Muriel Médard

List of Publications by Year
in descending order

177 papers	2,525 citations	331538 21 h-index	395590 33 g-index
178 all docs	**178** docs citations	**178** times ranked	**1483** citing authors

#	Article	IF	Citations
1	On Delay Performance Gains From Network Coding. , 2006, , .		147
2	On the Delay and Throughput Gains of Coding in Unreliable Networks. IEEE Transactions on Information Theory, 2008, 54, 5511-5524.	1.5	119
3	Byzantine Modification Detection in Multicast Networks With Random Network Coding. IEEE Transactions on Information Theory, 2008, 54, 2798-2803.	1.5	115
4	Capacity-Achieving Guessing Random Additive Noise Decoding. IEEE Transactions on Information Theory, 2019, 65, 4023-4040.	1.5	95
5	On Coding for Delay—Network Coding for Time-Division Duplexing. IEEE Transactions on Information Theory, 2012, 58, 2330-2348.	1.5	57
6	NOC It : A computational method to infer the number of contributors to DNA samples analyzed by STR genotyping. Forensic Science International: Genetics, 2015, 16, 172-180.	1.6	55
7	Bursty transmission and glue pouring: on wireless channels with overhead costs. IEEE Transactions on Wireless Communications, 2008, 7, 5188-5194.	6.1	51
8	Online network coding for optimal throughput and delay - the three-receiver case. , 2008, , .		50
9	Soft Maximum Likelihood Decoding using GRAND. , 2020, , .		50
10	On analyzing and improving COPE performance. , 2010, , .		47
11	Underwater Acoustic Networks: Channel Models and Network Coding Based Lower Bound to Transmission Power for Multicast. IEEE Journal on Selected Areas in Communications, 2008, 26, 1708-1719.	9.7	42
12	A power efficient sensing/communication scheme: Joint source-channel-network coding by using compressive sensing. , 2011, , .		39
13	Coding for Trusted Storage in Untrusted Networks. IEEE Transactions on Information Forensics and Security, 2012, 7, 1890-1899.	4.5	37
14	CEESIt: A computational tool for the interpretation of STR mixtures. Forensic Science International: Genetics, 2016, 22, 149-160.	1.6	37
15	A coded generalization of selective repeat ARQ. , 2015, , .		36
16	Scheduling for Network-Coded Multicast. IEEE/ACM Transactions on Networking, 2012, 20, 1479-1488.	2.6	35
17	Joint Scheduling and Instantaneously Decodable Network Coding. , 2009, , .		34
18	Feedback-Based Online Network Coding. IEEE Transactions on Information Theory, 2017, 63, 6628-6649.	1.5	34

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19	Guessing random additive noise decoding with soft detection symbol reliability information - SGRAND. , 2019, , .		33
20	On the multiple unicast network coding, conjecture. , 2009, , .		32
21	Guessing noise, not code-words. , 2018, , .		30
22	Cross-Layer Design of Rateless Random Network Codes for Delay Optimization. IEEE Transactions on Communications, 2011, 59, 3311-3322.	4.9	29
23	Dynamic Rate Adaptation for Improved Throughput and Delay in Wireless Network Coded Broadcast. IEEE/ACM Transactions on Networking, 2014, 22, 1715-1728.	2.6	29
24	Tunable sparse network coding for multicast networks. , 2014, , .		29
25	Multihop Analog Network Coding via Amplify-and-Forward: The High SNR Regime. IEEE Transactions on Information Theory, 2012, 58, 793-803.	1.5	28
26	Adaptive Causal Network Coding With Feedback. IEEE Transactions on Communications, 2020, 68, 4325-4341.	4.9	28
27	On Network Functional Compression. IEEE Transactions on Information Theory, 2014, 60, 5387-5401.	1.5	27
28	Capacity of Time-Varying Channels With Causal Channel Side Information. IEEE Transactions on Information Theory, 2007, 53, 881-899.	1.5	26
29	Is 5 just what comes after 4?. Nature Electronics, 2020, 3, 2-4.	13.1	26
30	Network Coding-Based Post-Quantum Cryptography. IEEE Journal on Selected Areas in Information Theory, 2021, 2, 49-64.	1.9	26
31	Multi-Code Multi-Rate Universal Maximum Likelihood Decoder using GRAND. , 2021, , .		26
32	Task-Based Quantization for Recovering Quadratic Functions Using Principal Inertia Components. , 2019, , .		25
33	Compressive sensing over networks. , 2010, , .		24
34	Joint coding and scheduling optimization in wireless systems with varying delay sensitivities. , 2012, , .		24
35	Bounds on inference. , 2013, , .		24
36	Wireless Multicast Relay Networks with Limited-Rate Source-Conferencing. IEEE Journal on Selected Areas in Communications, 2013, 31, 1390-1401.	9.7	24

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37	Probabilistic characterisation of baseline noise in STR profiles. Forensic Science International: Genetics, 2015, 19, 107-122.	1.6	22
38	Multi-Path Low Delay Network Codes. , 2016, , .		21
39	5G NR CA-Polar Maximum Likelihood Decoding by GRAND. , 2020, , .		21
40	Guessing Random Additive Noise Decoding With Symbol Reliability Information (SRGRAND). IEEE Transactions on Communications, 2022, 70, 3-18.	4.9	21
41	Keep the bursts and ditch the interleavers. , 2020, , .		21
42	Trusted Storage over Untrusted Networks. , 2010, , .		20
43	Collision Helps - Algebraic Collision Recovery for Wireless Erasure Networks. , 2010, , .		19
44	Scalar-linear solvability of matroidal networks associated with representable matroids. , 2010, , .		18
45	Comparison of analytical and measured performance results on network coding in IEEE 802.11 ad-hoc networks. , 2012, , .		18
46	Experimental study of the interplay of channel and network coding in low power sensor applications. , 2013, , .		18
47	CRC Codes as Error Correction Codes. , 2021, , .		18
48	An Edge Reduction Lemma for linear network coding and an application to two-unicast networks. , 2012, , .		17
49	A Theory of Network Equivalence â€" Part II: Multiterminal Channels. IEEE Transactions on Information Theory, 2014, 60, 3709-3732.	1.5	17
50	Quantifying computational security subject to source constraints, guesswork and inscrutability. , 2015, , .		17
51	A coded shared atomic memory algorithm for message passing architectures. Distributed Computing, 2017, 30, 49-73.	0.7	17
52	Optimal reverse carpooling over wireless networks - a distributed optimization approach. , 2010, , .		16
53	Keep the Bursts and Ditch the Interleavers. IEEE Transactions on Communications, 2022, 70, 3655-3667.	4.9	16
54	Avoiding interruptions - QoE trade-offs in block-coded streaming media applications. , 2010, , .		15

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55	On the Effects of Frequency Scaling Over Capacity Scaling in Underwater Networksâ€"Part II: Dense Network Model. Wireless Personal Communications, 2013, 71, 1701-1719.	1.8	15
56	Guessing a password over a wireless channel (on the effect of noise non-uniformity). , 2013, , .		15
57	Social Television: Enabling Technologies and Architectures. Proceedings of the IEEE, 2012, 100, 1395-1399.	16.4	14
58	Toward sustainable networking: Storage area networks with network coding. , 2012, , .		14
59	A Coded Shared Atomic Memory Algorithm for Message Passing Architectures. , 2014, , .		14
60	Capacities and Optimal Input Distributions for Particle-Intensity Channels. IEEE Transactions on Molecular, Biological, and Multi-Scale Communications, 2020, 6, 220-232.	1.4	14
61	Convergence Study of Decentralized Min-Cost Subgraph Algorithms for Multicast in Coded Networks. IEEE Transactions on Information Theory, 2014, 60, 410-421.	1.5	13
62	Network Coding in the Link Layer for Reliable Narrowband Powerline Communications. IEEE Journal on Selected Areas in Communications, 2016, 34, 1965-1977.	9.7	13
63	Network Infusion to Infer Information Sources in Networks. IEEE Transactions on Network Science and Engineering, 2019, 6, 402-417.	4.1	13
64	Systematic binary deterministic rateless codes. , 2008, , .		12
65	Extending the Birkhoff-von Neumann switching strategy for multicast - On the use of optical splitting in switches. IEEE Journal on Selected Areas in Communications, 2007, 25, 36-50.	9.7	11
66	On Resource Allocation in Fading Multiple-Access Channelsâ€"An Efficient Approximate Projection Approach. IEEE Transactions on Information Theory, 2010, 56, 4417-4437.	1.5	11
67	A converse for the wideband relay channel with physically degraded broadcast. , 2011, , .		11
68	Brute force searching, the typical set and Guesswork. , 2013, , .		11
69	On-the-Fly Overlapping of Sparse Generations: A Tunable Sparse Network Coding Perspective. , 2014, , .		11
70	A geometric perspective on guesswork. , 2015, , .		11
71	Scheduling wireless ad hoc networks in polynomial time using claw-free conflict graphs. , 2017, , .		11
72	Multi-Level Group Testing with Application to One-Shot Pooled COVID-19 Tests. , 2021, , .		11

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73	Multi packet reception and network coding^{†}. , 2010, , .		10
74	Minimum Cost Mirror Sites Using Network Coding: Replication versus Coding at the Source Nodes. IEEE Transactions on Information Theory, 2011, 57, 1080-1091.	1.5	10
75	An exploration of the role of principal inertia components in information theory. , 2014, , .		10
76	File updates under random/arbitrary insertions and deletions. , 2015, , .		10
77	Joint Sampling and Recovery of Correlated Sources. , 2019, , .		10
78	A Characterization of Guesswork on Swiftly Tilting Curves. IEEE Transactions on Information Theory, 2019, 65, 2850-2871.	1.5	10
79	Secure Multi-Source Multicast. IEEE Transactions on Communications, 2019, 67, 708-723.	4.9	10
80	Repeat-Free Codes. IEEE Transactions on Information Theory, 2021, 67, 5749-5764.	1.5	10
81	Practical source-network decoding. , 2009, , .		9
82	On the non-coherent wideband multipath fading relay channel. , 2010, , .		9
83	Optimal relay location and power allocation for low SNR broadcast relay channels. , 2011, , .		9
84	Optimal dedicated protection approach to shared risk link group failures using network coding. , 2012, , .		9
85	Random Linear Network Coding on Programmable Switches. , 2019, , .		9
86	A Novel Method for Scheduling of Wireless Ad Hoc Networks in Polynomial Time. IEEE Transactions on Wireless Communications, 2021, 20, 468-480.	6.1	9
87	Harnessing Partial Packets in Wireless Networks: Throughput and Energy Benefits. IEEE Transactions on Wireless Communications, 2017, 16, 694-704.	6.1	8
88	Post-Quantum Security for Ultra-Reliable Low-Latency Heterogeneous Networks. , 2021, , .		8
89	Localized dimension growth in random network coding: A convolutional approach. , 2011, , .		7
90	Resilient flow decomposition of unicast connections with network coding. , 2014, , .		7

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91	The storage vs repair bandwidth trade-off for multiple failures in clustered storage networks. , 2017, , .		7
92	Efficient Binomial Channel Capacity Computation with an Application to Molecular Communication. , 2018, , .		7
93	Delay-Aware Coding in Multi-Hop Line Networks. , 2019, , .		7
94	Acknowledgement design for collision-recovery-enabled wireless erasure networks. , 2010, , .		6
95	Multi-hop routing is order-optimal in underwater extended networks. , 2010, , .		6
96	On the Effects of Frequency Scaling Over Capacity Scaling in Underwater Networksâ€"Part I: Extended Network Model. Wireless Personal Communications, 2013, 71, 1683-1700.	1.8	6
97	Boolean Functions: Noise Stability, Non-Interactive Correlation, and Mutual Information. , 2018, , .		6
98	Towards secure multiresolution network coding. , 2009, , .		5
99	Access-network association policies for media streaming in heterogeneous environments. , 2010, , .		5
100	Computing bounds on network capacity regions as a polytope reconstruction problem. , 2011, , .		5
101	On the tightness of the generalized network sharing bound for the two-unicast-Z network. , 2013, , .		5
102	Scheduling advantages of network coded storage in point-to-multipoint networks. , 2014, , .		5
103	On the representability of integer polymatroids: Applications in linear code construction. , 2015, , .		5
104	File Updates Under Random/Arbitrary Insertions and Deletions. IEEE Transactions on Information Theory, 2017, 63, 6487-6513.	1.5	5
105	A Random Linear Network Coding Accelerator in a 2.4GHz Transmitter for IoT Applications. IEEE Transactions on Circuits and Systems I: Regular Papers, 2017, 64, 2582-2590.	3.5	5
106	Communication Cost for Updating Linear Functions When Message Updates are Sparse: Connections to Maximally Recoverable Codes. IEEE Transactions on Information Theory, 2018, 64, 7557-7576.	1.5	5
107	Exploiting Parallelism With Random Linear Network Coding in High-Speed Ethernet Systems. IEEE/ACM Transactions on Networking, 2018, 26, 2829-2842.	2.6	5
108	Updating Content in Cache-Aided Coded Multicast. IEEE Journal on Selected Areas in Communications, 2018, 36, 1203-1216.	9.7	5

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109	Multi-Source Coded Downloads. , 2019, , .		5
110	Scheduling for Network Coded Multicast: A Distributed Approach. , 2009, , .		4
111	Bounded-Contention Coding for the additive network model. Distributed Computing, 2015, 28, 297-308.	0.7	4
112	Coding for locality in reconstructing permutations. , 2016, , .		4
113	Alignment-Based Network Coding for Two-Unicast-Z Networks. IEEE Transactions on Information Theory, 2016, 62, 3183-3211.	1.5	4
114	Scalable Capacity Bounding Models for Wireless Networks. IEEE Transactions on Information Theory, 2016, 62, 208-229.	1.5	4
115	On network coded filesystem shim: Over-the-top multipath multi-source made easy. , 2017, , .		4
116	Guesswork subject to a total entropy budget. , 2017, , .		4
117	Discrete Water Filling Multi-Path Packet Scheduling. , 2020, , .		4
118	Neural Network Coding. , 2020, , .		4
119	Graph-Theoretical Dynamic User Pairing for Downlink NOMA Systems. IEEE Communications Letters, 2021, 25, 3234-3238.	2.5	4
120	Rate and power allocation in fading multiple access channels. , 2008, , .		3
121	Dynamic rate allocation in fading multiple access channels. , 2008, , .		3
122	A lower bound to transmission power for multicast in underwater networks using network coding. , 2008, , .		3
123	On Optimizing Low SNR Wireless Networks Using Network Coding. , 2010, , .		3
124	Effects of MAC approaches on non-monotonic saturation with COPE - a simple case study. , 2011, , .		3
125	Speeding Multicast by Acknowledgment Reduction Technique (SMART). , 2011, , .		3
126	On the geometry of wireless network multicast in 2-D. , 2011, , .		3

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127	A signal model for forensic DNA mixtures. , 2014, , .		3
128	Quasi-linear network coding. , 2014, , .		3
129	Mismatched Guesswork and One-to-One Codes. , 2019, , .		3
130	Serial Quantization for Representing Sparse Signals. , 2019, , .		3
131	Adaptive Causal Network Coding with Feedback for Multipath Multi-hop Communications. , 2020, , .		3
132	How to Distribute Computation in Networks. , 2020, , .		3
133	Collision Resolution for Random Access. IEEE Transactions on Wireless Communications, 2022, 21, 3464-3477.	6.1	3
134	On training with feedback in wideband channels. IEEE Journal on Selected Areas in Communications, 2008, 26, 1607-1614.	9.7	2
135	Information theory vs. queueing theory for resource allocation in multiple access channels. , 2008, , .		2
136	Coding and control for communication networks. Queueing Systems, 2009, 63, 195-216.	0.6	2
137	Joint Base-Calling of Two DNA Sequences With Factor Graphs. IEEE Transactions on Information Theory, 2010, 56, 724-733.	1.5	2
138	Information-theoretic limits of dense underwater networks. , 2011, , .		2
139	Reducibility of joint relay positioning and flow optimization problem. , 2012, , .		2
140	Building a network coded storage testbed for data center energy reduction. , 2013, , .		2
141	A recursive coding algorithm for two-unicast-Z networks. , 2014, , .		2
142	Network reduction for coded multiple-hop networks. , 2015, , .		2
143	Efficient compression algorithm for file updates under random insertions and deletions. , 2016, , .		2
144	Enabling Multi-Source Coded Downloads. , 2019, , .		2

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145	Gaussian Intersymbol Interference Channels With Mismatch. IEEE Transactions on Information Theory, 2019, 65, 4499-4517.	1.5	2
146	Double-Zipper: Multiple Access with ZigZag Decoding. , 2020, , .		2
147	Serial Quantization for Sparse Time Sequences. IEEE Transactions on Signal Processing, 2021, 69, 3299-3314.	3.2	2
148	Boolean Functions: Noise Stability, Non-Interactive Correlation Distillation, and Mutual Information. IEEE Transactions on Information Theory, 2021, 67, 778-789.	1.5	2
149	Stream Distributed Coded Computing. IEEE Journal on Selected Areas in Information Theory, 2021, 2, 1025-1040.	1.9	2
150	IGRAND: decode any product code. , 2021, , .		2
151	Stream Iterative Distributed Coded Computing for Learning Applications in Heterogeneous Systems. , 2022, , .		2
152	Empirical rate-distortion study of compressive sensing-based joint source-channel coding. , 2012, , .		1
153	Melting Pad: An Efficiently Decodable Coding Scheme for Information Theoretic Confidentiality. , 2013, , .		1
154	Matched filter decoding of random binary and Gaussian codes in broadband Gaussian channel. , 2013, , .		1
155	Lower bounding models for wireless networks. , 2013, , .		1
156	AdaptCast: An integrated source to transmission scheme for wireless sensor networks. , 2015, , .		1
157	Spatial Soft-Core Caching. , 2019, , .		1
158	Guesswork for Inference in Machine Translation with Seq2seq Model. , 2019, , .		1
159	Wideband Time Frequency Coding. , 2020, , .		1
160	Distributed Quantization for Sparse Time Sequences. , 2020, , .		1
161	Spatial Concentration of Caching in Wireless Heterogeneous Networks. IEEE Transactions on Wireless Communications, 2021, 20, 3397-3414.	6.1	1
162	Throughput and Delay Analysis for Coded ARQ. , 2019, , .		1

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163	On training with feedback in wideband channels. , 2008, , .		0
164	Optimal placement of uncoded memoryless regenerators for OOK signaling. , 2012, , .		0
165	Strategic network coding &#x2014; How much and where to code to obtain most of the benefits. , 2013, , .		0
166	Guest Editorial: In-Network Computation: Exploring the Fundamental Limits. IEEE Journal on Selected Areas in Communications, 2013, 31, 617-619.	9.7	0
167	Cross-layer design of network-coded transmission with a delay constraint. , 2015, , .		0
168	Stormy Clouds - security in distributed cloud systems. , 2015, , .		0
169	LCN 2015 keynote by Prof. Muriel MÃ™dard, professor at MIT, USA. , 2015, , .		0
170	Coded-Seeking: A Simple HDD Speed-Up Concept. IEEE Communications Letters, 2015, 19, 139-142.	2.5	0
171	Network-coding-based multipath transmission in Software defined Fiber-Wireless networks. , 2016, , .		0
172	Optimum HDAF Relay-Assisted Combining Scheme with Relay Decision Information. , 2016, , .		0
173	Coding for locality in reconstructing permutations. Designs, Codes, and Cryptography, 2018, 86, 387-418.	1.0	0
174	Low Influence, Utility, and Independence in Differential Privacy: A Curious Case of (3 2). IEEE Journal on Selected Areas in Information Theory, 2021, 2, 240-252.	1.9	0
175	Function Load Balancing Over Networks. IEEE Journal on Selected Areas in Information Theory, 2021, 2, 1041-1056.	1.9	0
176	Friends in Commentâ€"A Conversation With Regina Barzilay. IEEE BITS the Information Theory Magazine, 2021, 1, 23-24.	1.0	0
177	JSAIT Editorial for the Special Issue on â€œBeyond Errors and Erasures: Coding for Data Management and Delivery in Networksâ€. IEEE Journal on Selected Areas in Information Theory, 2021, 2, 1075-1077.	1.9	0