Boualem Boashash

List of Publications by Year
in descending order

140 papers	6,019 citations	101496 36 h-index	88593 70 g-index
141 all docs	141 docs citations	141 times ranked	3488 citing authors

#	Article	IF	Citations
1	A human identification technique using images of the iris and wavelet transform. IEEE Transactions on Signal Processing, 1998, 46, 1185-1188.	3.2	867
2	The bootstrap and its application in signal processing. IEEE Signal Processing Magazine, 1998, 15, 56-76.	4.6	392
3	1-D CNNs for structural damage detection: Verification on a structural health monitoring benchmark data. Neurocomputing, 2018, 275, 1308-1317.	3.5	327
4	An efficient real-time implementation of the Wigner-Ville distribution. IEEE Transactions on Acoustics, Speech, and Signal Processing, 1987, 35, 1611-1618.	2.0	302
5	Polynomial Wigner-Ville distributions and their relationship to time-varying higher order spectra. IEEE Transactions on Signal Processing, 1994, 42, 216-220.	3.2	203
6	Note on the use of the Wigner distribution for time-frequency signal analysis. IEEE Transactions on Acoustics, Speech, and Signal Processing, 1988, 36, 1518-1521.	2.0	176
7	Time–frequency features for pattern recognition using high-resolution TFDs: A tutorial review. , 2015, 40, 1-30.		163
8	A high-resolution quadratic time-frequency distribution for multicomponent signals analysis. IEEE Transactions on Signal Processing, 2001, 49, 2232-2239.	3.2	126
9	A methodology for detection and classification of some underwater acoustic signals using time-frequency analysis techniques. IEEE Transactions on Acoustics, Speech, and Signal Processing, 1990, 38, 1829-1841.	2.0	119
10	Adaptive instantaneous frequency estimation of multicomponent FM signals using quadratic time-frequency distributions. IEEE Transactions on Signal Processing, 2002, 50, 1866-1876.	3.2	105
11	Signal Enhancement by Time-Frequency Peak Filtering. IEEE Transactions on Signal Processing, 2004, 52, 929-937.	3.2	105
12	IF estimation for multicomponent signals using image processing techniques in the time–frequency domain. Signal Processing, 2007, 87, 1234-1250.	2.1	105
13	Comments on "The Cramer-Rao lower bounds for signals with constant amplitude and polynomial phase. IEEE Transactions on Signal Processing, 1998, 46, 1708-1709.	3.2	104
14	Instantaneous frequency estimation of polynomial FM signals using the peak of the PWVD: statistical performance in the presence of additive gaussian noise. IEEE Transactions on Signal Processing, 1999, 47, 2480-2490.	3.2	99
15	Automatic signal abnormality detection using time-frequency features and machine learning: A newborn EEG seizure case study. Knowledge-Based Systems, 2016, 106, 38-50.	4.0	99
16	Time-Frequency Processing of Nonstationary Signals: Advanced TFD Design to Aid Diagnosis with Highlights from Medical Applications. IEEE Signal Processing Magazine, 2013, 30, 108-119.	4.6	96
17	Principles of time–frequency feature extraction for change detection in non-stationary signals: Applications to newborn EEG abnormality detection. Pattern Recognition, 2015, 48, 616-627.	5.1	90
18	Use of the cross Wigner-Ville distribution for estimation of instantaneous frequency. IEEE Transactions on Signal Processing, 1993, 41, 1439-1445.	3.2	87

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19	Separating More Sources Than Sensors Using Time-Frequency Distributions. Eurasip Journal on Advances in Signal Processing, 2005, 2005, 1.	1.0	82
20	Application of the Wignerâ€"Ville Distribution to Temperature Gradient Microstructure: A New Technique to Study Small-Scale Variations. Journal of Physical Oceanography, 1986, 16, 1997-2012.	0.7	81
21	Time-Frequency Feature Extraction of Newborn EEG Seizure Using SVD-Based Techniques. Eurasip Journal on Advances in Signal Processing, 2004, 2004, 1.	1.0	81
22	A Nonstationary Model of Newborn EEG. IEEE Transactions on Biomedical Engineering, 2007, 54, 19-28.	2.5	81
23	Evaluation of the modified S-transform for time-frequency synchrony analysis and source localisation. Eurasip Journal on Advances in Signal Processing, 2012, 2012, .	1.0	79
24	Image fusion-based contrast enhancement. Eurasip Journal on Image and Video Processing, 2012, 2012, .	1.7	79
25	EEG background features that predict outcome in term neonates with hypoxic ischaemic encephalopathy: A structured review. Clinical Neurophysiology, 2016, 127, 285-296.	0.7	74
26	Instantaneous Frequency Estimation of Multicomponent Nonstationary Signals Using Multiview Time-Frequency Distributions Based on the Adaptive Fractional Spectrogram. IEEE Signal Processing Letters, 2013, 20, 157-160.	2.1	73
27	Polynomial timeâ€"frequency distributions and time-varying higher order spectra: Application to the analysis of multicomponent FM signals and to the treatment of multiplicative noise. Signal Processing, 1998, 67, 1-23.	2.1	72
28	Measuring Time-Varying Information Flow in Scalp EEG Signals: Orthogonalized Partial Directed Coherence. IEEE Transactions on Biomedical Engineering, 2014, 61, 680-693.	2.5	70
29	Estimating the number of components of a multicomponent nonstationary signal using the short-term time-frequency RÃ©nyi entropy. Eurasip Journal on Advances in Signal Processing, 2011, 2011, .	1.0	67
30	Aircraft flight parameter estimation based on passive acoustic techniques using the polynomial Wignerâ€"Ville distribution. Journal of the Acoustical Society of America, 1997, 102, 207-223.	0.5	59
31	Multiâ€‌component instantaneous frequency estimation using locally adaptive directional time frequency distributions. International Journal of Adaptive Control and Signal Processing, 2016, 30, 429-442.	2.3	58
32	An Improved Design of High-Resolution Quadratic Timeâ€"Frequency Distributions for the Analysis of Nonstationary Multicomponent Signals Using Directional Compact Kernels. IEEE Transactions on Signal Processing, 2017, 65, 2701-2713.	3.2	54
33	Designing high-resolution timeâ€"frequency and timeâ€"scale distributions for the analysis and classification of non-stationary signals: a tutorial review with a comparison of features performance. , 2018, 77, 120-152.		54
34	An Efficient Algorithm for Instantaneous Frequency Estimation of Nonstationary Multicomponent Signals in Low SNR. Eurasip Journal on Advances in Signal Processing, 2011, 2011, .	1.0	50
35	Time-Frequency Distributions Based on Compact Support Kernels: Properties and Performance Evaluation. IEEE Transactions on Signal Processing, 2012, 60, 2814-2827.	3.2	50
36	A methodology for time-frequency image processing applied to the classification of non-stationary multichannel signals using instantaneous frequency descriptors with application to newborn EEG signals. Eurasip Journal on Advances in Signal Processing, 2012, 2012, .	1.0	48

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37	Time–frequency based newborn EEG seizure detection using low and high frequency signatures. Physiological Measurement, 2004, 25, 935-944.	1.2	47
38	Methods of signal classification using the images produced by the Wigner-Ville distribution. Pattern Recognition Letters, 1991, 12, 717-729.	2.6	46
39	Range-Doppler radar sensor fusion for fall detection. , 2017, , .		40
40	A review of time–frequency matched filter design with application to seizure detection in multichannel newborn EEG. , 2014, 28, 28-38.		38
41	<title>Algorithms for instantaneous frequency estimation: a comparative study</title>. , 1990, 1348, 126.		37
42	Wavelet Denoising Based on the MAP Estimation Using the BKF Prior With Application to Images and EEG Signals. IEEE Transactions on Signal Processing, 2013, 61, 1880-1894.	3.2	37
43	Analysis of local time-frequency entropy features for nonstationary signal components time supports detection. , 2014, 34, 56-66.		34
44	A nonparametric feature for neonatal EEG seizure detection based on a representation of pseudo-periodicity. Medical Engineering and Physics, 2012, 34, 437-446.	0.8	31
45	Robust multisensor time–frequency signal processing: A tutorial review with illustrations of performance enhancement in selected application areas. , 2018, 77, 153-186.		31
46	Human gait recognition with cane assistive device using quadratic time–frequency distributions. IET Radar, Sonar and Navigation, 2015, 9, 1224-1230.	0.9	30
47	A robust high-resolution time–frequency representation based on the local optimization of the short-time fractional Fourier transform. , 2017, 70, 125-144.		30
48	A novel fingerprint image compression technique using wavelets packets and pyramid lattice vector quantization. IEEE Transactions on Image Processing, 2002, 11, 1365-1378.	6.0	28
49	Fast and memory-efficient algorithms for computing quadratic time–frequency distributions. Applied and Computational Harmonic Analysis, 2013, 35, 350-358.	1.1	28
50	Improving DOA Estimation Algorithms Using High-Resolution Quadratic Time-Frequency Distributions. IEEE Transactions on Signal Processing, 2017, 65, 5179-5190.	3.2	28
51	Time-Frequency Analysis of Heart Rate Variability for Neonatal Seizure Detection. Eurasip Journal on Advances in Signal Processing, 2007, 2007, .	1.0	26
52	Performance evaluation of time-frequency image feature sets for improved classification and analysis of non-stationary signals: Application to newborn EEG seizure detection. Knowledge-Based Systems, 2017, 132, 188-203.	4.0	26
53	A New Discrete Analytic Signal for Reducing Aliasing in the Discrete Wigner-Ville Distribution. IEEE Transactions on Signal Processing, 2008, 56, 5427-5434.	3.2	24
54	A time–frequency based approach for generalized phase synchrony assessment in nonstationary multivariate signals. , 2013, 23, 780-790.		24

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55	Multicomponent noisy signal adaptive instantaneous frequency estimation using components time support information. IET Signal Processing, 2014, 8, 277-284.	0.9	24
56	An efficient inverse short-time Fourier transform algorithm for improved signal reconstruction by time-frequency synthesis: Optimality and computational issues. , 2017, 65, 81-93.		22
57	Kalman filter-based time-varying cortical connectivity analysis of newborn EEG. , 2011, 2011, 1423-6.		21
58	Design of an Optimal Piece-Wise Spline Wigner-Ville Distribution for TFD Performance Evaluation and Comparison. IEEE Transactions on Signal Processing, 2021, 69, 3963-3976.	3.2	21
59	Accurate and efficient implementation of the time–frequency matched filter. IET Signal Processing, 2010, 4, 428.	0.9	20
60	An automatic fast optimization of Quadratic Time-frequency Distribution using the hybrid genetic algorithm. Signal Processing, 2017, 131, 134-142.	2.1	20
61	Design of a high-resolution separable-kernel quadratic TFD for improving newborn health outcomes using fetal movement detection. , 2012, , .		19
62	Robust estimation of highly-varying nonlinear instantaneous frequency of monocomponent signals using a lower-order complex-time distribution. Signal Processing, 2013, 93, 3251-3260.	2.1	19
63	The T-class of time–frequency distributions: Time-only kernels with amplitude estimation. Journal of the Franklin Institute, 2006, 343, 661-675.	1.9	18
64	Accelerometer-based fetal movement detection. , 2011, 2011, 7877-80.		18
65	Improved characterization of HRV signals based on instantaneous frequency features estimated from quadratic time–frequency distributions with data-adapted kernels. Biomedical Signal Processing and Control, 2014, 10, 153-165.	3.5	18
66	Wideband radar based fall motion detection for a generic elderly. , 2016, , .		17
67	A novel multivariate phase synchrony measure: Application to multichannel newborn EEG analysis. , 2019, 84, 59-68.		17
68	Time-frequency signal and image processing of non-stationary signals with application to the classification of newborn EEG abnormalities. , 2011, , .		16
69	Instantaneous frequency based newborn EEG seizure characterisation. Eurasip Journal on Advances in Signal Processing, 2012, 2012, .	1.0	15
70	<title>Time-varying higher order spectra</title>. , 1991, , .		14
71	Multiple-view time–frequency distribution based on the empirical mode decomposition. IET Signal Processing, 2010, 4, 447.	0.9	14
72	Automated detection of perinatal hypoxia using time–frequency-based heart rate variability features. Medical and Biological Engineering and Computing, 2014, 52, 183-191.	1.6	13

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73	The time-delay digital tanlock loop: performance analysis in additive Gaussian noise. Journal of the Franklin Institute, 2002, 339, 43-60.	1.9	12
74	Detecting fetal movements using non-invasive accelerometers: A preliminary analysis. , 2010, , .		11
75	Improved Discrete Definition of Quadratic Time-Frequency Distributions. IEEE Transactions on Signal Processing, 2010, 58, 906-911.	3.2	11
76	Editorial: Time-Frequency Approach to Radar Detection, Imaging, and Classification. IET Signal Processing, 2010, 4, 325.	0.9	11
77	EEG-based automatic epilepsy diagnosis using the instantaneous frequency with sub-band energies. , 2011, , .		11
78	Improving the classification of newborn EEG time-frequency representations using a combined time-frequency signal and image approach. , 2012, , .		11
79	Radar fall detection using principal component analysis. Proceedings of SPIE, 2016, , .	0.8	11
80	Efficient software platform TFSAP 7.1 and Matlab package to compute Timeâ€"Frequency Distributions and related Time-Scale methods with extraction of signal characteristics. SoftwareX, 2018, 8, 48-52.	1.2	11
81	Time-Frequency Detection of Slowly Varying Periodic Signals with Harmonics: Methods and Performance Evaluation. Eurasip Journal on Advances in Signal Processing, 2011, 2011, .	1.0	10
82	Automatic seizure detection based on the combination of newborn multi-channel EEG and HRV information. Eurasip Journal on Advances in Signal Processing, 2012, 2012, .	1.0	10
83	Non-invasivemonitoring of fetal movements using time-frequency features of accelerometry. , 2014, , .		10
84	Refining the ambiguity domain characteristics of non-stationary signals for improved timeâ€"frequency analysis: Test case of multidirectional and multicomponent piecewise LFM and HFM signals. , 2018, 83, 367-382.		10
85	<title>Instantaneous quantities and uncertainty concepts for signal-dependent time-frequency distributions</title>. , 1991, 1566, 167.		9
86	<title>Application of cumulant TVHOS to the analysis of composite FM signals in multiplicative and additive noise</title>. , 1993, , .		9
87	Orthogonalized Partial Directed Coherence for Functional Connectivity Analysis of Newborn EEG. Lecture Notes in Computer Science, 2012, , 683-691.	1.0	9
88	Radar fall detectors: a comparison. Proceedings of SPIE, 2016, , .	0.8	9
89	Generalised phase synchrony within multivariate signals: An emerging concept in time-frequency analysis. , 2012, , .		8
90	Efficient phase estimation for the classification of digitally phase modulated signals using the cross-WVD: a performance evaluation and comparison with the S-transform. Eurasip Journal on Advances in Signal Processing, 2012, 2012, .	1.0	8

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91	Surrogate data test for nonlinearity of EEG signals: A newborn EEG burst suppression case study. , 2017, 70, 30-38.		8
92	An improved method for nonstationary signals components extraction based on the ICI rule. , 2011, , .		7
93	Multisensor Time–Frequency Signal Processing MATLAB package: An analysis tool for multichannel non-stationary data. SoftwareX, 2018, 8, 53-58.	1.2	7
94	An improved time–frequency noise reduction method using a psycho-acoustic Mel model. , 2018, 79, 199-212.		7
95	<title>Modeling of newborn EEG data for seizure detection</title>. , 1995, , .		6
96	Quadratic time-frequency distribution selection for seizure detection in the newborn. , 2008, 2008, 923-6.		6
97	An automatic time-frequency procedure for interference suppression by exploiting their geometrical features. , 2011, , .		6
98	Compact support kernels based time-frequency distributions: Performance evaluation. , 2011, , .		6
99	Classification of fetal movement accelerometry through time-frequency features. , 2014, , .		6
100	HRV Feature Selection for Neonatal Seizure Detection: A Wrapper Approach. , 2007, , .		5
101	A cross-terms geometry based method for components instantaneous frequency estimation using the Cross Wigner-Ville distribution. , 2012, , .		5
102	On the Selection of Time-Frequency Features for Improving the Detection and Classification of Newborn EEG Seizure Signals and Other Abnormalities. Lecture Notes in Computer Science, 2012, , 634-643.	1.0	5
103	Neonatal Seizure Detection and Localization using Time-Frequency Analysis of Multichannel EEG. , 2007, , .		4
104	Time frequency signal analysis and processing toolbox update 6.2: An enhanced research platform with new advanced high-resolution TFDs. , 2013, , .		4
105	A distortion-free contrast enhancement technique based on a perceptual fusion scheme. Neurocomputing, 2017, 226, 161-167.	3.5	4
106	Design and implementation of a multi-sensor newborn EEG seizure and background model with inter-channel field characterization. , 2019, 90, 71-99.		4
107	Neonatal EEG seizure detection using a new signal structural complexity measure based on matching pursuit decomposition with nonstationary dictionary. Computer Methods and Programs in Biomedicine, 2022, 224, 107014.	2.6	4
108	Time-varying polyspectra and reduced Wigner-Ville trispectrum. , 1992, , .		3

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109	Comparison of time-frequency signal analysis techniques with application to speech recognition. , 1992, , .		3
110	<title>Polynomial Wigner-Ville distributions</title>. , 1995, , .		3
111	Performance evaluation of multi-component instantaneous frequency estimation techniques for heart rate variability analysis. , 2012, , .		3
112	Time frequency and array processing of non-stationary signals. Eurasip Journal on Advances in Signal Processing, 2012, 2012, .	1.0	3
113	Micro-Doppler characteristics of elderly gait patterns with walking aids. , 2015, , .		3
114	Heart Rate Variability Time-Frequency Analysis for Newborn Seizure Detection. , 2009, , 95-121.		3
115	<title>Identification of a class of time-invariant and time-varying nonlinear systems under non-Gaussian excitation</title>. , 1995, 2563, 144.		2
116	Introduction to Time-Frequency Signal Analysis. , 2001, , 321-380.		2
117	A Feature Set for EEG Seizure Detection in the Newborn based on Seizure and Background Charactersitics. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2007, 2007, 7-10.	0.5	2
118	Robust Time-Frequency Analysis of Newborn EEG Seizure Corrupted by Impulsive Artefacts. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2007, 2007, 11-4.	0.5	2
119	Detection of neonatal EEG seizure using multichannel matching pursuit. , 2008, 2008, 907-10.		2
120	Iterative blocking artefact reduction based on local contrast information. , 2011, , .		2
121	Calibration of time features and frequency features in the time-frequency domain for improved detection and classification of seizure in newborn EEG signals. , 2012, , .		2
122	Detection of perinatal hypoxia using time-frequency analysis of heart rate variability signals. , 2013, , .		2
123	High-resolution time-frequency distributions for fall detection. , 2015, , .		2
124	High Performance Time-Frequency Distributions for Practical Applications. , 2003, , 135-175.		2
125	<title>Bootstrapping confidence bands for the instantaneous frequency</title>. , 1994, , .		1
126	SVD-based newborn EEG seizure detection in the time-frequency domain. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2003, 36, 329-333.	0.4	1

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127	Comparing Two Time-Scale and Time-Frequency based Methods in Newborns' EEG Seizure Detection. , 2007, , .		1
128	A new neonatal seizure detection technique based on the time-frequency characteristics of the electroencephalogram. , 2007, , .		1
129	A computationally efficient implementation of quadratic time-frequency distributions. , 2007, , .		1
130	Ordered clustering: A way to simplify analysis of multichannel signals. , 2010, , .		1
131	Generalized Mean Phase Coherence for asynchrony abnormality detection in multichannel newborn EEG. , 2012, , .		1
132	A comparison of quadratic TFDs for entropy based detection of components time supports in multicomponent nonstationary signal mixtures. , 2013, , .		1
133	Principles of excellence in Engineering education applied to GCC/MENA Engineering Colleges and comparison with Australia and France: A thesis with analysis, results, observations. , 2013, , .		1
134	Detection of neonatal EEG burst-suppression using a time-frequency approach. , 2014, , .		1
135	<title>Recent advances in nonstationary signal analysis: time-varying higher-order spectra and multilinear time-frequency signal analysis</title>. , 1993, , .		0
136	Interpolation of pitch contour using temporal decomposition. International Journal of Speech Technology, 1998, 2, 215-225.	1.4	0
137	A joint time-frequency empirical mode decomposition for nonstationary signal separation. , 2007, , .		0
138	Improving performance of deblocking techniques using image fusion. , 2012, , .		0
139	Design of a Time-Frequency Algorithm for Automatic Eeg Artifact Removal. , 2016, , .		0
140	Editorial for Special Issue on Reproducible Research. , 2018, 77, 1-4.		0