersey, April 2015.
- ◇ “Index Coding via Convex Optimization”, *Banff Workshop on Information Theory and Combinatorics*, Banff, March 2015.
- ◇ “Synchronization and Deduplication of Coded Data in Distributed Storage Systems”, *Information Theory and Applications Workshop*, San Diego, February 2015.
- ◇ “Index Coding, Network Coding and Related Combinatorial Problems”, *UIUC Comm Seminar*, Urbana-Champaign, March 2015.
- ◇ “The Equivalence between index coding and network coding and other combinatorial problems,” *University of Illinois at Urbana-Champaign*, Urbana-Champaign March 2014.
- ◇ “New Regenerating Code Constructions for Exact Repair in Distributed Storage Systems”, *Information Theory and Applications Workshop*, San Diego, February 2014.
- ◇ “Network Coding for Data Exchange”, *Banff Workshop on Network Coding*, Banff, September 2013.
- ◇ “Codes for Distributed Data Storage”, *Dagstuhl Seminar on Coding Theory*, Wadern, August 2013.
- ◇ “Data Security in Heterogeneous Distributed Storage Systems”, *Information Theory and Applications Workshop*, San Diego, February 2013.
- ◇ “The Equivalence between index coding and network coding and other combinatorial problems,” *University of Illinois at Chicago*, Chicago, October 2013.

TEACHING
EXPERIENCE

Rutgers University

- ◇ ECE 345: Linear Signals and Systems Fall 2020, 2021
- ◇ ECE 548: Error Control Coding Spring 2020, 2022
- ◇ ECE 542: Information Theory and Coding Spring 2021
- ◇ ECE 312: Discrete Mathematics Spring 2013, 2018, 2019
- ◇ ECE 541: Stochastic Signals and Systems Fall 2018, Fall 2019

Illinois Institute of Technology

- ◇ ECE 511: Probability and Random Processes Fall 2013, 2014, 2015, 2016
- ◇ ECE 520: Information Theory and Applications Spring 2015
- ◇ ECE 516: Coding for Distributed Storage Systems Spring 2014

PROFESSIONAL SERVICE **Editor**

- Editor of the IEEE Information Theory Newsletter (2018-2020).
- Guest Editor, EURASIP Journal on Wireless Communications and Networking special issue on Physical Layer Security Solutions for 5G-and-Beyond.

Technical Program Chair / Conference Organization

- Workshop on Riding with AI towards Mission-Critical Communications and Computing at the Edge (AIMCOM²), ICNP 2020
- International Workshop on Distributed Storage Systems and Coding for Big Data, 2017, 2018
- Information Theory and Coding Theory with Applications to Data Security and Privacy, Institut Mittag Leffler, Stockholm, May 2017
- IEEE GLOBECOM NetCod 2016, Washington DC, December 2016
- IEEE ITSOC Shannon Centennial Event, Chicago, September 2016
- DIMACS Workshop on Coding Theoretic Methods for Network Security, New Jersey, April 2015

Technical Program Committees

- International Symposium on Information Theory (ISIT 2020, 2021, 2022).
- Information Theory Workshop (ITW 2020, 2021, 2022).
- IEEE International Workshop on Privacy and Security for Information Systems (WPS 2020).
- Information Theory Workshop, Sweden (ITW), 2019
- Latin American Week on Coding and Information Theory (LAWCI), 2018.
- IEEE Wireless Communications and Networking Conference (WCNC), 2018.
- Information Theory Workshop, Guangzhou, China (ITW), 2018
- IEEE Wireless Communications and Networking Conference (WCNC), 2017
- 4th Int'l Workshop on Distributed Storage Systems and Coding for Big Data, 2016
- IEEE International Symposium on Information Theory (ISIT), 2015
- IEEE Communication Theory Workshop (CTW), 2015
- DIMACS Workshop on Coding-Theoretic Methods for Network Security, 2015
- 52nd Annual Allerton Conference on Communication, Control, and Computing, 2014
- IEEE INFOCOM Workshop on Communication and Networking for Video, 2014
- GlobalSIP Symposium on Cyber-Security and Privacy in Networks, 2013
- 51st Annual Allerton Conference on Communication, Control, and Computing, 2013
- IEEE Int'l Conference on Wireless Communications and Signal Processing, 2013
- IEEE Workshop on Network Coding and Applications (NetCod), 2013
- IEEE Workshop on Network Coding and Applications (NetCod), 2012
- International Workshop on Network Science for Communication Networks, 2011

Organized Sessions

- Poster session co-chair at the 2019 North American School of Information Theory, June 2019.
- “Index Coding, Caching and Distributed Storage” session at IEEE Communication Theory Workshop (CTW 2015), May 2015.

- “Bounds and Duality in Network Coding” session at 52nd Annual Allerton Conference on Communication, Control, and Computing, October 2014.

Online Outreach

- **Shannon Channel:** A Youtube channel featuring monthly talks on topics in Information Theory, Security, Privacy and Machine Learning.

Reviewer

IEEE Transactions on Information Theory, IEEE Journal On Selected Areas In Communications, Journal of Communications and Networks, IEEE Communications Letters, IEEE Globecom, International Symposium on Information Theory (ISIT), IEEE Network Coding Workshop (NetCod), IEEE Information Theory Workshop (ITW), IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC), International Conference on Machine Learning (ICML), Conference on Neural Information. Processing Systems (NeurIPS).

Information Theory Student Committee Co-Chair

January 2010 - 2011