Aranya Chakrabortty

List of Publications by Year
in descending order

172	2,595	279798	243625
papers	citations	23 h-index	44 g-index

174	174	174	2115
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	A systems and control perspective of CPS security. Annual Reviews in Control, 2019, 47, 394-411.	7.9	293
2	A Measurement-Based Framework for Dynamic Equivalencing of Large Power Systems Using Wide-Area Phasor Measurements. IEEE Transactions on Smart Grid, 2011, 2, 68-81.	9.0	175
3	Wide-Area Damping Control of Power Systems Using Dynamic Clustering and TCSC-Based Redesigns. IEEE Transactions on Smart Grid, 2012, 3, 1503-1514.	9.0	155
4	Co-Optimization of Power and Reserves in Dynamic T&D Power Markets With Nondispatchable Renewable Generation and Distributed Energy Resources. Proceedings of the IEEE, 2016, 104, 807-836.	21.3	155
5	Introduction to wide-area control of power systems. , 2013, , .		110
6	Distributed Optimization Algorithms for Wide-Area Oscillation Monitoring in Power Systems Using Interregional PMU-PDC Architectures. IEEE Transactions on Smart Grid, 2015, 6, 2529-2538.	9.0	94
7	Synchronized Phasor Data Based Energy Function Analysis of Dominant Power Transfer Paths in Large Power Systems. IEEE Transactions on Power Systems, 2007, 22, 727-734.	6.5	79
8	Time-scale separation redesigns for stabilization and performance recovery of uncertain nonlinear systems. Automatica, 2009, 45, 34-44.	5.0	78
9	Estimation of Radial Power System Transfer Path Dynamic Parameters Using Synchronized Phasor Data. IEEE Transactions on Power Systems, 2008, 23, 564-571.	6.5	59
10	Dynamic Modeling, Stability, and Control of Power Systems With Distributed Energy Resources: Handling Faults Using Two Control Methods in Tandem. IEEE Control Systems, 2019, 39, 34-65.	0.8	59
11	Graph-Theoretic Analysis of Power Systems. Proceedings of the IEEE, 2018, 106, 931-952.	21.3	58
12	ADMM Optimization Strategies for Wide-Area Oscillation Monitoring in Power Systems Under Asynchronous Communication Delays. IEEE Transactions on Smart Grid, 2016, 7, 2123-2133.	9.0	54
13	Identification and Predictive Analysis of a Multi-Area WECC Power System Model Using Synchrophasors. IEEE Transactions on Smart Grid, 2017, 8, 1977-1986.	9.0	50
14	Game-Theoretic Multi-Agent Control and Network Cost Allocation Under Communication Constraints. IEEE Journal on Selected Areas in Communications, 2017, 35, 330-340.	14.0	49
15	Topology identification for dynamic equivalent models of large power system networks. , 2013, , .		40
16	Coordinating Wind Farms and Battery Management Systems for Inter-Area Oscillation Damping: A Frequency-Domain Approach. IEEE Transactions on Power Systems, 2014, 29, 1454-1462.	6.5	40
17	A delay-aware cyber-physical architecture for wide-area control of power systems. Control Engineering Practice, 2017, 60, 171-182.	5.5	39
18	Retrofit Control of Wind-Integrated Power Systems. IEEE Transactions on Power Systems, 2018, 33, 2804-2815.	6.5	39

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19	A Real-Time Attack Localization Algorithm for Large Power System Networks Using Graph-Theoretic Techniques. IEEE Transactions on Smart Grid, 2015, 6, 2551-2559.	9.0	33
20	Robust Stabilization and Performance Recovery of Nonlinear Systems With Unmodeled Dynamics. IEEE Transactions on Automatic Control, 2009, 54, 1351-1356.	5.7	32
21	Equilibrium Point Analysis and Power Sharing Methods for Distribution Systems Driven by Solid-State Transformers. IEEE Transactions on Power Systems, 2018, 33, 1473-1483.	6.5	30
22	PMU placement for dynamic equivalencing of power systems under flow observability constraints. Electric Power Systems Research, 2014, 106, 51-61.	3.6	29
23	Dynamic Modeling and Feasibility Analysis of a Solid-State Transformer-Based Power Distribution System. IEEE Transactions on Industry Applications, 2018, 54, 551-562.	4.9	29
24	Reduced-dimensional reinforcement learning control using singular perturbation approximations. Automatica, 2021, 126, 109451.	5.0	29
25	On Model-Free Reinforcement Learning of Reduced-Order Optimal Control for Singularly Perturbed Systems. , 2018, , .		28
26	Interarea Model Estimation for Radial Power System Transfer Paths With Intermediate Voltage Control Using Synchronized Phasor Measurements. IEEE Transactions on Power Systems, 2009, 24, 1318-1326.	6.5	27
27	Time-Scale Modeling of Wind-Integrated<?Pub _newline ?>Power Systems. IEEE Transactions on Power Systems, 2016, 31, 4712-4721.	6.5	23
28	Distributed wide-area control of power system oscillations under communication and actuation constraints. Control Engineering Practice, 2018, 74, 132-143.	5.5	22
29	Smart Grid Simulations and Their Supporting Implementation Methods. Proceedings of the IEEE, 2017, 105, 2220-2243.	21.3	21
30	Impact of wind farm placement on inter-area oscillations in large power systems. , 2012, , .		18
31	A wide-area SVC controller design for inter-area oscillation damping in WECC based on a structured dynamic equivalent model. Electric Power Systems Research, 2016, 133, 1-11.	3.6	18
32	An online structurally constrained LQR design for damping oscillations in power system networks. , 2017, , .		18
33	On aggregate control of clustered consensus networks. , 2015, , .		17
34	Structured Identification of Reduced-Order Models of Power Systems in a Differential-Algebraic Form. IEEE Transactions on Power Systems, 2017, 32, 198-207.	6.5	17
35	Scalable Designs for Reinforcement Learning-Based Wide-Area Damping Control. IEEE Transactions on Smart Grid, 2021, 12, 2389-2401.	9.0	17
36	Hardware-in-the-Loop Simulations and Verifications of Smart Power Systems over an Exo-GENI Testbed. , 2013, , .		16

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37	A model predictive control design for selective modal damping in power systems. , 2015, , .		15
38	A Two-Time-Scale Redesign for Robust Stabilization and Performance Recovery of Uncertain Nonlinear Systems. Proceedings of the American Control Conference, 2007, , .	0.0	14
39	Protecting privacy of topology in consensus networks. , 2015, , .		14
40	Graph-Theoretic Methods for Measurement-Based Input Localization in Large Networked Dynamic Systems. IEEE Transactions on Automatic Control, 2015, 60, 2114-2128.	5.7	14
41	Control Inversion: A Clustering-Based Method for Distributed Wide-Area Control of Power Systems. IEEE Transactions on Control of Network Systems, 2019, 6, 937-949.	3.7	13
42	Optimization Algorithms for Catching Data Manipulators in Power System Estimation Loops. IEEE Transactions on Control Systems Technology, 2019, 27, 1203-1218.	5.2	13
43	A measurement-based framework for dynamic equivalencing of large power systems using WAMS. , 2010, , .		11
44	Exploring the impact of wind penetration on power system equilibrium using a numerical continuation approach. , 2015, , .		11
45	Fast Online Reinforcement Learning Control Using State-Space Dimensionality Reduction. IEEE Transactions on Control of Network Systems, 2021, 8, 342-353.	3.7	11
46	Time-Scale Separation Designs for Performance Recovery of Power Systems With Unknown Parameters and Faults. IEEE Transactions on Control Systems Technology, 2011, 19, 382-390.	5.2	10
47	A Distributed Cloud-based Wide-Area Controller with SDN-Enabled Delay Optimization. , 2018, , .		10
48	Optimal Power Flow Design for Enhancing Dynamic Performance: Potentials of Reactive Power. IEEE Transactions on Smart Grid, 2021, 12, 599-611.	9.0	10
49	Model-Free Optimal Control of Linear Multiagent Systems via Decomposition and Hierarchical Approximation. IEEE Transactions on Control of Network Systems, 2021, 8, 1069-1081.	3.7	10
50	A graph-theoretic algorithm for localization of forced harmonic oscillation inputs in power system networks. , 2014, , .		9
51	A real-time distributed Prony-based algorithm for modal estimation of power system oscillations. , 2014, , .		9
52	A Spatio-Temporal Framework for Spectral Analysis and Control of Interarea Oscillations in Wind-Integrated Power Systems. IEEE Transactions on Control Systems Technology, 2014, 22, 1658-1665.	5.2	9
53	An intrusion-resilient distributed optimization algorithm for modal estimation in power systems. , 2015, , .		9
54	Equilibria analysis of power systems using a numerical homotopy method. , 2015, , .		9

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55	Learning Distributed Stabilizing Controllers for Multi-Agent Systems. , 2022, 6, 301-306.		9
56	Virtual smart grid architecture and control framework. , 2011, , .		8
57	Building a dynamic electroâ€mechanical model for the Pacific AC intertie using distributed synchrophasor measurements. European Transactions on Electrical Power, 2011, 21, 1657-1672.	1.0	8
58	A study on group communication in distributed wide-area measurement system networks in large power systems. , 2013, , .		8
59	Aggregate control of clustered networks with inter-cluster time delays. , 2016, , .		8
60	Block-Decentralized Model-Free Reinforcement Learning Control of Two Time-Scale Networks. , 2019, , .		8
61	Modeling and Quantifying the Impact of Wind Penetration on Slow Coherency of Power Systems. IEEE Transactions on Power Systems, 2021, 36, 1002-1012.	6.5	8
62	Designing Optimal Key Lengths and Control Laws for Encrypted Control Systems Based on Sample Identifying Complexity and Deciphering Time. IEEE Transactions on Automatic Control, 2023, 68, 2183-2198.	5.7	8
63	Optimal sensor placement for parametric model identification of electrical networks, part I: Open loop estimation. , 2010, , .		7
64	Wide-area damping control of large power systems using a model reference approach. , 2011, , .		7
65	A minimum cover algorithm for PMU placement in power system networks under line observability constraints. , 2012, , .		7
66	Delay-aware co-designs for wide-area control of power grids. , 2014, , .		7
67	Shaping power system inter-area oscillations through control loops of grid integrated wind farms. , 2012, , .		6
68	A real-time distributed storage system for multi-resolution virtual synchrophasor. , 2014, , .		6
69	Optimal Measurement Allocation Algorithms for Parametric Model Identification of Power Systems. IEEE Transactions on Control Systems Technology, 2014, 22, 1801-1812.	5.2	6
70	Distributed Learning of Mode Shapes in Power System Models. , 2018, , .		6
71	Structurally Constrained ell_{1}-Sparse Control of Power Systems: Online Design and Resiliency Analysis. , 2018, , .		6
72	Differential Privacy for Network Identification. IEEE Transactions on Control of Network Systems, 2020, 7, 266-277.	3.7	6

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73	Multi-dimensional wide-area visualization of power system dynamics using Synchrophasors. , 2013, , .		5
74	Comprehensive dynamic modeling of a solid-state transformer based power distribution system. , 2016, , .		5
75	Delay-Aware Control Designs of Wide-Area Power Networks * *This work was supported in part by NSF grant ECS 1054394.. IFAC-PapersOnLine, 2017, 50, 79-84.	0.9	5
76	Sparsity-Constrained Mixed H_{2}/H_{infty} Control. , 2018, , .		5
77	Sparse Wide-Area Control of Power Systems using Data-driven Reinforcement Learning. , 2019, , .		5
78	Measurement-driven optimal control of utility-scale power systems: A New York State grid perspective. International Journal of Electrical Power and Energy Systems, 2020, 115, 105470.	5.5	5
79	Sparsity-promoting optimal control of cyberâ€“physical systems over shared communication networks. Automatica, 2020, 122, 109217.	5.0	5
80	Wide-Area Control of Power Systems: Employing Data-Driven, Hierarchical Reinforcement Learning. IEEE Electrification Magazine, 2021, 9, 45-52.	1.8	5
81	Model-based and model-free designs for an extended continuous-time LQR with exogenous inputs. Systems and Control Letters, 2021, 154, 104983.	2.3	5
82	A Distributed Optimization Algorithm for Attack-Resilient Wide-Area Monitoring of Power Systems: Theoretical and Experimental Methods. Lecture Notes in Computer Science, 2014, , 350-359.	1.3	5
83	Fast Real-Time Reinforcement Learning for Partially-Observable Large-Scale Systems. IEEE Transactions on Artificial Intelligence, 2020, 1, 206-218.	4.7	5
84	A Three-time-scale redesign for robust stabilization and performance recovery of nonlinear systems with input uncertainties. , 2007, , .		4
85	Interarea model estimation for radial power system transfer paths with voltage support using synchronized phasor measurements. , 2008, , .		4
86	Robust design of a spacecraft attitude tracking control system with actuator uncertainties. , 2008, , .		4
87	A graph-theoretic algorithm for disturbance localization in large power grids using residue estimation. , 2013, , .		4
88	Distributed estimation of inter-area oscillation modes in large power systems using alternating direction multiplier method. , 2014, , .		4
89	A Graph-Theoretic Condition for Global Identifiability of Weighted Consensus Networks. IEEE Transactions on Automatic Control, 2015, , 1-1.	5.7	4
90	Identifying covert data-manipulators in power system estimation loops. , 2016, , .		4

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91	Ensuring economic fairness in wide-area control for power systems via game theory. , 2016, , .		4
92	Synchronization and Aggregation of Nonlinear Power Systems with Consideration of Bus Network Structures. , 2018, , .		4
93	Introduction to Koopman Mode Decomposition for Data-Based Technology of Power System Nonlinear Dynamics. IFAC-PapersOnLine, 2018, 51, 327-332.	0.9	4
94	Learning Power System Dynamic Signatures using LSTM-Based Deep Neural Network: A Prototype Study on the New York State Grid. , 2019, , .		4
95	A Cyber-Security Investment Game for Networked Control Systems. , 2019, , .		4
96	Efficient Algorithms for Eigensystem Realization Using Randomized SVD. SIAM Journal on Matrix Analysis and Applications, 2021, 42, 1045-1072.	1.4	4
97	Model-Free Reinforcement Learning of Minimal-Cost Variance Control. , 2020, 4, 916-921.		4
98	Optimal co-designs of communication and control in bandwidth-constrained cyberâ€“physical systems. Automatica, 2022, 142, 110288.	5.0	4
99	Optimal measurement allocation for parametric model identification of electrical networks. Nonlinear Theory and Its Applications IEICE, 2011, 2, 302-319.	0.6	3
100	Optimal sensor placement for parametric identification of electrical networks using mixed phasor measurements. , 2011, , .		3
101	Graph-theoretic algorithms for PMU placement in power systems under measurement observability constraints. , 2012, , .		3
102	A multi-user network testbed for wide-area monitoring and control of power systems using distributed synchrophasors. , 2013, , .		3
103	Impact analysis of wind power injection on time-scale separation of power system oscillations. , 2014, , .		3
104	Distributed Implementation of Wide-Area Monitoring Algorithms for Power Systems Using a US-Wide ExoGENI-WAMS Testbed. , 2014, , .		3
105	Mitigating Denial-of-Service attacks in wide-area LQR control. , 2016, , .		3
106	H₂-clustering of closed-loop consensus networks under a class of LQR design. , 2016, , .		3
107	Infusing autonomy in power distribution networks using smart transformers. , 2017, , .		3
108	A Measurement-Based Approach for Optimal Damping Control of the New York State Power Grid. , 2018, , .		3

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109	A New Cyber-Secure Countermeasure for LTI systems under DoS attacks. , 2019, , .		3
110	Improved Numerical Methodologies on Power System Dynamic Simulation Using GPU Implementation. , 2019, , .		3
111	On Robust Model-Free Reduced-Dimensional Reinforcement Learning Control for Singularly Perturbed Systems. , 2020, , .		3
112	Wide-Area Communication and Control: A Cyber-Physical Perspective. Power Electronics and Power Systems, 2019, , 139-164.	0.6	3
113	Performance recovery of power systems with unknown parameters and faults. , 2007, , .		2
114	Robust stabilization and performance recovery of nonlinear systems with input unmodeled dynamics. , 2008, , .		2
115	Some new results on the identification of two-area power system models with SVC control. , 2009, , .		2
116	Optimal sensor placement for parametric model identification of electrical networks, Part II: Estimation under output feedback. , 2010, , .		2
117	A decentralized ID algorithm for detecting slow-fast oscillations in power systems from overwhelming volumes of phasor data. , 2012, , .		2
118	Using battery management systems to augment inter-area oscillation control in wind-integrated power systems. , 2013, , .		2
119	Cost allocation strategies for wide-area control of power systems using Nash Bargaining Solution. , 2014, , .		2
120	A Round-Robin ADMM algorithm for identifying data-manipulators in power system estimation. , 2016, , .		2
121	Distributed monitoring of wide-area oscillations in the presence of GPS spoofing attacks. , 2016, , .		2
122	A retrofitting-based supplementary controller design for enhancing damping performance of wind power systems. , 2017, , .		2
123	LQG control of large networks: A clustering-based approach. , 2017, , .		2
124	Sparse and Distributed Control of Wide-Area Power Systems with Large Communication Delays. , 2018, , .		2
125	Sparse Optimal Control of LTI Systems under Sparsity-Dependent Delays. , 2018, , .		2
126	Scalable design methods for online dataâ€driven wideâ€area control of power systems. IET Generation, Transmission and Distribution, 2021, 15, 2085-2100.	2.5	2

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127	Decomposability and Parallel Computation of Multi-Agent LQR. , 2021, , .		2
128	Model-Free Decentralized Reinforcement Learning Control of Distributed Energy Resources. , 2020, , .		2
129	Performance oriented high gain redesigns for FACTS-controlled SMIB power systems. , 2009, , .		1
130	Macroscopic modeling of large power systems using distributed dynamic measurements with dependence on network topology. , 2010, , .		1
131	Wide-Area Monitoring and Situational Awareness. Electric Power Engineering Series, 2012, , 1-46.	0.4	1
132	A Model Reference Approach for Interarea Modal Damping in Large Power Systems. , 2012, , 343-362.		1
133	Distributed Optimization Methods for Wide-Area Damping Control of Power System Oscillations. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2014, 47, 1861-1866.	0.4	1
134	A global identifiability condition for consensus networks on tree graphs. , 2015, , .		1
135	Ensuring localizability of node attacks in consensus networks via feedback graph design. , 2015, , .		1
136	Convergence analysis of ADMM-based power system mode estimation under asynchronous wide-area communication delays. , 2015, , .		1
137	Co-designing communication and control systems for wide-area control of power systems. , 2016, , .		1
138	A resilient software infrastructure for Wide-Area Measurement Systems. , 2016, , .		1
139	Wide-area control of power systems using cloud-in-the-loop feedback. , 2016, , .		1
140	â„‹2-clustering of closed-loop consensus networks under generalized LQR designs. , 2016, , .		1
141	Distributed cyber-physical algorithms for wide-area control of power systems. , 2017, , .		1
142	Online Detection and Quantification of Transient Instability using Lyapunov Exponents from PMU Data. , 2018, , .		1
143	Hierarchical $mathcal{H}_{2}$ Control of Large-Scale Network Dynamic Systems. , 2018, , .		1
144	Optimal Delay Assignment in Delay-Aware Control of Cyber-Physical Systems: A Machine Learning Approach. , 2019, , .		1

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145	Improving Controllability and Plug-and-Play Operation of Wind Farms Using B2B Converters. , 2020, 4, 379-384.		1
146	Co-Design of Delays and Sparse Controllers for Bandwidth-Constrained Cyber-Physical Systems. , 2020, , .		1
147	Reinforcement Learning Control of Power Systems with Unknown Network Model under Ambient and Forced Oscillations. , 2020, , .		1
148	Dr. Radhakishan Sohanlal Baheti, 1945â€“2021. IEEE Control Systems, 2021, 41, 99-102.	0.8	1
149	Measurement-Based Methods for Model Reduction of Power Systems Using Synchrophasors. Power Electronics and Power Systems, 2013, , 159-197.	0.6	1
150	LSTM based Denial-of-Service Resiliency for Wide-Area Control of Power Systems. , 2021, , .		1
151	Necessity of Lossless Transmission and Convexity of Potential Energy Function for Equilibrium Independent Passivity of Power Systems. , 2021, , .		1
152	Nonlinear Koopman Observability Measures on Subsets of Power System State Variables. , 2021, , .		1
153	Energy Function Analysis of Power Transfer Paths Using Synchronized Phasor Data. , 2006, , .		0
154	Building a dynamic electromechanical model for the pacific AC intertie using PMU measurements. , 2010, , .		0
155	Optimal placement of PMUs for identification of power system models using noisy measurement data. , 2010, , .		0
156	Graph-theoretic model reduction of oscillation propagation in spatially distributed power system networks. , 2012, , .		0
157	Evaluating the computation times of real-time algorithms for power system modeling and state prediction. , 2012, , .		0
158	Spatio-temporal oscillation monitoring in spatially distributed power system networks using energy functions. , 2014, , .		0
159	A wide-area SVC controller design using a dynamic equivalent model of WECC. , 2015, , .		0
160	Parallel Identification of Power System Dynamic Models Under Scheduling Constraints. IEEE Transactions on Power Systems, 2016, 31, 4584-4594.	6.5	0
161	Identifying data-manipulators in power system mode estimation loops with noisy measurements. , 2017, , .		0
162	A Hierarchical Design for Damping Control of Wind-Integrated Power Systems Considering Heterogeneous Wind Farm Dynamics. , 2018, , .		0

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163	Online Tuning of Cloud-based Wide-Area Controllers with Variations in Network Traffic. , 2019, , .		0
164	Exponentially Fast Estimation of Power System Oscillation Modes Using Distributed Phasor Data. , 2019, , .		0
165	Block-Decentralized Damping Control of Power Systems using Retrofit Control Theory. , 2020, , .		0
166	Localizing Data Manipulators in Distributed Mode Shape Identification of Power Systems. , 2020, , .		0
167	Observer-Based Extremum Seeking Control of Static Maps with Delays. , 2020, , .		0
168	Wide-Area Control of Power Systems. , 2021, , 2462-2469.		0
169	Enhancing Controllability of Wind Farms Against Parametric Resonance: A Series Compensation Approach. , 2021, 5, 1447-1452.		0
170	Research Challenges for Design and Implementation of Wide-Area Control. Power Electronics and Power Systems, 2019, , 165-172.	0.6	0
171	Wide-Area Control of Power Systems. , 2020, , 1-8.		0
172	Neural Network-Assisted Resilient Wide-Area Control of Power Systems under Denial-of-Service Attacks. , 2021, , .		0