Igor Boiko

List of Publications by Year in Descending Order

115 papers	1,014 citations	16 h-index	28 g-index
133 ext. papers	1,292 ext. citations	2.7 avg, IF	5.01 L-index

#	Paper	IF	Citations
115	Analysis of stability and performance of a cascaded PI-sliding mode control DC-DC boost converter via LPRS. *IEEE Transactions on Power Electronics*, **2022**, 1-1	7.2	0
114	Multirotors From Takeoff to Real-Time Full Identification Using the Modified Relay Feedback Test and Deep Neural Networks. *IEEE Transactions on Control Systems Technology*, **2021**, 1-17	4.8	2
113	Frequency-response of Non-singular Terminal Sliding Mode Control with Actuators. *IEEE Transactions on Circuits and Systems II: Express Briefs*, **2021**, 1-1	3.5	0
112	Non-parametric tuning of PID Controllers: Evolution of ideas. *Journal of Physics: Conference Series*, **2021**, 1958, 012006	0.3	
111	On phase deficit of homogeneous sliding mode control. *International Journal of Robust and Nonlinear Control*, **2021**, 31, 3767-3778	3.6	0
110	Optimal non-parametric tuning of PID controllers based on classification of shapes of oscillations in modified relay feedback test. *Journal of the Franklin Institute*, **2021**, 358, 1448-1474	4	0
109	On asymmetric periodic solutions in relay feedback systems. *Journal of the Franklin Institute*, **2021**, 358, 363-383	4	4
108	Auto-Tuning of DC-DC Buck Converters Through the Modified Relay Feedback Test. *IEEE Access*, **2021**, 9, 62505-62518	3.5	0
107	Analysis of a Sliding Mode DC̶DC Boost Converter Through LPRS of a Nonlinear Plant. *IEEE Transactions on Power Electronics*, **2020**, 35, 12321-12331	7.2	7
106	Analysis of Orbital Stability of Self-excited Periodic Motions in Lure System. *Studies in Systems, Decision and Control*, **2020**, 177-196	0.8	
105	Auto-Tuning of PID Controller with Gain Margin Specification for Digital Voltage-Mode Buck Converter. *IFAC-PapersOnLine*, **2020**, 53, 13390-13395	0.7	1
104	On counter-examples to Aizerman and Kalman conjectures. *International Journal of Control*, **2020**, 1-8	1.5	5
103	Control System Loop-Shaping as a Mathematical Optimization Problem: An Ensemble of Models. *IEEE Access*, **2020**, 8, 137185-137197	3.5	3
102	On phase deficit of the super-twisting second-order sliding mode control algorithm. *International Journal of Robust and Nonlinear Control*, **2020**, 30, 6351-6362	3.6	0
101	Stabilization of artificial gas-lift process using nonlinear predictive generalized minimum variance control. *Journal of the Franklin Institute*, **2019**, 356, 2031-2059	4	2
100	Analysis of a sliding mode boost converter under fluctuating input source voltage, using LPRS method. *Control Engineering Practice*, **2019**, 92, 104132	3.9	2
99	Analysis of oscillations in discontinuous Lurie systems via LPRS method. *Vibroengineering PROCEDIA*, **2019**, 25, 177-181	0.4	1

98	Comparison of Relay Feedback Tuning and Other Tuning Methods for a Digitally Controlled Buck Converter **2019**,		4
97	Multiple-model sliding mode observer for an artificial gas lift system. *Asian Journal of Control*, **2019**, 21, 21-32	1.7	1
96	Design of rules for in-flight non-parametric tuning of PID controllers for unmanned aerial vehicles. *Journal of the Franklin Institute*, **2019**, 356, 474-491	4	14
95	Sliding mode differentiator/observer for quadcopter velocity estimation through sensor fusion. *International Journal of Control*, **2018**, 91, 2113-2120	1.5	8
94	Development of PSS tuning rules using multi-objective optimization. *International Journal of Electrical Power and Energy Systems*, **2018**, 100, 449-462	5.1	10
93	Quasi optimum PI controller tuning rules for a grid-connected three phase AC to DC PWM rectifier. *International Journal of Electrical Power and Energy Systems*, **2018**, 96, 74-85	5.1	27
92	On Inherent Gain Margins of Sliding-Mode Control Systems. *Studies in Systems, Decision and Control*, **2018**, 133-147	0.8	1
91	Two-Relay Controller Test Approach to Non-parametric PID Tuning of a Magnetic Levitation System **2018**,		1
90	LPRS analysis of sliding mode control of a boost converter **2018**,		3
89	Optimal tracking control of artificial gas-lift process. *Computers and Chemical Engineering*, **2018**, 117, 1-10	4	3
88	Analysis of orbital stability in lure system, based on dynamic harmonic balance. *Journal of the Franklin Institute*, **2017**, 354, 4826-4837	4	3
87	On Causality of Sliding-Mode Differentiators. *IFAC-PapersOnLine*, **2017**, 50, 1717-1721	0.7	
86	LPRS analysis of sliding mode buck converter. *Journal of the Franklin Institute*, **2016**, 353, 5137-5150	4	9
85	Control-oriented modeling of gas-lift system and analysis of casing-heading instability. *Journal of Natural Gas Science and Engineering*, **2016**, 29, 365-381	4.6	7
84	Interpolating sliding mode observer for a ball and beam system. *International Journal of Control*, **2016**, 89, 1879-1889	1.5	8
83	Performance of Optimal Super-Twisting Controller for Liquid Level. *Asian Journal of Control*, **2016**, 18, 1581-1590	1.7	2
82	Dynamic modeling and control design for a self-balancing two-wheel chair **2016**,		2
81	Plastic bag model of the artificial gas lift system for slug flow analysis. *Journal of Natural Gas Science and Engineering*, **2016**, 33, 573-586	4.6	9

80	MRFT-based design of robust and adaptive controllers for gas loop of oil-gas separator. *Cogent Engineering*, **2015**, 2, 999415	1.5	1
79	Disturbance attenuation for systems with second-order sliding modes via linear compensators. *IET Control Theory and Applications*, **2015**, 9, 526-537	2.5	8
78	Self-Oscillations in Dynamic Systems. *Systems and Control: Foundations and Applications*, **2015**,	0.3	14
77	Design of gain scheduling control strategy for artificial gas lift in oil production through modified relay feedback test. *Journal of the Franklin Institute*, **2015**, 352, 5122-5144	4	15
76	Design of PI controllers for a grid-connected VSC based on optimal disturbance rejection **2015**,		4
75	Analysis of transient oscillations in Lure systems with delay, based on dynamic harmonic balance. *Automatica*, **2015**, 57, 93-96	5.7	2
74	A data-driven subspace predictive controller design for artificial gas-lift process **2015**,		1
73	**2015**,		1
72	Generation of Self-Oscillations in Systems with Double Integrator. *Systems and Control: Foundations and Applications*, **2015**, 109-119	0.3	
71	Self-Oscillation via Locus of a Perturbed Relay System Design (LPRS). *Systems and Control: Foundations and Applications*, **2015**, 53-64	0.3	
70	Three Link Serial Structure Underactuated Robot. *Systems and Control: Foundations and Applications* , **2015**, 99-107	0.3	
69	Output-Based Robust Generation of Self-Oscillations via High-Order Sliding Modes Observer. *Systems and Control: Foundations and Applications*, **2015**, 81-88	0.3	
68	Describing Function-Based Design of TRC for Generation of Self-Oscillation. *Systems and Control: Foundations and Applications*, **2015**, 19-37	0.3	
67	Poincar Map-Based Design. *Systems and Control: Foundations and Applications*, **2015**, 39-52	0.3	
66	Generating Self-Oscillations in Furuta Pendulum. *Systems and Control: Foundations and Applications*, **2015**, 91-98	0.3	
65	Fixed-Phase Loop (FPL). *Systems and Control: Foundations and Applications*, **2015**, 121-135	0.3	
64	Robustification of the Self-Oscillation via Sliding Modes Tracking Controllers. *Systems and Control: Foundations and Applications*, **2015**, 67-80	0.3	
63	On relative degree, chattering and fractal nature of parasitic dynamics in sliding mode control. *Journal of the Franklin Institute*, **2014**, 351, 1939-1952	4	13

62	Neural-Adaptive Control and Nonlinear Observer for Waste-To-Energy Boilers. *Asian Journal of Control*, **2014**, 16, 1323-1333	1.7	1
61	Neural-Adaptive Control of Waste-to-Energy Steam Generators. *IEEE Transactions on Control Systems Technology*, **2014**, 22, 1920-1926	4.8	5
60	Design of gain scheduling control strategy for artificial gas lift in oil production through Modified Relay Feedback Test **2014**,		2
59	Design of non-parametric process-specific optimal tuning rules for PID control of flow loops. *Journal of the Franklin Institute*, **2014**, 351, 964-985	4	9
58	Finding exact periodic solutions in Lure systems through periodic signal mapping. *Journal of the Franklin Institute*, **2014**, 351, 1953-1963	4	
57	Application of second-order sliding-mode control algorithms in continuous cycling tests for PID tuning **2014**,		4
56	Non-parametric Tuning of PID Controllers. *Advances in Industrial Control*, **2013**,	0.3	17
55	Variable-structure PID controller for level process. *Control Engineering Practice*, **2013**, 21, 700-707	3.9	16
54	A Review on Self-oscillating Relay Feedback Systems and Its Application to Underactuated Systems with Degree of Underactuation One. *Lecture Notes in Control and Information Sciences*, **2013**, 187-205	0.5	1
53	Non-parametric Tuning of PID Controllers. *Advances in Industrial Control*, **2013**, 9-23	0.3	1
52	Modified Relay Feedback Test (MRFT) and Tuning of PID Controllers. *Advances in Industrial Control*, **2013**, 25-79	0.3	6
51	Exact Model of MRFT and Parametric Tuning. *Advances in Industrial Control*, **2013**, 97-139	0.3	
50	Analysis of Transient Oscillations in Systems with MRFT. *Advances in Industrial Control*, **2013**, 141-158	0.3	
49	Chattering in sliding mode control systems with boundary layer approximation of discontinuous control. *International Journal of Systems Science*, **2013**, 44, 1126-1133	2.3	32
48	Frequency-domain analysis of self-excited oscillations for a class of multivariable relay systems **2013**,		1
47	Dynamic harmonic balance principle and analysis of rocking block motions. *Journal of the Franklin Institute*, **2012**, 349, 1198-1212	4	6
46	Generating oscillations in inertia wheel pendulum via two-relay controller. *International Journal of Robust and Nonlinear Control*, **2012**, 22, 318-330	3.6	17
45	Loop tuning with specification on gain and phase margins via modified second-order sliding mode control algorithm. *International Journal of Systems Science*, **2012**, 43, 97-104	2.3	16

44	On frequency-domain criterion of finite-time convergence of second-order sliding mode control algorithms. *Automatica*, **2011**, 47, 1969-1973	5.7	22
43	Analysis of chattering in sliding mode control systems with continuous boundary layer approximation of discontinuous control **2011**,		24
42	Dynamic harmonic balance and its application to analysis of convergence of second-order sliding mode control algorithms **2011**,		3
41	Frequency-Domain Methods in Conventional and Higher-Order Sliding Mode Control. *Lecture Notes in Control and Information Sciences*, **2011**, 93-112	0.5	0
40	Analysis of dynamic nonlinearity of flow control loop through modified relay test probing. *International Journal of Control*, **2010**, 83, 2580-2587	1.5	12
39	Design of compensators for second order sliding modes **2010**,		4
38	Frequency domain precision analysis and design of sliding mode observers. *Journal of the Franklin Institute*, **2010**, 347, 899-909	4	8
37	Modified relay feedback test: Industrial loop tuner implementation and experiments **2009**,		3
36	Implementation of FIR control for H output feedback stabilization of linear systems **2009**,		1
35	Analysis of periodic motions in relay feedback systems with saturation in plant dynamics. *International Journal of Systems Science*, **2009**, 40, 659-668	2.3	2
34	Oscillations and transfer properties of relay feedback systems with time-delay linear plants. *Automatica*, **2009**, 45, 2897-2902	5.7	7
33	Implementation of FIR control for H output feedback stabilisation of linear systems. *International Journal of Control*, **2009**, 82, 2335-2346	1.5	2
32	Frequency Domain Analysis of Accuracy of Sliding Mode Observers Under Imperfect Knowledge of Model Parameters. *IEEE Transactions on Automatic Control*, **2009**, 54, 2446-2450	5.9	1
31	Performance analysis and tuning of variable-structure PID controllers for level process **2009**,		2
30	**2009**,		2
29	Generating self-excited oscillations for underactuated mechanical systems via two-relay controller. *International Journal of Control*, **2009**, 82, 1678-1691	1.5	12
28	On the Transfer Properties of the Generalized Sub-Optimal Second-Order Sliding Mode Control Algorithm. *IEEE Transactions on Automatic Control*, **2009**, 54, 399-403	5.9	19
27	Generating Self-Excited Oscillations via Two-Relay Controller. *IEEE Transactions on Automatic Control*, **2009**, 54, 416-420	5.9	52

#	Reference		
26	FREQUENCY DOMAIN ANALYSIS OF FAST AND SLOW MOTIONS IN SLIDING MODES. *Asian Journal of Control*, **2008**, 5, 445-453	1.7	24
25	Oscillations and Transfer Properties of Relay Servo Systems With Integrating Plants. *IEEE Transactions on Automatic Control*, **2008**, 53, 2686-2689	5.9	11
24	Identification based generation of self-excited oscillations for underactuated mechanical systems via two-relay algorithm **2008**,		4
23	Autotune Identification via the Locus of a Perturbed Relay System Approach. *IEEE Transactions on Control Systems Technology*, **2008**, 16, 182-185	4.8	7
22	Parameter identification via modified twisting algorithm. *International Journal of Control*, **2008**, 81, 788-796	1.9	6
21	Modified relay feedback test and its use for non-parametric loop tuning **2008**,		6
20	A Comprehensive Analysis of Chattering in Second Order Sliding Mode Control Systems **2008**, 23-49		2
19	Extension of harmonic balance principle and its application to analysis of convergence rate of second-order sliding mode control algorithms **2008**,		3
18	On Convergence Rate of Second-Order Sliding Mode Control Algorithms. *IFAC Postprint Volumes IPPV / International Federation of Automatic Control*, **2008**, 41, 491-497		3
17	On the transfer properties of second-order sliding mode control systems. *IFAC Postprint Volumes IPPV / International Federation of Automatic Control*, **2008**, 41, 3823-3829		
16	Non-Parametric Tuning of PID Controllers via Modified Second-Order Sliding Mode Algorithms. *IFAC Postprint Volumes IPPV / International Federation of Automatic Control*, **2008**, 41, 6214-6219		
15	Analysis of response of second-order sliding mode controllers to external inputs in frequency domain. *International Journal of Robust and Nonlinear Control*, **2008**, 18, 502-514	3.6	14
14	Analysis of Closed-Loop Performance and Frequency-Domain Design of Compensating Filters for Sliding Mode Control Systems **2008**, 51-70		0
13	Describing function analysis of second-order sliding mode observers. *International Journal of Systems Science*, **2007**, 38, 817-824	2.3	8
12	Stability of Periodic Motions in Relay Feedback Systems with Saturation in Plant Dynamics. *Proceedings of the American Control Conference*, **2007**,	1.2	3
11	Design of Sliding Mode Indicator. *Proceedings of the American Control Conference*, **2007**,	1.2	3
10	Analysis of Chattering in Systems With Second-Order Sliding Modes. *IEEE Transactions on Automatic Control*, **2007**, 52, 2085-2102	5.9	209
9	Analysis of Closed-Loop Performance and Frequency-Domain Design of Compensating Filters for Sliding Mode Control Systems. *IEEE Transactions on Automatic Control*, **2007**, 52, 1882-1891	5.9	24

8	Performance Analysis of Second-Order Sliding-Mode Control Systems With Fast Actuators. *IEEE Transactions on Automatic Control*, **2007**, 52, 1053-1059	5.9	31
7	Periodic motion of underactuated mechanical systems self-generated by variable structure controllers: Design and experiments **2007**,		4
6	Output Excitation via Continuous Sliding-Modes to Generate Periodic Motion in Underactuated Systems **2006**,		2
5	Frequency Domain Input Output Analysis of Sliding-Mode Observers. *IEEE Transactions on Automatic Control*, **2006**, 51, 1798-1803	5.9	12
4	SELF-TUNING PI CONTROLLER. *IFAC Postprint Volumes IPPV / International Federation of Automatic Control*, **2006**, 39, 29-34		
3	SENSOR DYNAMICS COMPENSATOR FOR TEMPERATURE MEASUREMENT IN COMBUSTION CHAMBERS OF UTILITY BOILERS AND INCINERATORS. *IFAC Postprint Volumes IPPV / International Federation of Automatic Control*, **2006**, 39, 237-242		
2	Parameter tuning of second-order sliding mode controllers for linear plants with dynamic actuators. *Automatica*, **2006**, 42, 833-839	5.7	46
1	Oscillations and transfer properties of relay servo systems The locus of a perturbed relay system approach. *Automatica*, **2005**, 41, 677-683	5.7	82