Paulo Tabuada

List of Publications by Year
in descending order

181 papers	**15,176** citations	109321 **35** h-index	85541 **71** g-index
183 all docs	**183** docs citations	**183** times ranked	**5250** citing authors

#	Article	IF	Citations
1	Universal Approximation Power of Deep Residual Neural Networks Through the Lens of Control. IEEE Transactions on Automatic Control, 2023, 68, 2715-2728.	5.7	8
2	Sampled-Data Stabilization With Control Lyapunov Functions via Quadratically Constrained Quadratic Programs. , 2022, 6, 680-685.		4
3	Safety and Stability Guarantees for Control Loops With Deep Learning Perception. , 2022, 6, 1286-1291.		9
4	On the computational complexity of the secure state-reconstruction problem. Automatica, 2022, 136, 110083.	5.0	10
5	Being Correct Is Not Enough: Efficient Verification Using Robust Linear Temporal Logic. ACM Transactions on Computational Logic, 2022, 23, 1-39.	0.9	14
6	Watch and Learn: Learning to control feedback linearizable systems from expert demonstrations. , 2022, , .		2
7	Symmetries and Isomorphisms for Privacy in Control Over the Cloud. IEEE Transactions on Automatic Control, 2021, 66, 538-549.	5.7	13
8	Secure State-Reconstruction Over Networks Subject to Attacks. , 2021, 5, 157-162.		3
9	Control Barrier Function-Based Quadratic Programs Introduce Undesirable Asymptotically Stable Equilibria. , 2021, 5, 731-736.		33
10	Distortion-Based Lightweight Security for Cyber-Physical Systems. IEEE Transactions on Automatic Control, 2021, 66, 1588-1601.	5.7	4
11	Cloud-Based Quadratic Optimization With Partially Homomorphic Encryption. IEEE Transactions on Automatic Control, 2021, 66, 2357-2364.	5.7	31
12	Event-Triggered and Self-Triggered Control. , 2021, , 724-730.		7
13	Controller Synthesis for CPS. , 2021, , 435-441.		0
14	An enhanced hierarchy for (robust) controlled invariance. , 2021, , .		7
15	The Secure State Estimation Problem. Lecture Notes in Control and Information Sciences, 2021, , 123-143.	1.0	1
16	Trust your supervisor: quadrotor obstacle avoidance using controlled invariant sets. , 2021, , .		1
17	Split to win: near-optimal sensor network synthesis via path-greedy subproblems. , 2021, , .		0
18	Decentralized Resilient State-Tracking. , 2021, , .		3

#	Article	IF	Citations
19	Automaton-based Implicit Controlled Invariant Set Computation for Discrete-Time Linear Systems. , 2021, , .		1
20	Preface for the SYNT. Acta Informatica, 2020, 57, 1-1.	0.5	0
21	Rapid Top-Down Synthesis of Large-Scale IoT Networks. , 2020, , .		2
22	Sum-of-Squares methods for controlled invariant sets with applications to model-predictive control. Nonlinear Analysis: Hybrid Systems, 2020, 36, 100858.	3.5	10
23	Securing state reconstruction under sensor and actuator attacks: Theory and design. Automatica, 2020, 116, 108920.	5.0	27
24	A simple hierarchy for computing controlled invariant sets. , 2020, , .		4
25	Why not both? Exact continuous and discrete optimization with submodularity. , 2020, , .		1
26	To beam or not to beam? Beamforming with submodularity-inspired group sparsity. , 2020, , .		1
27	A coding approach to localization using landmarks. , 2020, , .		0
28	Privacy Against Adversarial Classification in Cyber-Physical Systems. , 2020, , .		0
29	Controller Synthesis for CPS. , 2020, , 1-7.		0
30	From LTL to rLTL monitoring. , 2020, , .		8
31	Persistent Connected Power Constrained Surveillance with Unmanned Aerial Vehicles. , 2020, , .		0
32	Control Barrier Functions: Theory and Applications. , 2019, , .		650
33	Evrostos. , 2019, , .		6
34	Data driven stability analysis of black-box switched linear systems. Automatica, 2019, 109, 108533.	5.0	32
35	Cyber-physical systems virtual organization: Active resources. , 2019, , .		2
36	Position paper on the challenges posed by modern applications to cyber-physical systems theory. Nonlinear Analysis: Hybrid Systems, 2019, 34, 147-165.	3.5	26

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37	Plausible deniability as a notion of privacy. , 2019, , .		8
38	Symmetries and privacy in control over the cloud: uncertainty sets and side knowledge*. , 2019, , .		1
39	Non-local Linearization of Nonlinear Differential Equations via Polyflows. , 2019, , .		13
40	Data-driven control for SISO feedback linearizable systems with unknown control gain. , 2019, , .		5
41	When is the Secure State-Reconstruction Problem Hard?. , 2019, , .		9
42	Computing controlled invariant sets in two moves. , 2019, , .		12
43	Supervisory Control of Discrete-Event Systems Under Attacks. Dynamic Games and Applications, 2019, 9, 965-983.	1.9	50
44	Correctness Guarantees for the Composition of Lane Keeping and Adaptive Cruise Control. IEEE Transactions on Automation Science and Engineering, 2018, 15, 1216-1229.	5.2	103
45	SMT-Based Observer Design for Cyber-Physical Systems under Sensor Attacks. ACM Transactions on Cyber-Physical Systems, 2018, 2, 1-27.	2.5	50
46	Mode-Target Games: Reactive Synthesis for Control Applications. IEEE Transactions on Automatic Control, 2018, 63, 196-202.	5.7	5
47	Deciding Stability of a Switched System Without Identifying It. , 2018, , .		2
48	Towards the use of Symmetries to Ensure Privacy in Control Over the Cloud. , 2018, , .		5
49	Distorting an Adversary's View in Cyber-Physical Systems. , 2018, , .		4
50	Verifying rLTL formulas: now faster than ever before!. , 2018, , .		6
51	Toward an Internet of Battlefield Things: A Resilience Perspective. Computer, 2018, 51, 24-36.	1.1	48
52	Lazy Controller Synthesis using Three-valued Abstractions for Safety and Reachability Specifications. , 2018, , .		12
53	Computing controlled invariant sets for hybrid systems with applications to model-predictive control. IFAC-PapersOnLine, 2018, 51, 193-198.	0.9	16
54	Protecting the Privacy of Networked Multi-Agent Systems Controlled over the Cloud. , 2018, , .		5

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55	Will Distributed Computing Revolutionize Peace? The Emergence of Battlefield IoT. , 2018, , .		17
56	SMC: Satisfiability Modulo Convex Programming. Proceedings of the IEEE, 2018, 106, 1655-1679.	21.3	35
57	Underminer. Transactions on Embedded Computing Systems, 2018, 17, 1-28.	2.9	8
58	Periodic Event-Triggered Control. , 2018, , 104-120.		10
59	Correction to "Compositional Transient Stability Analysis of Multimachine Power Networks". IEEE Transactions on Control of Network Systems, 2017, 4, 676-677.	3.7	2
60	Computing Robust Controlled Invariant Sets of Linear Systems. IEEE Transactions on Automatic Control, 2017, 62, 3665-3670.	5.7	72
61	First steps toward formal controller synthesis for bipedal robots with experimental implementation. Nonlinear Analysis: Hybrid Systems, 2017, 25, 155-173.	3.5	12
62	Secure State Estimation for Cyber-Physical Systems Under Sensor Attacks: A Satisfiability Modulo Theory Approach. IEEE Transactions on Automatic Control, 2017, 62, 4917-4932.	5.7	219
63	PrOLoc. , 2017, , .		22
64	PrOLoc: resilient localization with private observers using partial homomorphic encryption. , 2017, , .		3
65	Guest editorial: special issue on formal methods in control. Discrete Event Dynamic Systems: Theory and Applications, 2017, 27, 205-208.	1.5	6
66	Control Barrier Function Based Quadratic Programs for Safety Critical Systems. IEEE Transactions on Automatic Control, 2017, 62, 3861-3876.	5.7	985
67	Abstracting Partially Feedback Linearizable Systems Compositionally. , 2017, 1, 227-232.		20
68	Closed-form controlled invariant sets for pedestrian avoidance. , 2017, , .		6
69	Secure State Estimation Against Sensor Attacks in the Presence of Noise. IEEE Transactions on Control of Network Systems, 2017, 4, 49-59.	3.7	100
70	An SMT-based approach to secure state estimation under sensor and actuator attacks. , 2017, , .		10
71	Linear temporal logic motion planning for teams of underactuated robots using satisfiability modulo convex programming. , 2017, , .		33
72	Data-driven control for feedback linearizable single-input systems. , 2017, , .		24

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73	Improving sparsity in time and space via self-triggered sparse optimal controllers. , 2017, , .		1
74	Realizing simultaneous lane keeping and adaptive speed regulation on accessible mobile robot testbeds. , 2017, , .		26
75	SMC. , 2017, , .		29
76	Scalable lazy SMT-based motion planning. , 2016, , .		23
77	Decomposing controller synthesis for safety specifications. , 2016, , .		7
78	Secure system identification. , 2016, , .		1
79	Underminer. , 2016, , .		5
80	Privacy-aware quadratic optimization using partially homomorphic encryption. , 2016, , .		59
81	System identification in the presence of adversarial outputs. , 2016, , .		8
82	Synthesis of safety controllers robust to unmodeled intermittent disturbances. , 2016, , .		15
83	SMT-Based Observer Design for Cyber-Physical Systems under Sensor Attacks. , 2016, , .		18
84	Event-Triggered State Observers for Sparse Sensor Noise/Attacks. IEEE Transactions on Automatic Control, 2016, 61, 2079-2091.	5.7	294
85	A Notion of Robustness for Cyber-Physical Systems. IEEE Transactions on Automatic Control, 2016, 61, 2108-2123.	5.7	49
86	Correct-by-Construction Adaptive Cruise Control: Two Approaches. IEEE Transactions on Control Systems Technology, 2016, 24, 1294-1307.	5.2	114
87	Self-Triggered Controllers and Hard Real-Time Guarantees. , 2016, , .		10
88	Controller Synthesis for Mode-Target Games. IFAC-PapersOnLine, 2015, 48, 343-350.	0.9	3
89	Robustness of Control Barrier Functions for Safety Critical Control**This work is partially supported by the National Science Foundation Grants 1239055, 1239037 and 1239085.. IFAC-PapersOnLine, 2015, 48, 54-61.	0.9	256
90	Comparing asynchronous l-complete approximations and quotient based abstractions. , 2015, , .		8

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91	Secure state estimation: Optimal guarantees against sensor attacks in the presence of noise. , 2015, , .		33
92	Sound and complete state estimation for linear dynamical systems under sensor attacks using Satisfiability Modulo Theory solving. , 2015, , .		26
93	Secure state reconstruction in differentially flat systems under sensor attacks using satisfiability modulo theory solving. , 2015, , .		18
94	Uses and abuses of the swing equation model. , 2015, , .		20
95	On compositional symbolic controller synthesis inspired by small-gain theorems. , 2015, , .		28
96	Attack-resilient state estimation in the presence of noise. , 2015, , .		48
97	Adaptive cruise control: Experimental validation of advanced controllers on scale-model cars. , 2015, , .		35
98	First steps toward formal controller synthesis for bipedal robots. , 2015, , .		9
99	A Framework for the Event-Triggered Stabilization of Nonlinear Systems. IEEE Transactions on Automatic Control, 2015, 60, 982-996.	5.7	586
100	Towards Robustness for Cyber-Physical Systems. IEEE Transactions on Automatic Control, 2014, 59, 3151-3163.	5.7	57
101	Event-triggered projected Luenberger observer for linear systems under sparse sensor attacks. , 2014, , .		17
102	Guest Editorial Special Issue on Control of Cyber-Physical Systems. IEEE Transactions on Automatic Control, 2014, 59, 3120-3121.	5.7	36
103	Secure state estimation and control using multiple (insecure) observers. , 2014, , .		12
104	Preliminary results on correct-by-construction control software synthesis for adaptive cruise control. , 2014, , .		28
105	Discounting the past in robust finite-state systems. , 2014, , .		0
106	Control barrier function based quadratic programs with application to adaptive cruise control. , 2014, , .		477
107	Abstracting and refining robustness for cyber-physical systems. , 2014, , .		12
108	System Architectures, Protocols and Algorithms for Aperiodic Wireless Control Systems. IEEE Transactions on Industrial Informatics, 2014, 10, 175-184.	11.3	122

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109	Self-triggered linear quadratic control. Automatica, 2014, 50, 1279-1287.	5.0	138
110	Robustness of attack-resilient state estimators. , 2014, , .		162
111	Towards Kron reduction of generalized electrical networks. Automatica, 2014, 50, 2586-2590.	5.0	32
112	Compositional Transient Stability Analysis of Multimachine Power Networks. IEEE Transactions on Control of Network Systems, 2014, 1, 4-14.	3.7	65
113	Secure Estimation and Control for Cyber-Physical Systems Under Adversarial Attacks. IEEE Transactions on Automatic Control, 2014, 59, 1454-1467.	5.7	958
114	Towards a compositional analysis of multi-machine power systems transient stability. , 2013, , .		3
115	Non-invasive Spoofing Attacks for Anti-lock Braking Systems. Lecture Notes in Computer Science, 2013, , 55-72.	1.3	152
116	Specification-guided controller synthesis for linear systems and safe linear-time temporal logic. , 2013, , .		33
117	A theory of robust omega-regular software synthesis. Transactions on Embedded Computing Systems, 2013, 13, 1-27.	2.9	10
118	Event-Triggered and Self-Triggered Control. , 2013, , 1-10.		3
119	A symbolic approach to the design of robust cyber-physical systems. , 2013, , .		7
120	Input-output robustness for discrete systems. , 2012, , .		23
121	Scaling up controller synthesis for linear systems and safety specifications. , 2012, , .		8
122	Security for control systems under sensor and actuator attacks. , 2012, , .		41
123	Symbolic Models for Nonlinear Control Systems Without Stability Assumptions. IEEE Transactions on Automatic Control, 2012, 57, 1804-1809.	5.7	201
124	Kron reduction of power networks with lossy and dynamic transmission lines. , 2012, , .		15
125	Self-triggered control over wireless sensor and actuator networks. , 2011, , .		33
126	A unifying Lyapunov-based framework for the event-triggered control of nonlinear systems. , 2011, , .		65

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127	Event-triggered and self-triggered stabilization of distributed networked control systems. , 2011, , .		72
128	Secure state-estimation for dynamical systems under active adversaries. , 2011, , .		92
129	Decentralized Event-Triggered Control Over Wireless Sensor/Actuator Networks. IEEE Transactions on Automatic Control, 2011, 56, 2456-2461.	5.7	576
130	Backstepping Design for Incremental Stability. IEEE Transactions on Automatic Control, 2011, 56, 2184-2189.	5.7	60
131	Symbolic approximate time-optimal control. Systems and Control Letters, 2011, 60, 256-263.	2.3	31
132	Pessoa 2.0. , 2011, , .		34
133	Robust discrete synthesis against unspecified disturbances. , 2011, , .		28
134	Symbolic models for nonlinear time-delay systems using approximate bisimulations. Systems and Control Letters, 2010, 59, 365-373.	2.3	58
135	An ISS self-triggered implementation of linear controllers. Automatica, 2010, 46, 1310-1314.	5.0	353
136	Towards backstepping design for incremental stability. , 2010, , .		2
137	Symbolic models for unstable nonlinear control systems. , 2010, , .		4
138	To Sample or not to Sample: Self-Triggered Control for Nonlinear Systems. IEEE Transactions on Automatic Control, 2010, 55, 2030-2042.	5.7	689
139	On the minimum attention and anytime attention problems for nonlinear systems. , 2010, , .		14
140	Dynamic Scheduling and Control-Quality Optimization of Self-Triggered Control Applications. , 2010, , .		23
141	Approximate time-optimal control via approximate alternating simulations. , 2010, , .		5
142	PESSOA: A Tool for Embedded Controller Synthesis. Lecture Notes in Computer Science, 2010, , 566-569.	1.3	96
143	On self-triggered control for linear systems: Guarantees and complexity. , 2009, , .		71
144	Isochronous manifolds in self-triggered control. , 2009, , .		9

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145	A symbolic model approach to the digital control of nonlinear time-delay systems. , 2009, , .		5
146	Input-to-state stability of self-triggered control systems. , 2009, , .		39
147	On the Benefits of Relaxing the Periodicity Assumption for Networked Control Systems over CAN. , 2009, , .		47
148	Symbolic Models for Nonlinear Control Systems: Alternating Approximate Bisimulations. SIAM Journal on Control and Optimization, 2009, 48, 719-733.	2.1	120
149	Verification and Control of Hybrid Systems. , 2009, , .		505
150	Approximately bisimilar symbolic models for nonlinear control systems. Automatica, 2008, 44, 2508-2516.	5.0	234
151	Controller synthesis for bisimulation equivalence. Systems and Control Letters, 2008, 57, 443-452.	2.3	34
152	Approximate reduction of dynamic systems. Systems and Control Letters, 2008, 57, 538-545.	2.3	24
153	An Approximate Simulation Approach to Symbolic Control. IEEE Transactions on Automatic Control, 2008, 53, 1406-1418.	5.7	96
154	Symbolic models for nonlinear control systems affected by disturbances. , 2008, , .		1
155	Self-triggered stabilization of homogeneous control systems. , 2008, , .		81
156	Space-time scaling laws for self-triggered control. , 2008, , .		5
157	On event-triggered and self-triggered control over sensor/actuator networks. , 2008, , .		196
158	Approximately Bisimilar Symbolic Models for Incrementally Stable Switched Systems. Lecture Notes in Computer Science, 2008, , 201-214.	1.3	15
159	Symbolic models for nonlinear control systems using approximate bisimulation. , 2007, , .		16
160	Symbolic models for linear control systems with disturbances. , 2007, , .		3
161	Event-Triggered Real-Time Scheduling of Stabilizing Control Tasks. IEEE Transactions on Automatic Control, 2007, 52, 1680-1685.	5.7	3,464
162	Symbolic models for control systems. Acta Informatica, 2007, 43, 477-500.	0.5	15

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163	Approximate Simulation Relations and Finite Abstractions of Quantized Control Systems. , 2007, , 529-542.		23
164	On Simulations and Bisimulations of General Flow Systems. , 2007, , 145-158.		10
165	Linear Time Logic Control of Discrete-Time Linear Systems. IEEE Transactions on Automatic Control, 2006, 51, 1862-1877.	5.7	249
166	Local factorization of trajectory lifting morphisms for single-input affine control systems. Systems and Control Letters, 2006, 55, 761-769.	2.3	1
167	Approximate Reduction of Dynamical Systems. , 2006, , .		7
168	Preliminary results on state-trigered scheduling of stabilizing control tasks. , 2006, , .		62
169	On the Stability of Zeno Equilibria. Lecture Notes in Computer Science, 2006, , 34-48.	1.3	35
170	Bisimulation relations for dynamical, control, and hybrid systems. Theoretical Computer Science, 2005, 342, 229-261.	0.9	88
171	Hierarchical trajectory refinement for a class of nonlinear systems. Automatica, 2005, 41, 701-708.	5.0	27
172	Sensor/Actuator Abstractions for Symbolic Embedded Control Design. Lecture Notes in Computer Science, 2005, , 640-654.	1.3	2
173	Quotients of Fully Nonlinear Control Systems. SIAM Journal on Control and Optimization, 2005, 43, 1844-1866.	2.1	33
174	Compositional Abstractions of Hybrid Control Systems. Discrete Event Dynamic Systems: Theory and Applications, 2004, 14, 203-238.	1.5	35
175	Bisimilar control affine systems. Systems and Control Letters, 2004, 52, 49-58.	2.3	54
176	Open Maps, Alternating Simulations and Control Synthesis. Lecture Notes in Computer Science, 2004, , 466-480.	1.3	13
177	Abstractions of Hamiltonian control systems. Automatica, 2003, 39, 2025-2033.	5.0	18
178	Bisimulation Relations for Dynamical and Control Systems. Electronic Notes in Theoretical Computer Science, 2003, 69, 120-136.	0.9	25
179	Model Checking LTL over Controllable Linear Systems Is Decidable. Lecture Notes in Computer Science, 2003, , 498-513.	1.3	53
180	Composing Abstractions of Hybrid Systems. Lecture Notes in Computer Science, 2002, , 436-450.	1.3	20

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181	Hybrid Abstractions that Preserve Timed Languages. Lecture Notes in Computer Science, 2001, , 501-514.	1.3	7