

# Christoph Studer

## List of Publications by Year in descending order

Source: <https://exaly.com/author-pdf/1892893/publications.pdf>

Version: 2024-02-01

122  
papers

4,894  
citations

201575

27  
h-index

168321

53  
g-index

122  
all docs

122  
docs citations

122  
times ranked

2819  
citing authors

#	ARTICLE	IF	CITATIONS
1	Large-Scale MIMO Detection for 3GPP LTE: Algorithms and FPGA Implementations. IEEE Journal on Selected Topics in Signal Processing, 2014, 8, 916-929.	7.3	329
2	Soft-output sphere decoding: algorithms and VLSI implementation. IEEE Journal on Selected Areas in Communications, 2008, 26, 290-300.	9.7	297
3	Throughput Analysis of Massive MIMO Uplink With Low-Resolution ADCs. IEEE Transactions on Wireless Communications, 2017, 16, 4038-4051.	6.1	280
4	Quantized Precoding for Massive MU-MIMO. IEEE Transactions on Communications, 2017, 65, 4670-4684.	4.9	245
5	ASIC Implementation of Soft-Input Soft-Output MIMO Detection Using MMSE Parallel Interference Cancellation. IEEE Journal of Solid-State Circuits, 2011, 46, 1754-1765.	3.5	236
6	MIMO transmission with residual transmit-RF impairments. , 2010, , .		214
7	Quantized Massive MU-MIMO-OFDM Uplink. IEEE Transactions on Communications, 2016, 64, 2387-2399.	4.9	180
8	PhaseMax: Convex Phase Retrieval via Basis Pursuit. IEEE Transactions on Information Theory, 2018, 64, 2675-2689.	1.5	174
9	Soft-Input Soft-Output Single Tree-Search Sphere Decoding. IEEE Transactions on Information Theory, 2010, 56, 4827-4842.	1.5	172
10	Recovery of Sparsely Corrupted Signals. IEEE Transactions on Information Theory, 2012, 58, 3115-3130.	1.5	167
11	PAR-Aware Large-Scale Multi-User MIMO-OFDM Downlink. IEEE Journal on Selected Areas in Communications, 2013, 31, 303-313.	9.7	155
12	Deep Unfolding for Communications Systems: A Survey and Some New Directions. , 2019, , .		128
13	Compressive Video Sensing: Algorithms, architectures, and applications. IEEE Signal Processing Magazine, 2017, 34, 52-66.	4.6	122
14	Conjugate gradient-based soft-output detection and precoding in massive MIMO systems. , 2014, , .		118
15	Approximate matrix inversion for high-throughput data detection in the large-scale MIMO uplink. , 2013, , .		110
16	Optimality of large MIMO detection via approximate message passing. , 2015, , .		109
17	Channel Charting: Locating Users Within the Radio Environment Using Channel State Information. IEEE Access, 2018, 6, 47682-47698.	2.6	98
18	Implementation Challenges and Opportunities in Beyond-5G and 6G Communication. IEEE Journal of Microwaves, 2021, 1, 86-100.	4.9	85

#	ARTICLE	IF	CITATIONS
19	Decentralized Baseband Processing for Massive MU-MIMO Systems. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2017, 7, 491-507.	2.7	82
20	Artificial Intelligence for 5G and Beyond 5G: Implementations, Algorithms, and Optimizations. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2020, 10, 149-163.	2.7	72
21	High-Throughput Data Detection for Massive MU-MIMO-OFDM Using Coordinate Descent. IEEE Transactions on Circuits and Systems I: Regular Papers, 2016, 63, 2357-2367.	3.5	69
22	1-bit Massive MU-MIMO Precoding in VLSI. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2017, 7, 508-522.	2.7	69
23	Linear Precoding With Low-Resolution DACs for Massive MU-MIMO-OFDM Downlink. IEEE Transactions on Wireless Communications, 2019, 18, 1595-1609.	6.1	66
24	VLSI Design of Approximate Message Passing for Signal Restoration and Compressive Sensing. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2012, 2, 579-590.	2.7	65
25	Power Consumption Analysis for Mobile MmWave and Sub-THz Receivers. , 2020, , .		58
26	Stable restoration and separation of approximately sparse signals. Applied and Computational Harmonic Analysis, 2014, 37, 12-35.	1.1	54
27	VLSI design of large-scale soft-output MIMO detection using conjugate gradients. , 2015, , .		48
28	Decentralized Equalization With Feedforward Architectures for Massive MU-MIMO. IEEE Transactions on Signal Processing, 2019, 67, 4418-4432.	3.2	42
29	On the Complexity Distribution of Sphere Decoding. IEEE Transactions on Information Theory, 2011, 57, 5754-5768.	1.5	40
30	Data Detection in Large Multi-Antenna Wireless Systems via Approximate Semidefinite Relaxation. IEEE Transactions on Circuits and Systems I: Regular Papers, 2016, 63, 2334-2346.	3.5	40
31	Efficient Soft-Output Gauss-Seidel Data Detector for Massive MIMO Systems. IEEE Transactions on Circuits and Systems I: Regular Papers, 2021, 68, 5049-5060.	3.5	35
32	VLSI Design of a Monolithic Compressive-Sensing Wideband Analog-to-Information Converter. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2013, 3, 552-565.	2.7	33
33	Video Compressive Sensing for Spatial Multiplexing Cameras Using Motion-Flow Models. SIAM Journal on Imaging Sciences, 2015, 8, 1489-1518.	1.3	33
34	Non-Uniform Wavelet Sampling for RF Analog-to-Information Conversion. IEEE Transactions on Circuits and Systems I: Regular Papers, 2018, 65, 471-484.	3.5	32
35	Neural-Network Optimized 1-bit Precoding for Massive MU-MIMO. , 2019, , .		32
36	Multipoint Channel Charting for Wireless Networks. , 2018, , .		31

#	ARTICLE	IF	CITATIONS
37	ADMM-based infinity norm detection for large MU-MIMO: Algorithm and VLSI architecture. , 2017, , .		30
38	Siamese Neural Networks for Wireless Positioning and Channel Charting. , 2019, , .		29
39	Beamspace Channel Estimation for Massive MIMO mmWave Systems: Algorithm and VLSI Design. IEEE Transactions on Circuits and Systems I: Regular Papers, 2020, 67, 5482-5495.	3.5	29
40	Probabilistic Recovery Guarantees for Sparsely Corrupted Signals. IEEE Transactions on Information Theory, 2013, 59, 3104-3116.	1.5	27
41	On the performance of mismatched data detection in large MIMO systems. , 2016, , .		26
42	Massive MU-MIMO-OFDM Uplink with Hardware Impairments: Modeling and Analysis. , 2018, , .		26
43	Adaptive Relaxed ADMM: Convergence Theory and Practical Implementation. , 2017, , .		25
44	Improving Channel Charting with Representation -Constrained Autoencoders. , 2019, , .		24
45	FPGA design of a coordinate descent data detector for large-scale MU-MIMO. , 2016, , .		23
46	Implementation Trade-Offs of Soft-Input Soft-Output MAP Decoders for Convolutional Codes. IEEE Transactions on Circuits and Systems I: Regular Papers, 2012, 59, 2774-2783.	3.5	22
47	Finite-Alphabet MMSE Equalization for All-Digital Massive MU-MIMO mmWave Communication. IEEE Journal on Selected Areas in Communications, 2020, 38, 2128-2141.	9.7	18
48	ADMM-Based Infinity-Norm Detection for Massive MIMO: Algorithm and VLSI Architecture. IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2021, 29, 747-759.	2.1	18
49	The effect of unreliable LLR storage on the performance of MIMO-BICM. , 2010, , .		17
50	Data mapping for unreliable memories. , 2012, , .		17
51	Decentralized data detection for massive MU-MIMO on a Xeon Phi cluster. , 2016, , .		17
52	Feedforward Architectures for Decentralized Precoding in Massive MU-MIMO Systems. , 2018, , .		17
53	Mse-Optimal 1-Bit Precoding for Multiuser Mimo Via Branch and Bound. , 2018, , .		17
54	Biconvex Relaxation for Semidefinite Programming in Computer Vision. Lecture Notes in Computer Science, 2016, , 717-735.	1.0	15

#	ARTICLE	IF	CITATIONS
55	VLSI Designs for Joint Channel Estimation and Data Detection in Large SIMO Wireless Systems. IEEE Transactions on Circuits and Systems I: Regular Papers, 2018, 65, 1120-1132.	3.5	15
56	CSI-Based Multi-Antenna and Multi-Point Indoor Positioning Using Probability Fusion. IEEE Transactions on Wireless Communications, 2022, 21, 2162-2176.	6.1	15
57	Decentralized beamforming for massive MU-MIMO on a GPU cluster. , 2016, , .		14
58	Implicit vs. Explicit Approximate Matrix Inversion for Wideband Massive MU-MIMO Data Detection. Journal of Signal Processing Systems, 2018, 90, 1311-1328.	1.4	14
59	MmWave channel estimation via atomic norm minimization for multi-user hybrid precoding. , 2018, , .		14
60	Algorithm and VLSI Design for 1-Bit Data Detection in Massive MIMO-OFDM. IEEE Open Journal of Circuits and Systems, 2020, 1, 170-184.	1.4	13
61	Real-time principal component pursuit. , 2011, , .		12
62	Accelerating massive MIMO uplink detection on GPU for SDR systems. , 2015, , .		12
63	Design Trade-offs for Decentralized Baseband Processing in Massive MU-MIMO Systems. , 2019, , .		12
64	Joint Channel Estimation and Data Detection in Cell-Free Massive MU-MIMO Systems. IEEE Transactions on Wireless Communications, 2022, 21, 4068-4084.	6.1	12
65	A robust and efficient method to recover neural events from noisy and corrupted data. , 2013, , .		11
66	Decentralized equalization for massive MU-MIMO on FPGA. , 2017, , .		11
67	MmWave Multiuser MIMO Precoding With Fixed Subarrays and Quantized Phase Shifters. IEEE Transactions on Vehicular Technology, 2019, 68, 11132-11145.	3.9	11
68	SNR Prediction in Cellular Systems based on Channel Charting. , 2020, , .		10
69	Analog-to-Feature (A2F) Conversion for Audio-Event Classification. , 2018, , .		9
70	Decentralized Coordinate-Descent Data Detection and Precoding for Massive MU-MIMO. , 2019, , .		9
71	BEACHES: Beamspace Channel Estimation for Multi-Antenna mmWave Systems and Beyond. , 2019, , .		9
72	SMUL-FFT: A Streaming Multiplierless Fast Fourier Transform. IEEE Transactions on Circuits and Systems II: Express Briefs, 2021, 68, 1715-1719.	2.2	9

#	ARTICLE	IF	CITATIONS
73	Ultra-Wideband Joint Spatial Coding for Secure Communication and High-Resolution Imaging. IEEE Transactions on Microwave Theory and Techniques, 2017, 65, 2525-2535.	2.9	8
74	Subset-codebook precoding for 1-bit massive multiuser MIMO. , 2017, , .		8
75	Jammer Mitigation via Beam-Slicing for Low-Resolution mmWave Massive MU-MIMO. IEEE Open Journal of Circuits and Systems, 2021, 2, 820-832.	1.4	8
76	PPAC: A Versatile In-Memory Accelerator for Matrix-Vector-Product-Like Operations. , 2019, , .		7
77	Timing and Frequency Synchronization for 1-bit Massive MU-MIMO-OFDM Downlink. , 2019, , .		7
78	A 354 Mb/s 0.37 mm <sup>2</sup> 151 mW 32-User 256-QAM Near-MAP Soft-Input Soft-Output Massive MU-MIMO Data Detector in 28nm CMOS. IEEE Solid-State Circuits Letters, 2019, 2, 127-130.	1.3	7
79	High-Bandwidth Spatial Equalization for mmWave Massive MU-MIMO With Processing-in-Memory. IEEE Transactions on Circuits and Systems II: Express Briefs, 2020, 67, 891-895.	2.2	7
80	Sparse signal recovery from sparsely corrupted measurements. , 2011, , .		6
81	Learning phase-invariant dictionaries. , 2013, , .		6
82	An Out-of-Sample Extension for Wireless Multipoint Channel Charting. Lecture Notes of the Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering, 2019, , 208-217.	0.2	6
83	Multipoint channel charting-based radio resource management for V2V communications. Eurasip Journal on Wireless Communications and Networking, 2020, 2020, .	1.5	6
84	Blind SNR Estimation and Nonparametric Channel Denoising in Multi-Antenna mmWave Systems. , 2021, , .		6
85	Improving Channel Charting using a Split Triplet Loss and an Inertial Regularizer. , 2021, , .		6
86	Soft-Output Joint Channel Estimation and Data Detection using Deep Unfolding. , 2021, , .		6
87	Optimal large-MIMO data detection with transmit impairments. , 2015, , .		5
88	A 354 Mb/s 0.37 mm <sup>2</sup> 151 mW 32-User 256-QAM Near-MAP Soft-Input Soft-Output Massive MU-MIMO Data Detector in 28nm CMOS. , 2019, , .		5
89	Efficient Pre-Conditioned Descent Search Detector for Massive MU-MIMO. IEEE Transactions on Vehicular Technology, 2020, 69, 4663-4676.	3.9	5
90	Network-side Localization via Semi-Supervised Multi-point Channel Charting. , 2021, , .		5

#	ARTICLE	IF	CITATIONS
91	FPGA design of approximate semidefinite relaxation for data detection in large MIMO wireless systems. , 2016, , .		4
92	Sparsity-Adaptive Beamspace Channel Estimation for 1-Bit mmWave Massive MIMO Systems. , 2020, , .		4
93	Coherence-based probabilistic recovery guarantees for sparsely corrupted signals. , 2012, , .		3
94	BLAH: Boolean Logic Analysis for Graded Student Response Data. IEEE Journal on Selected Topics in Signal Processing, 2017, 11, 754-764.	7.3	3
95	Unsupervised Charting of Wireless Channels. , 2018, , .		3
96	Massive MU-MIMO-OFDM Uplink with Direct RF-Sampling and 1-Bit ADCs. , 2019, , .		3
97	Reducing the Complexity of Fingerprinting-Based Positioning using Locality-Sensitive Hashing. , 2019, , .		3
98	Finite-Alphabet Wiener Filter Precoding for mmWave Massive MU-MIMO Systems. , 2019, , .		3
99	Hybrid Jammer Mitigation for All-Digital mmWave Massive MU-MIMO. , 2021, , .		3
100	Recovery guarantees for restoration and separation of approximately sparse signals. , 2011, , .		2
101	Coherence-based recovery guarantees for generalized basis-pursuit de-quantizing. , 2012, , .		2
102	All-Digital Massive MIMO Uplink and Downlink Rates under a Fronthaul Constraint. , 2019, , .		2
103	Analog vs. Digital Spatial Transforms: A Throughput, Power, and Area Comparison. , 2020, , .		2
104	Approximate Gram-Matrix Interpolation for Wideband Massive MU-MIMO Systems. IEEE Transactions on Vehicular Technology, 2020, 69, 4677-4688.	3.9	2
105	OFDM-Based Beam-Oriented Digital Predistortion for Massive MIMO. , 2021, , .		2
106	Mismatched Data Detection in Massive MU-MIMO. IEEE Transactions on Signal Processing, 2021, 69, 6071-6082.	3.2	2
107	Endocrine Disruptors: Relevance to Humans, Animals and Ecosystems: Research Highlights from the National Research Programme NRP50. Chimia, 2008, 62, 316-317.	0.3	1
108	Statistical data correction for unreliable memories. , 2014, , .		1

#	ARTICLE	IF	CITATIONS
109	VLSI design of a nonparametric equalizer for massive MU-MIMO. , 2017, , .		1
110	Identifying Unused RF Channels Using Least Matching Pursuit. , 2020, , .		1
111	Optimal Data Detection and Signal Estimation in Systems With Input Noise. IEEE Transactions on Signal Processing, 2021, 69, 5105-5119.	3.2	1
112	Hardware-Aware Beamspace Precoding for All-Digital mmWave Massive MU-MIMO. IEEE Communications Letters, 2021, , 1-1.	2.5	1
113	A Resolution-Adaptive 8 mm <sup>2</sup> 9.98 Gb/s 39.7 pJ/b 32-Antenna All-Digital Spatial Equalizer for mmWave Massive MU-MIMO in 65nm CMOS. , 2021, , .		1
114	A Scalable Generator for Massive MIMO Baseband Processing Systems with Beamspace Channel Estimation. , 2021, , .		1
115	Guest Editorial Special Issue on the 2016 IEEE International Symposium on Circuits and Systems (ISCAS) Tj ETQq1 1 0.784314 rgBT /Ov	3.5	0
116	Optimality of the Discrete Fourier Transform for Beamspace Massive MU-MIMO Communication. , 2021, , .		0
117	Guest Editorial Circuits, Systems, and Algorithms for Beyond 5G and Toward 6G. IEEE Open Journal of Circuits and Systems, 2021, 2, 223-225.	1.4	0
118	Sample-Efficient Spatio-Spectral Whitespace Detection Using Least Matching Pursuit. IEEE Access, 2021, 9, 138394-138402.	2.6	0
119	Resolution-Adaptive All-Digital Spatial Equalization for mmWave Massive MU-MIMO. , 2021, , .		0
120	Beam-Slicing for Jammer Mitigation in mmWave Massive MU-MIMO. , 2021, , .		0
121	Feature Learning for Neural-Network-Based Positioning with Channel State Information. , 2021, , .		0
122	An Adaptable and Scalable Generator of Distributed Massive MIMO Baseband Processing Systems. Journal of Signal Processing Systems, 0, , .	1.4	0