

# Vijay Sekhar Chellaboina

## List of Publications by Year in descending order

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97  
papers

3,649  
citations

236925

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44  
g-index

99  
all docs

99  
docs citations

99  
times ranked

1799  
citing authors

#	ARTICLE	IF	CITATIONS
1	Impulsive and Hybrid Dynamical Systems. , 2006, , .		427
2	Nonnegative and Compartmental Dynamical Systems. , 2010, , .		283
3	Stability theory for nonnegative and compartmental dynamical systems with time delay. Systems and Control Letters, 2004, 51, 355-361.	2.3	254
4	Modeling and analysis of mass-action kinetics. IEEE Control Systems, 2009, 29, 60-78.	0.8	167
5	Stability and dissipativity theory for nonnegative dynamical systems: a unified analysis framework for biological and physiological systems. Nonlinear Analysis: Real World Applications, 2005, 6, 35-65.	1.7	161
6	Non-linear impulsive dynamical systems. Part I: Stability and dissipativity. International Journal of Control, 2001, 74, 1631-1658.	1.9	107
7	An invariance principle for nonlinear hybrid and impulsive dynamical systems. Nonlinear Analysis: Theory, Methods & Applications, 2003, 53, 527-550.	1.1	89
8	Nonlinear system stabilization via hierarchical switching control. IEEE Transactions on Automatic Control, 2001, 46, 17-28.	5.7	81
9	A unification between partial stability and stability theory for time-varying systems. IEEE Control Systems, 2002, 22, 66-75.	0.8	80
10	PDE modeling and control of a flexible two-link manipulator. IEEE Transactions on Control Systems Technology, 2005, 13, 301-312.	5.2	79
11	Robust adaptive control for nonlinear uncertain systems. Automatica, 2003, 39, 551-556.	5.0	62
12	Resetting Virtual Absorbers for Vibration Control. JVC/Journal of Vibration and Control, 2000, 6, 61-83.	2.6	59
13	Dissipativity Theory for Nonnegative and Compartmental Dynamical Systems With Time Delay. IEEE Transactions on Automatic Control, 2004, 49, 747-751.	5.7	54
14	Non-linear impulsive dynamical systems. Part II: Stability of feedback interconnections and optimality. International Journal of Control, 2001, 74, 1659-1677.	1.9	53
15	Dissipativity theory and stability of feedback interconnections for hybrid dynamical systems. Mathematical Problems in Engineering, 2001, 7, 299-335.	1.1	44
16	Stability and dissipativity theory for discrete-time non-negative and compartmental dynamical systems. International Journal of Control, 2003, 76, 1845-1861.	1.9	44
17	Energy- and Entropy-Based Stabilization for Lossless Dynamical Systems via Hybrid Controllers. IEEE Transactions on Automatic Control, 2007, 52, 1604-1614.	5.7	43
18	Optimal discrete-time control for non-linear cascade systems. Journal of the Franklin Institute, 1998, 335, 827-839.	3.4	41

#	ARTICLE	IF	CITATIONS
19	Exponentially dissipative nonlinear dynamical systems: a nonlinear extension of strict positive realness. <i>Mathematical Problems in Engineering</i> , 2003, 2003, 25-45.	1.1	41
20	Induced Convolution Operator Norms of Linear Dynamical Systems. <i>Mathematics of Control, Signals, and Systems</i> , 2000, 13, 216-239.	2.3	38
21	Vector dissipativity theory and stability of feedback interconnections for large-scale non-linear dynamical systems. <i>International Journal of Control</i> , 2004, 77, 907-919.	1.9	37
22	Energy-based control for hybrid port-controlled Hamiltonian systems. <i>Automatica</i> , 2003, 39, 1425-1435.	5.0	36
23	Limit cycle analysis of the verge and foliot clock escapement using impulsive differential equations and Poincaré maps. <i>International Journal of Control</i> , 2003, 76, 1685-1698.	1.9	36
24	Nonlinear control of Hammerstein systems with passive nonlinear dynamics. <i>IEEE Transactions on Automatic Control</i> , 2001, 46, 1630-1634.	5.7	33
25	Generalized mixed- $\mathcal{H}_2/\mathcal{H}_\infty$ bounds for real and complex multiple-block uncertainty with internal matrix structure. <i>International Journal of Control</i> , 1996, 64, 789-806.	1.9	32
26	Optimal non-linear robust control for non-linear uncertain systems. <i>International Journal of Control</i> , 2000, 73, 329-342.	1.9	32
27	Neural Network Adaptive Control for Nonlinear Nonnegative Dynamical Systems. <i>IEEE Transactions on Neural Networks</i> , 2005, 16, 399-413.	4.2	31
28	optimal semistable control for linear dynamical systems: An LMI approach. <i>Journal of the Franklin Institute</i> , 2011, 348, 2898-2910.	3.4	25
29	Generalized Lyapunov and invariant set theorems for nonlinear dynamical systems. <i>Systems and Control Letters</i> , 1999, 38, 289-295.	2.3	24
30	Adaptive Control of Mamillary Drug Delivery Systems with Actuator Amplitude Constraints and System Time Delays. <i>European Journal of Control</i> , 2005, 11, 586-600.	2.6	20
31	Hybrid nonnegative and computational dynamical systems. <i>Mathematical Problems in Engineering</i> , 2002, 8, 493-515.	1.1	19
32	A dissipative dynamical systems approach to stability analysis of time delay systems. <i>International Journal of Robust and Nonlinear Control</i> , 2005, 15, 25-33.	3.7	18
33	On system state equipartitioning and semistability in network dynamical systems with arbitrary time-delays. <i>Systems and Control Letters</i> , 2008, 57, 670-679.	2.3	18
34	Mixed-norm $H_2/L_1$ controller synthesis via fixed-order dynamic compensation: A Riccati equation approach. <i>International Journal of Control</i> , 1998, 71, 35-59.	1.9	17
35	Thermodynamic modeling, energy equipartition, and nonconservation of entropy for discrete-time dynamical systems. <i>Advances in Difference Equations</i> , 2005, 2005, 248040.	3.5	17
36	Robust nonlinear feedback control for uncertain linear systems with nonquadratic performance criteria. <i>Systems and Control Letters</i> , 1998, 33, 327-338.	2.3	16

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37	Stability margins of discrete-time nonlinear-non-quadratic optimal regulators. International Journal of Systems Science, 2002, 33, 577-584.	5.5	15
38	Time-reversal symmetry, Poincaré recurrence, irreversibility, and the entropic arrow of time: From mechanics to system thermodynamics. Nonlinear Analysis: Real World Applications, 2008, 9, 250-271.	1.7	14
39	Limit cycle stability analysis and adaptive control of a multi-compartment model for a pressure-limited respirator and lung mechanics system. International Journal of Control, 2010, 83, 940-955.	1.9	14
40	Nonlinear robust disturbance rejection controllers for rotating stall and surge in axial flow compressors. IEEE Transactions on Control Systems Technology, 1999, 7, 391-398.	5.2	13
41	Fixed-order dynamic compensation for linear systems with actuator amplitude and rate saturation constraints. International Journal of Control, 2000, 73, 1087-1103.	1.9	13
42	Vector dissipativity theory for discrete-time large-scale nonlinear dynamical systems. Advances in Difference Equations, 2004, 2004, 612830.	3.5	13
43	Optimal disturbance rejection control for nonlinear impulsive dynamical systems. Nonlinear Analysis: Theory, Methods & Applications, 2005, 62, 1466-1489.	1.1	13
44	Adaptive Input Estimation Methods for Improving the Bandwidth of Microgyroscopes. IEEE Sensors Journal, 2007, 7, 562-567.	4.7	13
45	Discrete-time nonlinear analysis and feedback control with nonquadratic performance criteria. Journal of the Franklin Institute, 1996, 333, 849-860.	3.4	12
46	Finite settling time control of the double integrator using a virtual trap-door absorber. IEEE Transactions on Automatic Control, 2000, 45, 776-780.	5.7	12
47	Optimal fixed-structure control for linear non-negative dynamical systems. International Journal of Robust and Nonlinear Control, 2004, 14, 487-511.	3.7	12
48	Hybrid decentralized maximum entropy control for large-scale dynamical systems. Nonlinear Analysis: Hybrid Systems, 2007, 1, 244-263.	3.5	12
49	Robust nonlinear-nonquadratic feedback control via parameterdependent Lyapunov functions. International Journal of Control, 1997, 66, 843-861.	1.9	11
50	$H_{\infty}$ optimal semistable control for linear dynamical systems: An LMI approach. , 2007, , .		11
51	Is the Frobenius matrix norm induced?. IEEE Transactions on Automatic Control, 1995, 40, 2137-2139.	5.7	10
52	Inverse optimal adaptive control for non-linear uncertain systems with exogenous disturbances. International Journal of Adaptive Control and Signal Processing, 2000, 14, 1-38.	4.1	10
53	Stability margins of nonlinear optimal regulators with nonquadratic performance criteria involving cross-weighting terms. Systems and Control Letters, 2000, 39, 71-78.	2.3	10
54	Robust stabilization of axial flow compressors with uncertain pressure-flow maps. IEEE Transactions on Control Systems Technology, 2000, 8, 466-473.	5.2	10

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55	Hybrid adaptive control for non-linear uncertain impulsive dynamical systems. International Journal of Adaptive Control and Signal Processing, 2005, 19, 445-469.	4.1	10
56	An implicit small gain condition and an upper bound for the real structured singular value. Systems and Control Letters, 1997, 29, 197-205.	2.3	9
57	Linear controller analysis and design for systems with input hystereses nonlinearities. Journal of the Franklin Institute, 2003, 340, 371-390.	3.4	9
58	Vector dissipativity theory for large-scale impulsive dynamical systems. Mathematical Problems in Engineering, 2004, 2004, 225-262.	1.1	9
59	Structured matrix norms for robust stability and performance with block-structured uncertainty. International Journal of Control, 1998, 71, 535-557.	1.9	8
60	Optimal nonlinear nonquadratic feedback control for nonlinear discrete-time systems with and disturbances. Nonlinear Analysis: Theory, Methods & Applications, 2000, 41, 287-312.	1.1	8
61	Thermodynamic Stabilization via Energy Dissipating Hybrid Controllers. , 0, , .		8
62	Nonlinear controllers for nonlinear systems with input nonlinearities. Journal of the Franklin Institute, 1999, 336, 649-664.	3.4	7
63	On Nonoscillation and Monotonicity of Solutions of Nonnegative and Compartmental Dynamical Systems. IEEE Transactions on Biomedical Engineering, 2004, 51, 408-414.	4.2	7
64	Direct adaptive control for nonlinear matrix second-order dynamical systems with state-dependent uncertainty. Systems and Control Letters, 2003, 48, 53-67.	2.3	6
65	Controller synthesis with guaranteed closed-loop phase constraints. Automatica, 2008, 44, 3211-3214.	5.0	6
66	Optimal nonlinear disturbance rejection control for nonlinear cascade systems. International Journal of Control, 1997, 68, 997-1018.	1.9	5
67	On System State Equipartitioning and Semistability in Network Dynamical Systems with Arbitrary Time-Delays. , 2006, , .		5
68	Limit Cycle Stability Analysis of a Multi-Compartment Model for a Pressure-Limited Respirator and Lung Mechanics System. Proceedings of the American Control Conference, 2007, , .	0.0	5
69	The structured phase margin for robust stability analysis of linear systems with phase and time delay uncertainties. International Journal of Control, 2008, 81, 1298-1310.	1.9	5
70	Structured matrix norms for real and complex block-structured uncertainty. Automatica, 1997, 33, 995-997.	5.0	4
71	Multimode Control of Axial Compressors via Stability-Based Switching Controllers. Journal of Propulsion and Power, 1999, 15, 364-367.	2.2	3
72	Robust fixed-structure controller synthesis using the implicit small-gain bound. Journal of the Franklin Institute, 2000, 337, 85-96.	3.4	3

#	ARTICLE	IF	CITATIONS
73	Neural network adaptive control for discrete-time nonlinear nonnegative dynamical systems. , 0, , .		3
74	Large-scale nonlinear dynamical systems: a vector dissipative systems approach. , 0, , .		3
75	Discrete-time, minimum-variance hedging of European contingent claims. , 2009, , .		3
76	$H_2$ suboptimal estimation and control for nonnegative dynamical systems. Optimal Control Applications and Methods, 2009, 30, 27-45.	2.1	3
77	Frequency domain performance bounds for uncertain positive real systems. Journal of Guidance, Control, and Dynamics, 1996, 19, 398-406.	2.8	2
78	Nonlinear robust hierarchical control for nonlinear uncertain systems. Mathematical Problems in Engineering, 2000, 5, 499-542.	1.1	2
79	Lyapunov function proof of Poincaré's theorem. International Journal of Systems Science, 2004, 35, 287-292.	5.5	2
80	Dynamic Dissipativity Theory for Stability of Nonlinear Feedback Dynamical Systems. , 0, , .		2
81	Heat flow, work energy, chemical reactions, and thermodynamics: a dynamical systems perspective. , 2010, , .		2
82	Direct Adaptive Control of Nonnegative and Compartmental Dynamical Systems with Time Delay. , 2007, , 291-316.		2
83	Real- $\frac{1}{4}$ bounds based on fixed shapes in the Nyquist plane: Parabolas, hyperbolas, cissoids, nephroids, and octomorphs. Systems and Control Letters, 1996, 27, 55-66.	2.3	1
84	Multiobjective $L_1/H_\infty$ Controller Design for Systems with Frequency and Time Domain Constraints. European Journal of Control, 2000, 6, 170-183.	2.6	1
85	Time-Reversal Symmetry, Poincaré's Recurrence, Irreversibility, and the Entropic Arrow of Time: From Mechanics to System Thermodynamics. , 0, , .		1
86	Frequency Domain Sufficient Conditions for Stability Analysis of Linear Neutral Time-Delay Systems. , 0, , .		1
87	Time-Domain Sufficient Conditions for Stability Analysis of Linear Neutral Time-Delay Systems. Proceedings of the American Control Conference, 2007, , .	0.0	1
88	Controller synthesis with guaranteed closed-loop phase constraints. , 2007, , .		1
89	Direct adaptive control for a mutli-compartmental model of a pressure-limited respirator and lung mechanics system. , 2008, , .		1
90	Frequency-domain performance bounds for uncertain structures with sensor and actuator dynamics. International Journal of Control, 1997, 66, 381-392.	1.9	0

#	ARTICLE	IF	CITATIONS
91	Fixed Order Positive Real Control Using Genetic Algorithms. , 2004, , 743.		0
92	On monotonicity of solutions of discrete-time nonnegative and compartmental dynamical systems. Advances in Difference Equations, 2004, 2004, 532048.	3.5	0
93	Optimal Dynamic Assignment for Low Earth Orbit Satellite Constellations. , 2006, , .		0
94	H2 Suboptimal Estimation and Control for Nonnegative Dynamical Systems. Proceedings of the American Control Conference, 2007, , .	0.0	0
95	Discrete-time optimal hedging for multi-asset path-dependent European contingent claims. , 2009, , .		0
96	Model-Free Optimal Control: A Critical Analysis. Lecture Notes in Computer Science, 2017, , 215-222.	1.3	0
97	Dynamic Dissipativity Theory for Stability of Time-Delay Systems. Advances in Delays and Dynamics, 2019, , 33-47.	0.4	0