

Johan Schoukens

List of Publications by Year in descending order

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123
papers

5,560
citations

136885

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149
docs citations

149
times ranked

2518
citing authors

#	ARTICLE	IF	CITATIONS
1	Identification of nonlinear systems using Polynomial Nonlinear State Space models. <i>Automatica</i> , 2010, 46, 647-656.	3.0	266
2	Nonlinear System Identification: A User-Oriented Road Map. <i>IEEE Control Systems</i> , 2019, 39, 28-99.	1.0	241
3	Parametric and nonparametric identification of linear systems in the presence of nonlinear distortions-a frequency domain approach. <i>IEEE Transactions on Automatic Control</i> , 1998, 43, 176-190.	3.6	227
4	Crest-factor minimization using nonlinear Chebyshev approximation methods. <i>IEEE Transactions on Instrumentation and Measurement</i> , 1991, 40, 982-989.	2.4	203
5	Estimation of nonparametric noise and FRF models for multivariable systemsâ€”Part I: Theory. <i>Mechanical Systems and Signal Processing</i> , 2010, 24, 573-595.	4.4	157
6	Frequency-domain system identification using non-parametric noise models estimated from a small number of data sets. <i>Automatica</i> , 1997, 33, 1073-1086.	3.0	150
7	Survey of excitation signals for FFT based signal analyzers. <i>IEEE Transactions on Instrumentation and Measurement</i> , 1988, 37, 342-352.	2.4	148
8	Frequency domain system identification using arbitrary signals. <i>IEEE Transactions on Automatic Control</i> , 1997, 42, 1717-1720.	3.6	133
9	Fast approximate identification of nonlinear systems. <i>Automatica</i> , 2003, 39, 1267-1274.	3.0	100
10	Identification of linear dynamic systems using piecewise constant excitations: Use, misuse and alternatives. <i>Automatica</i> , 1994, 30, 1153-1169.	3.0	88
11	Estimation of nonparametric noise and FRF models for multivariable systemsâ€”Part II: Extensions, applications. <i>Mechanical Systems and Signal Processing</i> , 2010, 24, 596-616.	4.4	83
12	Linear System Identification in a Nonlinear Setting: Nonparametric Analysis of the Nonlinear Distortions and Their Impact on the Best Linear Approximation. <i>IEEE Control Systems</i> , 2016, 36, 38-69.	1.0	83
13	Analysis of windowing/leakage effects in frequency response function measurements. <i>Automatica</i> , 2006, 42, 27-38.	3.0	71
14	Robustness Issues of the Best Linear Approximation of a Nonlinear System. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2009, 58, 1737-1745.	2.4	70
15	Modified AIC and MDL Model Selection Criteria for Short Data Records. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2005, 54, 144-150.	2.4	68
16	A comprehensive study of the bias and variance of frequency-response-function measurements: Optimal window selection and overlapping strategies. <i>Automatica</i> , 2007, 43, 1723-1736.	3.0	67
17	Comparison of two feedforward design methods aiming at accurate trajectory tracking of the end point of a flexible robot arm. <i>IEEE Transactions on Control Systems Technology</i> , 1998, 6, 2-14.	3.2	66
18	Hammersteinâ€™Wiener system estimator initialization. <i>Automatica</i> , 2004, 40, 1543-1550.	3.0	64

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19	Nonparametric Preprocessing in System Identification: a Powerful Tool. <i>European Journal of Control</i> , 2009, 15, 260-274.	1.6	64
20	Fully automated spectral analysis of periodic signals. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2003, 52, 1021-1024.	2.4	59
21	Blind Maximum-Likelihood Identification of Wiener Systems. <i>IEEE Transactions on Signal Processing</i> , 2009, 57, 3017-3029.	3.2	55
22	Nonparametric frequency response function estimators based on nonlinear averaging techniques. <i>IEEE Transactions on Instrumentation and Measurement</i> , 1992, 41, 739-746.	2.4	54
23	Regularized nonparametric Volterra kernel estimation. <i>Automatica</i> , 2017, 82, 324-327.	3.0	53
24	MEASUREMENT AND MODELLING OF LINEAR SYSTEMS IN THE PRESENCE OF NON-LINEAR DISTORTIONS. <i>Mechanical Systems and Signal Processing</i> , 2002, 16, 785-801.	4.4	52
25	Novel Estimation of the Electrical Bioimpedance Using the Local Polynomial Method. Application to In Vivo Real-Time Myocardium Tissue Impedance Characterization During the Cardiac Cycle. <i>IEEE Transactions on Biomedical Engineering</i> , 2011, 58, 3376-3385.	2.5	48
26	Decoupling Multivariate Polynomials Using First-Order Information and Tensor Decompositions. <i>SIAM Journal on Matrix Analysis and Applications</i> , 2015, 36, 864-879.	0.7	47
27	Design of broadband excitation signals with a user imposed power spectrum and amplitude distribution. , 0, , .		41
28	Optimized Excitation Signals for MIMO Frequency Response Function Measurements. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2006, 55, 2072-2079.	2.4	39
29	Frequency domain system identification with missing data. <i>IEEE Transactions on Automatic Control</i> , 2000, 45, 364-369.	3.6	36
30	Nonparametric Data-Driven Modeling of Linear Systems: Estimating the Frequency Response and Impulse Response Function. <i>IEEE Control Systems</i> , 2018, 38, 49-88.	1.0	36
31	Nonlinear system-identification of the filling phase of a wet-clutch system. <i>Control Engineering Practice</i> , 2011, 19, 1506-1516.	3.2	35
32	Identification of a Block-Structured Nonlinear Feedback System, Applied to a Microwave Crystal Detector. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2008, 57, 1734-1740.	2.4	34
33	Data-Driven Nonlinear Identification of Li-Ion Battery Based on a Frequency Domain Nonparametric Analysis. <i>IEEE Transactions on Control Systems Technology</i> , 2017, 25, 1825-1832.	3.2	34
34	Analysis of Best Linear Approximation of a Wiener-Hammerstein System for Arbitrary Amplitude Distributions. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2012, 61, 645-654.	2.4	33
35	Filter-based regularisation for impulse response modelling. <i>IET Control Theory and Applications</i> , 2017, 11, 194-204.	1.2	33
36	Continuous-Time Noise Modeling From Sampled Data. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2006, 55, 2253-2258.	2.4	28

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37	Structure discrimination in block-oriented models using linear approximations: A theoretic framework. <i>Automatica</i> , 2015, 53, 225-234.	3.0	28
38	Real-time feedback control of the impurity emission front in tokamak divertor plasmas. <i>Nature Communications</i> , 2021, 12, 1105.	5.8	28
39	Optimal Settings for Measuring Frequency Response Functions With Weighted Overlapped Segment Averaging. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2009, 58, 3276-3287.	2.4	27
40	FRF Measurement of Nonlinear Systems Operating in Closed Loop. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2013, 62, 1334-1345.	2.4	27
41	A Nonlinear Block Structure Identification Procedure Using Frequency Response Function Measurements. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2008, 57, 2257-2264.	2.4	26
42	Frequency Response Function Measurements Using Concatenated Subrecords With Arbitrary Length. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2012, 61, 2682-2688.	2.4	25
43	Parameter reduction in nonlinear state-space identification of hysteresis. <i>Mechanical Systems and Signal Processing</i> , 2018, 104, 884-895.	4.4	25
44	Accurate Estimation of Multivariable Frequency Response Functions. <i>IFAC Postprint Volumes IPPV / International Federation of Automatic Control</i> , 1996, 29, 4351-4356.	0.4	24
45	Two nonlinear optimization methods for black box identification compared. <i>Automatica</i> , 2010, 46, 1675-1681.	3.0	24
46	Frequency Domain System Identification Toolbox for MATLAB. <i>IFAC Postprint Volumes IPPV / International Federation of Automatic Control</i> , 1991, 24, 1243-1247.	0.4	23
47	Study of conditional ML estimators in time and frequency-domain system identification. <i>Automatica</i> , 1999, 35, 91-100.	3.0	23
48	Measuring Nonlinear Effects in Respiratory Mechanics: A Proof of Concept for Prototype Device and Method. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2014, 63, 124-134.	2.4	23
49	Decoding nonlinear growth rates in biogenic environmental archives. <i>Geochemistry, Geophysics, Geosystems</i> , 2004, 5, n/a-n/a.	1.0	22
50	Bounding the Polynomial Approximation Errors of Frequency Response Functions. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2013, 62, 1346-1353.	2.4	22
51	Design of Quasi-Logarithmic Multisine Excitations for Robust Broad Frequency Band Measurements. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2013, 62, 1364-1372.	2.4	22
52	Parametric System Identification Using Quantized Data. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2015, 64, 2312-2322.	2.4	20
53	Structure Detection of Wiener-Hammerstein Systems With Process Noise. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2017, 66, 569-576.	2.4	20
54	Information matrix and D-optimal design with Gaussian inputs for Wiener model identification. <i>Automatica</i> , 2016, 69, 65-77.	3.0	19

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55	Practical Issues in the Synthesis of Ternary Sequences. IEEE Transactions on Instrumentation and Measurement, 2017, 66, 212-222.	2.4	18
56	Quick Estimation of Periodic Signal Parameters From 1-Bit Measurements. IEEE Transactions on Instrumentation and Measurement, 2020, 69, 339-353.	2.4	18
57	User-friendly nonlinear nonparametric estimation framework for vibro-acoustic industrial measurements with multiple inputs. Mechanical Systems and Signal Processing, 2020, 145, 106926.	4.4	18
58	An improved multiple internal standard normalisation for drift in LA-ICP-MS measurements. Journal of Analytical Atomic Spectrometry, 2002, 17, 1461-1470.	1.6	16
59	Frequency-Domain, Errors-in-Variables Estimation of Linear Dynamic Systems Using Data From Overlapping Subrecords. IEEE Transactions on Instrumentation and Measurement, 2008, 57, 1529-1536.	2.4	16
60	Study of the Variance of Parametric Estimates of the Best Linear Approximation of Nonlinear Systems. IEEE Transactions on Instrumentation and Measurement, 2010, 59, 3159-3167.	2.4	16
61	Reduction of the Gibbs Phenomenon Applied on Nonharmonic Time Base Distortions. IEEE Transactions on Instrumentation and Measurement, 2005, 54, 1118-1125.	2.4	14
62	Frequency domain-based nonlinearity detection and compensation in Lur'e systems. International Journal of Robust and Nonlinear Control, 2013, 23, 1168-1182.	2.1	14
63	Modeling the Nonlinear Cortical Response in EEG Evoked by Wrist Joint Manipulation. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2018, 26, 205-215.	2.7	14
64	Decoupling Multivariate Polynomials for Nonlinear State-Space Models. , 2019, 3, 745-750.		14
65	User friendly Box-Jenkins identification using nonparametric noise models. , 2011, , .		13
66	From coupled to decoupled polynomial representations in parallel Wiener-Hammerstein models. , 2013, , .		13
67	D-optimal input design for nonlinear FIR-type systems: A dispersion-based approach. Automatica, 2016, 73, 88-100.	3.0	13
68	The transient impulse response modeling method for non-parametric system identification. Automatica, 2016, 68, 314-328.	3.0	13
69	Using the Best Linear Approximation With Varying Excitation Signals for Nonlinear System Characterization. IEEE Transactions on Instrumentation and Measurement, 2016, 65, 1271-1280.	2.4	13
70	Tensor methods for MIMO decoupling and control design using frequency response functions. Mechatronics, 2017, 45, 71-81.	2.0	13
71	Using Decoupling Methods to Reduce Polynomial NARX Models. IFAC-PapersOnLine, 2018, 51, 796-801.	0.5	13
72	Simplified Analysis for Multiple Input Systems: A Toolbox Study Illustrated on F-16 Measurements. Vibration, 2020, 3, 70-84.	0.9	12

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73	Nonparametric Time-Domain Identification of Linear Slowly Time-Variant Systems Using B-Splines. IEEE Transactions on Instrumentation and Measurement, 2015, 64, 252-262.	2.4	11
74	Water mass distributions in the Southern Ocean derived from a parametric analysis of mixing water masses. Journal of Geophysical Research, 2007, 112, .	3.3	10
75	Nonlinear Induced Variance of Frequency Response Function Measurements. IEEE Transactions on Instrumentation and Measurement, 2010, 59, 2468-2474.	2.4	10
76	Identification of time-varying systems using a two-dimensional B-spline algorithm. , 2012, , .		10
77	A first study of using B-splines in nonparametric system identification. , 2013, , .		10
78	A Rigorous Analysis of Least Squares Sine Fitting Using Quantized Data: The Random Phase Case. IEEE Transactions on Instrumentation and Measurement, 2014, 63, 512-530.	2.4	10
79	Information and Statistical Efficiency When Quantizing Noisy DC Values. IEEE Transactions on Instrumentation and Measurement, 2015, 64, 308-317.	2.4	10
80	Retrieving highly structured models starting from black-box nonlinear state-space models using polynomial decoupling. Mechanical Systems and Signal Processing, 2021, 146, 106966.	4.4	10
81	Estimation of Nonparametric Noise Models for Linear Dynamic Systems. IEEE Transactions on Instrumentation and Measurement, 2009, 58, 2468-2474.	2.4	9
82	On the Elimination of Bias Averaging-Errors in Proxy Records. Mathematical Geosciences, 2009, 41, 129-144.	1.4	9
83	Nuclear norm regularization for overparametrized Hammerstein systems. , 2010, , .		9
84	Detecting and analyzing non-linear effects in respiratory impedance measurements. , 2011, , .		9
85	Design of Multilevel Signals for Identifying the Best Linear Approximation of Nonlinear Systems. IEEE Transactions on Instrumentation and Measurement, 2013, 62, 519-524.	2.4	9
86	Extending the Best Linear Approximation Framework to the Process Noise Case. IEEE Transactions on Automatic Control, 2020, 65, 1514-1524.	3.6	9
87	On The Polynomial Approximation for Time-Variant Harmonic Signal Modeling. IEEE Transactions on Audio Speech and Language Processing, 2011, 19, 458-467.	3.8	8
88	Decoupling static nonlinearities in a parallel Wiener-Hammerstein system: A first-order approach. , 2015, , .		8
89	Decoupling multivariate functions using a non-parametric Filtered CPD approach. IFAC-PapersOnLine, 2021, 54, 451-456.	0.5	8
90	Single and Piecewise Polynomials for Modeling of Pitched Sounds. IEEE Transactions on Audio Speech and Language Processing, 2012, 20, 1270-1281.	3.8	7

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91	Accurate Sine-Wave Amplitude Measurements Using Nonlinearly Quantized Data. IEEE Transactions on Instrumentation and Measurement, 2015, 64, 3201-3208.	2.4	7
92	Nonlinear system identification on a combine harvester. , 2006, , .		6
93	Application of Blind Identification to Nonlinear Calibration. IEEE Transactions on Instrumentation and Measurement, 2008, 57, 1771-1778.	2.4	6
94	Estimation of the FRF Through the Improved Local Bandwidth Selection in the Local Polynomial Method. IEEE Transactions on Instrumentation and Measurement, 2012, 61, 2833-2843.	2.4	6
95	Measuring the Noise Cumulative Distribution Function Using Quantized Data. IEEE Transactions on Instrumentation and Measurement, 2016, 65, 1540-1546.	2.4	6
96	A frequency domain approach for local module identification in dynamic networks. Automatica, 2022, 142, 110370.	3.0	6
97	One-Bit Constrained Measurements of Parametric Signals. IEEE Transactions on Instrumentation and Measurement, 2022, 71, 1-13.	2.4	6
98	Frequency domain based friction compensation - Industrial application to transmission electron microscopes -. , 2011, , .		5
99	Recursive Discrete-Time Models for Continuous-Time Systems Under Band-Limited Assumptions. IEEE Transactions on Instrumentation and Measurement, 2016, 65, 713-723.	2.4	5
100	A Local Polynomial Approach to Nonparametric Estimation of the Best Linear Approximation of Lithium-Ion Battery From Multiple Datasets. , 2017, 1, 182-187.		5
101	Detection of Unmodeled Nonlinearities Using Correlation Methods. Conference Record - IEEE Instrumentation and Measurement Technology Conference, 2007, , .	0.0	4
102	Tuning nonlinear state-space models using unconstrained multiple shooting. IFAC-PapersOnLine, 2020, 53, 334-340.	0.5	4
103	Fast Measurement of Quantization Distortions in DSP Algorithms. IEEE Transactions on Instrumentation and Measurement, 2007, 56, 1917-1923.	2.4	3
104	Nonparametric estimation of a time-variant system: An experimental study of B-splines and the regularization based smoothing. , 2015, , .		3
105	Approximate decoupling of multivariate polynomials using weighted tensor decomposition. Numerical Linear Algebra With Applications, 2018, 25, e2135.	0.9	3
106	One-Bit Sine-Fit. IEEE Transactions on Instrumentation and Measurement, 2021, 70, 1-12.	2.4	3
107	A 1.5-Bit DFT Analyzer. IEEE Transactions on Instrumentation and Measurement, 2020, , 1-1.	2.4	3
108	The Use of Nonparametric Noise Models Extracted From Overlapping Subrecords for System Identification. IEEE Transactions on Signal Processing, 2011, 59, 4635-4647.	3.2	2

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109	Weighted LS estimation of spectral contents and periodicity of signals comprising multi-frequency components. , 2011, , .		2
110	Structured non-linear noise behaviour and the use of median averaging in non-linear systems with <i>m</i> -sequence inputs. IET Control Theory and Applications, 2013, 7, 997-1004.	1.2	2
111	Multiple-Input Single-Output Polynomial Nonlinear State-Space Model of the Li-ion Battery's Short-term Dynamics. IFAC-PapersOnLine, 2018, 51, 497-502.	0.5	2
112	Joint Measurement of Signal Parameters and ADC Transition Levels. IEEE Transactions on Instrumentation and Measurement, 2018, 67, 2752-2760.	2.4	2
113	Tactile sensor-based real-time clustering for tissue differentiation. International Journal of Computer Assisted Radiology and Surgery, 2019, 14, 129-137.	1.7	2
114	Frequency and Amplitude Domain DAC-ADC Co-Testing Using Ternary Signals. IEEE Transactions on Instrumentation and Measurement, 2020, 69, 4042-4055.	2.4	2
115	Synthetic wind speed generation for the simulation of realistic diurnal cycles. Journal of Physics: Conference Series, 2020, 1618, 062019.	0.3	2
116	Decoupling multivariate functions using a nonparametric filtered tensor decomposition. Mechanical Systems and Signal Processing, 2022, 179, 109328.	4.4	2
117	Identification of Volterra kernels using interpolation. , 0, , .		1
118	Modified AIC and MDL model selection criteria for short data records. , 0, , .		1
119	https://doi.org/10.1109/TIM.2007.895578	2.4	1
120	Decoupling P-NARX models using filtered CPD. IFAC-PapersOnLine, 2021, 54, 661-666.	0.5	1
121	Data-driven generation of synthetic wind speeds: A comparative study. IET Renewable Power Generation, 2022, 16, 922-932.	1.7	1
122	Estimation of the period and spectral content of multi-frequency signals using minimal data without user interaction. , 2012, , .		0
123	Frequency Response Functions, Uncertainty Estimates, Localization of Resonances, and Model Validation. , 2019, , .		0