

# Shreyas Sen

## List of Publications by Year in descending order

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121  
papers

2,151  
citations

331670

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345221

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129  
all docs

129  
docs citations

129  
times ranked

1509  
citing authors

#	ARTICLE	IF	CITATIONS
1	Syn-STELLAR: An EM/Power SCA-Resilient AES-256 With Synthesis-Friendly Signature Attenuation. IEEE Journal of Solid-State Circuits, 2022, 57, 167-181.	5.4	10
2	EM SCA White-Box Analysis-Based Reduced Leakage Cell Design and Presilicon Evaluation. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2022, 41, 4927-4938.	2.7	2
3	EQS Res-HBC: A 65-nm Electro-Quasistatic Resonant $5 \times 240 \times 1/4$ W Human Whole-Body Powering and $2.19 \times 1/4$ W Communication SoC With Automatic Maximum Resonant Power Tracking. IEEE Journal of Solid-State Circuits, 2022, 57, 831-844.	5.4	10
4	Physically Secure Wearable "Wearable Through-Body Interhuman Body Communication. Frontiers in Electronics, 2022, 2, .	3.2	1
5	CS-Audio: A 16 pJ/b 0.1 "15 Mbps Compressive Sensing IC With DWT Sparsifier for Audio-AR. IEEE Journal of Solid-State Circuits, 2022, 57, 2220-2235.	5.4	8
6	A 65nm 63.3 $\mu$ W 15Mbps Transceiver with Switched-Capacitor Adiabatic Signaling and Combinatorial-Pulse-Position Modulation for Body-Worn Video-Sensing AR Nodes. , 2022, , .		4
7	Electromagnetic Analysis of Integrated On-Chip Sensing Loop for Side-Channel and Fault-Injection Attack Detection. IEEE Microwave and Wireless Components Letters, 2022, 32, 784-787.	3.2	4
8	A Quantitative Analysis of Physical Security and Path Loss With Frequency for IBOB Channel. IEEE Microwave and Wireless Components Letters, 2022, 32, 792-795.	3.2	4
9	Design and Analysis of a Resistive Sensor Interface With Phase Noise-Energy-Resolution Scalability for a Time-Based Resistance-to-Digital Converter. Frontiers in Electronics, 2022, 3, .	3.2	2
10	Statistical Analysis Based Feature Selection Enhanced RF-PUF With >99.8% Accuracy on Unmodified Commodity Transmitters for IoT Physical Security. Frontiers in Electronics, 2022, 3, .	3.2	3
11	A 65 nm Wireless Image SoC Supporting On-Chip DNN Optimization and Real-Time Computation-Communication Trade-Off via Actor-Critical Neuro-Controller. IEEE Journal of Solid-State Circuits, 2022, 57, 2545-2559.	5.4	4
12	EM SCA & FI Self-Awareness and Resilience with Single On-chip Loop & ML Classifiers. , 2022, , .		2
13	A Digital Cascoded Signature Attenuation Countermeasure with Intelligent Malicious Voltage Drop Attack Detector for EM/Power SCA Resilient Parallel AES-256. , 2022, , .		5
14	Analysis and Design Considerations for Achieving the Fundamental Limits of Phase Noise in mmWave Oscillators With On-Chip MEMS Resonator. IEEE Transactions on Circuits and Systems II: Express Briefs, 2021, 68, 1108-1112.	3.0	5
15	Theoretical Analysis of Multi Integrating RX Front-Ends for Lossy Broad-Band Channels. IEEE Open Journal of Circuits and Systems, 2021, 2, 363-379.	1.9	2
16	Energy-Efficient Deep Neural Networks with Mixed-Signal Neurons and Dense-Local and Sparse-Global Connectivity. , 2021, , .		1
17	Advanced Biophysical Model to Capture Channel Variability for EQS Capacitive HBC. IEEE Transactions on Biomedical Engineering, 2021, 68, 3435-3446.	4.2	18
18	Electro-Quasistatic Animal Body Communication for Untethered Rodent Biopotential Recording. Scientific Reports, 2021, 11, 3307.	3.3	7

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19	Inter-body coupling in electro-quasistatic human body communication: theory and analysis of security and interference properties. Scientific Reports, 2021, 11, 4378.	3.3	15
20	OpenSerDes: An Open Source Process-Portable All-Digital Serial Link. , 2021, , .		2
21	36.2 An EM/Power SCA-Resilient AES-256 with Synthesizable Signature Attenuation Using Digital-Friendly Current Source and RO-Bleed-Based Integrated Local Feedback and Global Switched-Mode Control. , 2021, , .		14
22	Enhanced Detection Range for EM Side-channel Attack Probes utilizing Co-planar Capacitive Asymmetry Sensing. , 2021, , .		4
23	<i>Sub-1/4W RComm</i>: 415-nW 1â€“10-kb/s Physically and Mathematically Secure Electro-Quasi-Static HBC Node for Authentication and Medical Applications. IEEE Journal of Solid-State Circuits, 2021, 56, 788-802.	5.4	15
24	A 65nm Resonant Electro-Quasistatic 5-240uW Human Whole-Body Powering and 2.19uW Communication SoC with Automatic Maximum Resonant Power Tracking. , 2021, , .		4
25	Context-Aware Collaborative Intelligence With Spatio-Temporal In-Sensor-Analytics for Efficient Communication in a Large-Area IoT Testbed. IEEE Internet of Things Journal, 2021, 8, 6800-6814.	8.7	17
26	DIRAC: Dynamic-IRregulAr Clustering Algorithm with Incremental Learning for RF-Based Trust Augmentation in IoT Device Authentication. , 2021, , .		6
27	Design Considerations for a Sub-251/4W PLL with Multi-Phase Output and 1-450MHz Tuning Range. , 2021, , .		0
28	PG-CAS: Patterned-Ground Co-Planar Capacitive Asymmetry Sensing for mm-Range EM Side-Channel Attack Probe Detection. , 2021, , .		5
29	Instinctual Interference-Adaptive Low-Power Receiver With Combined Feedforward and Feedback Control. IEEE Microwave and Wireless Components Letters, 2021, 31, 771-774.	3.2	4
30	EM/Power Side-Channel Attack: White-Box Modeling and Signature Attenuation Countermeasures. IEEE Design and Test, 2021, 38, 67-75.	1.2	10
31	A Multipole Approach Toward On-Chip Metal Routing for Reduced EM Side-Channel Leakage. IEEE Microwave and Wireless Components Letters, 2021, 31, 685-688.	3.2	2
32	Physically-Secure Low-Power Human State Measurement using EQS-HBC and Edge-Analytics : Invited Paper. , 2021, , .		0
33	Human Bodyâ€“Electrode Interfaces for Wide-Frequency Sensing and Communication: A Review. Nanomaterials, 2021, 11, 2152.	4.1	12
34	In-the-Wild Interference Characterization and Modelling for Electro-Quasistatic-HBC With Miniaturized Wearables. IEEE Transactions on Biomedical Engineering, 2021, 68, 2858-2869.	4.2	3
35	EM and Power SCA-Resilient AES-256 Through >350Å— Current-Domain Signature Attenuation and Local Lower Metal Routing. IEEE Journal of Solid-State Circuits, 2021, 56, 136-150.	5.4	23
36	Channel Modeling for Physically Secure Electro-Quasistatic In-Body to Out-of-Body Communication with Galvanic Tx and Multimodal Rx. , 2021, , .		3

#	ARTICLE	IF	CITATIONS
37	High Accuracy RF-PUF for EM Security through Physical Feature Assistance using Public Wi-Fi Dataset. , 2021, , .		6
38	iSTELLAR: intermittent Signature aTtenuation Embedded CRYPTO with Low-Level metAl Routing. , 2021, , .		0
39	A Wearable Real-Time CMOS Dosimeter With Integrated Zero-Bias Floating Gate Sensor and an 861-nW 18-Bit Energy-Resolution Scalable Time-Based Radiation to Digital Converter. IEEE Journal of Solid-State Circuits, 2020, 55, 650-665.	5.4	12
40	Toward Understanding the Return Path Capacitance in Capacitive Human Body Communication. IEEE Transactions on Circuits and Systems II: Express Briefs, 2020, 67, 1879-1883.	3.0	19
41	A Context-aware Reconfigurable Transmitter with 2.24 pJ/bit, 802.15.6 NB-HBC and 4.93 pJ/bit, 400.9 MHz MedRadio Modes with 33.6% Transmit Efficiency. , 2020, , .		7
42	Electromagnetic and Power Side-Channel Analysis: Advanced Attacks and Low-Overhead Generic Countermeasures through White-Box Approach. Cryptography, 2020, 4, 30.	2.3	12
43	SCNIFFER: Low-Cost, Automated, Efficient Electromagnetic Side-Channel Sniffing. IEEE Access, 2020, 8, 173414-173427.	4.2	20
44	The body is the network: To safeguard sensitive data, turn flesh and tissue into a secure wireless channel. IEEE Spectrum, 2020, 57, 44-49.	0.7	30
45	Deep Learning Side-Channel Attack Resilient AES-256 using Current Domain Signature Attenuation in 65nm CMOS. , 2020, , .		13
46	A 415 nW Physically and Mathematically Secure Electro-Quasistatic HBC Node in 65nm CMOS for Authentication and Medical Applications. , 2020, , .		9
47	A 100KHz-1GHz Termination-dependent Human Body Communication Channel Measurement using Miniaturized Wearable Devices. , 2020, , .		6
48	27.3 EM and Power SCA-Resilient AES-256 in 65nm CMOS Through &gt;350Å— Current-Domain Signature Attenuation. , 2020, , .		24
49	On the Safety of Human Body Communication. IEEE Transactions on Biomedical Engineering, 2020, 67, 3392-3402.	4.2	25
50	<i>BodyWire-HCI</i>. ACM Transactions on Computer-Human Interaction, 2020, 27, 1-25.	5.7	7
51	RF-PUF: Enhancing IoT Security Through Authentication of Wireless Nodes Using &lt;i>In-Situ</i> Machine Learning. IEEE Internet of Things Journal, 2019, 6, 388-398.	8.7	173
52	Guest Editorsâ€™ Introduction: Intelligent Resource-Constrained Sensor Nodes. IEEE Design and Test, 2019, 36, 5-6.	1.2	0
53	Practical Approaches Toward Deep-Learning-Based Cross-Device Power Side-Channel Attack. IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2019, 27, 2720-2733.	3.1	39
54	STELLAR: A Generic EM Side-Channel Attack Protection through Ground-Up Root-cause Analysis. , 2019, , .		21

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55	An Improved Update Rate CDR for Interference Robust Broadband Human Body Communication Receiver. IEEE Transactions on Biomedical Circuits and Systems, 2019, 13, 868-879.	4.0	5
56	BodyWire: A 6.3-pJ/b 30-Mb/s $\sim$ 30-dB SIR-Tolerant Broadband Interference-Robust Human Body Communication Transceiver Using Time Domain Interference Rejection. IEEE Journal of Solid-State Circuits, 2019, 54, 2892-2906.	5.4	49
57	X-DeepSCA. , 2019, , .		66
58	Powerline Communication for Enhanced Connectivity in Neuromorphic Systems. IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2019, 27, 1897-1906.	3.1	2
59	Theoretical Analysis of AM and FM Interference Robustness of Integrating DDR Receiver for Human Body Communication. IEEE Transactions on Biomedical Circuits and Systems, 2019, 13, 566-578.	4.0	5
60	Exploiting Inherent Error Resiliency of Deep Neural Networks to Achieve Extreme Energy Efficiency Through Mixed-Signal Neurons. IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2019, 27, 1365-1377.	3.1	10
61	EM-Wave Biosensors: A Review of RF, Microwave, mm-Wave and Optical Sensing. Sensors, 2019, 19, 1013.	3.8	129
62	Enabling Covert Body Area Network using Electro-Quasistatic Human Body Communication. Scientific Reports, 2019, 9, 4160.	3.3	56
63	Context-Aware Intelligence in Resource-Constrained IoT Nodes: Opportunities and Challenges. IEEE Design and Test, 2019, 36, 7-40.	1.2	45
64	Flexible submental sensor patch with remote monitoring controls for management of oropharyngeal swallowing disorders. Science Advances, 2019, 5, eaay3210.	10.3	61
65	Bio-Physical Modeling, Characterization, and Optimization of Electro-Quasistatic Human Body Communication. IEEE Transactions on Biomedical Engineering, 2019, 66, 1791-1802.	4.2	74
66	Characterization of Human Body Forward Path Loss and Variability Effects in Voltage-Mode HBC. IEEE Microwave and Wireless Components Letters, 2018, 28, 266-268.	3.2	30
67	ASNI: Attenuated Signature Noise Injection for Low-Overhead Power Side-Channel Attack Immunity. IEEE Transactions on Circuits and Systems I: Regular Papers, 2018, 65, 3300-3311.	5.4	56
68	Smart Sensing for HVAC Control: Collaborative Intelligence in Optical and IR Cameras. IEEE Transactions on Industrial Electronics, 2018, 65, 9785-9794.	7.9	36
69	A Reconfigurable Hybrid Low Dropout Voltage Regulator for Wide-Range Power Supply Noise Rejection and Energy-Efficiency Trade-Off. IEEE Transactions on Circuits and Systems II: Express Briefs, 2018, 65, 1864-1868.	3.0	8
70	Switched-Mode-Control Based Hybrid LDO for Fine-Grain Power Management of Digital Load Circuits. IEEE Journal of Solid-State Circuits, 2018, 53, 569-581.	5.4	42
71	Characterization and Classification of Human Body Channel as a function of Excitation and Termination Modalities. , 2018, 2018, 3754-3757.		13
72	An Improved Update Rate Baud Rate CDR for Integrating Human Body Communication Receiver. , 2018, , .		3

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73	A sub-nW Wake-up Receiver for Human Body Communication. , 2018, , .		3
74	In-field Remote Fingerprint Authentication using Human Body Communication and On-Hub Analytics. , 2018, 2018, 5398-5401.		3
75	A 6.3pJ/b 30Mbps $\hat{\sim}$ 30dB SIR-tolerant broadband interference-robust human body communication transceiver using time domain signal-interference separation. , 2018, , .		14
76	A MedRadio Receiver Front-End With Wide Energy-Quality Scalability Through Circuit and Architecture-Level Reconfigurations. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2018, 8, 369-378.	3.6	7
77	RF-PUF: IoT security enhancement through authentication of wireless nodes using in-situ machine learning. , 2018, , .		33
78	Adaptive interference rejection in Human Body Communication using variable duty cycle integrating DDR receiver. , 2017, , .		10
79	High efficiency power side-channel attack immunity using noise injection in attenuated signature domain. , 2017, , .		46
80	Self-Learning RF Receiver Systems: Process Aware Real-Time Adaptation to Channel Conditions for Low Power Operation. IEEE Transactions on Circuits and Systems I: Regular Papers, 2017, 64, 195-207.	5.4	19
81	Staged Inference using Conditional Deep Learning for energy efficient real-time smart diagnosis. , 2017, 2017, 78-81.		15
82	Wearable health monitoring using capacitive voltage-mode Human Body Communication. , 2017, 2017, 1-4.		45
83	Self-Optimizing IoT Wireless Video Sensor Node With In-Situ Data Analytics and Context-Driven Energy-Aware Real-Time Adaptation. IEEE Transactions on Circuits and Systems I: Regular Papers, 2017, 64, 2470-2480.	5.4	37
84	Secure Human-Internet using dynamic Human Body Communication. , 2017, , .		23
85	In-sensor analytics and energy-aware self-optimization in a wireless sensor node. , 2017, , .		7
86	Collaborative intelligence in optical/IR camera based wireless sensor nodes for HVAC control. , 2017, , .		2
87	An Energy-Efficient Mixed-Signal Neuron for Inherently Error-Resilient Neuromorphic Systems. , 2017, , .		3
88	Secure, energy-efficient, interference-robust connectivity for physiological sensors using human body communication. , 2016, , .		1
89	Invited - Context-aware energy-efficient communication for IoT sensor nodes. , 2016, , .		49
90	SocialHBC. , 2016, , .		28

#	ARTICLE	IF	CITATIONS
91	A 130nm hybrid low dropout regulator based on switched mode control for digital load circuits. , 2016, , .		19
92	A 32 Gb/s Bidirectional 4-channel 4 pJ/b Capacitively Coupled Link in 14 nm CMOS for Proximity Communication. IEEE Journal of Solid-State Circuits, 2016, 51, 3231-3245.	5.4	23
93	23.2 A 32Gb/s bidirectional 4-channel 4pJ/b capacitively coupled link in 14nm CMOS for proximity communication. , 2016, , .		6
94	Real-Time Use-Aware Adaptive RF Transceiver Systems for Energy Efficiency Under BER Constraints. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2015, 34, 1209-1222.	2.7	15
95	Process-Variation Tolerant Channel-Adaptive Virtually Zero-Margin Low-Power Wireless Receiver Systems. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2014, 33, 1764-1777.	2.7	21
96	Self-learning MIMO-RF receiver systems: Process resilient real-time adaptation to channel conditions for low power operation. , 2014, , .		10
97	A 4â€“32 Gb/s Bidirectional Link With 3-Tap FFE/6-Tap DFE and Collaborative CDR in 22 nm CMOS. IEEE Journal of Solid-State Circuits, 2014, 49, 3079-3090.	5.4	46
98	Real-time use-aware adaptive MIMO RF receiver systems for energy efficiency under BER constraints. , 2013, , .		16
99	Power Aware Post-Manufacture Tuning of MIMO Receiver Systems. , 2012, , .		1
100	Phase Distortion to Amplitude Conversion-Based Low-Cost Measurement of AM-AM and AM-PM Effects in RF Power Amplifiers. IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2012, 20, 1602-1614.	3.1	17
101	Optimal Testing of Digitally Assisted Adaptive RF Systems. , 2012, , .		0
102	Testing of digitally assisted adaptive analog/RF systems using tuning knob &#x2014; Performance space estimation. , 2012, , .		1
103	A Power-Scalable Channel-Adaptive Wireless Receiver Based on Built-In Orthogonally Tunable LNA. IEEE Transactions on Circuits and Systems I: Regular Papers, 2012, 59, 946-957.	5.4	36
104	Automatic test stimulus generation for accurate diagnosis of RF systems using transient response signatures. , 2011, , .		10
105	Accurate signature driven power conscious tuning of RF systems using hierarchical performance models. , 2011, , .		10
106	Real time cross-layer adaptation for minimum energy wireless image transport using bit error rate control. , 2011, , .		0
107	Environment-Adaptive Concurrent Comanding and Bias Control for Efficient Power-Amplifier Operation. IEEE Transactions on Circuits and Systems I: Regular Papers, 2011, 58, 607-618.	5.4	31
108	Orthogonally tunable inductorless RF LNA for adaptive wireless systems. , 2011, , .		8

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109	Optimized Multitone Test Stimulus Driven Diagnosis of RF Transceivers Using Model Parameter Estimation. , 2011, , .		24
110	Optimized digital compatible pulse sequences for testing of RF front end modules. , 2010, , .		6
111	Concurrent low cost multi-carrier compensation of amplitude and phase distortions in RF power amplifiers. , 2009, , .		0
112	Multidimensional Adaptive Power Management for Low-Power Operation of Wireless Devices. IEEE Transactions on Circuits and Systems II: Express Briefs, 2008, 55, 867-871.	3.0	20
113	Concurrent Multi-Dimensional Adaptation for Low-Power Operation in Wireless Devices. , 2008, , .		3
114	Design of process variation tolerant radio frequency low noise amplifier. , 2008, , .		12
115	Pro-VIZOR. , 2008, , .		34
116	Concurrent PAR and power amplifier adaptation for power efficient operation of WiMAX OFDM transmitters. , 2008, , .		17
117	Built-in Test Enabled Diagnosis and Tuning of RF Transmitter Systems. VLSI Design, 2008, 2008, 1-10.	0.5	6
118	Testing RF Components with Supply Current Signatures. , 2007, , .		3
119	Feedback Driven Adaptive Power Management for Minimum Power Operation of Wireless Receivers. , 2007, , .		1
120	VIZOR: Virtually zero margin adaptive RF for ultra low power wireless communication. , 2007, , .		17
121	Testing RF Components with Supply Current Signatures. Proceedings of the Asian Test Symposium, 2007, , .	0.0	1