Lucy Pao

List of Publications by Year
in descending order

117 papers	4,647 citations	186265 28 h-index	149698 56 g-index
118 all docs	118 docs citations	118 times ranked	2559 citing authors

#	Article	IF	Citations
1	Grand challenges in the science of wind energy. Science, 2019, 366, .	12.6	482
2	Wind plant power optimization through yaw control using a parametric model for wake effects-a CFD simulation study. Wind Energy, 2016, 19, 95-114.	4.2	438
3	A Model-Free Approach to Wind Farm Control Using Game Theoretic Methods. IEEE Transactions on Control Systems Technology, 2013, 21, 1207-1214.	5.2	247
4	A tutorial on the dynamics and control of wind turbines and wind farms. , 2009, , .		244
5	Proximate Time-Optimal Digital Control for Synchronous Buck DC–DC Converters. IEEE Transactions on Power Electronics, 2008, 23, 2018-2026.	7.9	172
6	Control of wind turbines: Past, present, and future. , 2009, , .		164
7	A tutorial of wind turbine control for supporting grid frequency through active power control. , 2012, , .		164
8	A Tutorial on the Mechanisms, Dynamics, and Control of Atomic Force Microscopes. Proceedings of the American Control Conference, 2007, , .	0.0	154
9	Methods for Increasing Region 2 Power Capture on a Variable-Speed Wind Turbine. Journal of Solar Energy Engineering, Transactions of the ASME, 2004, 126, 1092-1100.	1.8	136
10	Nonminimum Phase Dynamic Inversion for Settle Time Applications. IEEE Transactions on Control Systems Technology, 2009, 17, 989-1005.	5.2	108
11	A reference open-source controller for fixed and floating offshore wind turbines. Wind Energy Science, 2022, 7, 53-73.	3.3	84
12	Adding feedforward blade pitch control to standard feedback controllers for load mitigation in wind turbines. Mechatronics, 2011, 21, 682-690.	3.3	80
13	Minimum-time control characteristics of flexible structures. Journal of Guidance, Control, and Dynamics, 1996, 19, 123-129.	2.8	78
14	Adaptive input shaping for maneuvering flexible structures. Automatica, 2004, 40, 685-693.	5.0	75
15	The use of preview wind measurements for blade pitch control. Mechatronics, 2011, 21, 668-681.	3.3	74
16	Multi-input shaping design for vibration reduction. Automatica, 1999, 35, 81-89.	5.0	68
17	Gearbox and Drivetrain Models to Study Dynamic Effects of Modern Wind Turbines. IEEE Transactions on Industry Applications, 2014, 50, 3777-3786.	4.9	66
18	Robust Input Shaper Control Design for Parameter Variations in Flexible Structures. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2000, 122, 63-70.	1.6	63

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19	The effect of nonminimum-phase zero locations on the performance of feedforward model-inverse control techniques in discrete-time systems. , 2008, , .		62
20	A comparison of control architectures for atomic force microscopes. Asian Journal of Control, 2009, 11, 175-181.	3.0	59
21	Analysis of light detection and ranging wind speed measurements for wind turbine control. Wind Energy, 2014, 17, 413-433.	4.2	54
22	Multisensor multitarget mixture reduction algorithms for tracking. Journal of Guidance, Control, and Dynamics, 1994, 17, 1205-1211.	2.8	53
23	Combined Feedforward/Feedback Control of Atomic Force Microscopes. Proceedings of the American Control Conference, 2007, , .	0.0	49
24	Combining Standard Feedback Controllers with Feedforward Blade Pitch Control for Load Mitigation in Wind Turbines. , 2010, , .		45
25	Discrete time-optimal command shaping. Automatica, 2007, 43, 1403-1409.	5.0	44
26	An Active Power Control System for Wind Turbines Capable of Primary and Secondary Frequency Control for Supporting Grid Reliability. , 2013, , .		44
27	Adjoint-based model predictive control for optimal energy extraction in waked wind farms. Control Engineering Practice, 2019, 84, 48-62.	5.5	43
28	Blade Pitch Control with Preview Wind Measurements. , 2010, , .		42
29	Robust minimum time control of flexible structures. Automatica, 1998, 34, 229-236.	5.0	40
30	Active Power Control of Waked Wind Farms * *J.W. van Wingerden would like to acknowledge the CL-Windcon project. This project has received funding from the European Union Horizon 2020 research and innovation programme under grant agreement No 727477. L. Pao gratefully acknowledges funding provided by the Hanse-Wissenschaftskolleg Institute for Advanced Study, Delmenhorst, Germany. J. Aho has been supported in part by the Renewable and Sustainable Energy Institute and a University of Colorado Boulder Graduat. IFAC-PapersOnLine, 2017, 50, 4484-4491.	0.9	40
31	Non-raster sampling in atomic force microscopy: A compressed sensing approach. , 2012, , .		39
32	Effects of power reserve control on wind turbine structural loading. Wind Energy, 2016, 19, 453-469.	4.2	39
33	Computational fluid dynamics simulation study of active power control in wind plants. , 2016, , .		38
34	Control co-design of 13 MW downwind two-bladed rotors to achieve 25% reduction in levelized cost of wind energy. Annual Reviews in Control, 2021, 51, 331-343.	7.9	36
35	An active power control approach for wake-induced load alleviation in a fully developed wind farm boundary layer. Wind Energy Science, 2019, 4, 139-161.	3.3	34
36	Input shaping and time-optimal control of flexible structures. Automatica, 2003, 39, 893-900.	5.0	33

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37	Efficient Optimization of Large Wind Farms for Real-Time Control. , 2018, , .		31
38	Nonminimum phase adaptive inverse control for settle performance applications. Mechatronics, 2010, 20, 35-44.	3.3	30
39	Active Power Control for Wind Farms Using Distributed Model Predictive Control and Nearest Neighbor Communication. , 2018, , .		30
40	Verifying Robust Time-Optimal Commands for Multimode Flexible Spacecraft. Journal of Guidance, Control, and Dynamics, 1997, 20, 831-833.	2.8	29
41	Shaped Time-Optimal Feedback Controllers for Flexible Structures. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2004, 126, 173-186.	1.6	29
42	Combining droop curve concepts with control systems for wind turbine active power control. , 2012, , .		28
43	A longitudinal spatial coherence model for wind evolution based on large-eddy simulation. , 2015, , .		28
44	Evaluation of a wind speed estimator for effective hub-height and shear components. Wind Energy, 2016, 19, 167-184.	4.2	27
45	Combined Feed-forward/Feedback Control of Wind Turbines to Reduce Blade Flap Bending Moments. , 2009, , .		26
46	Active power control of wind turbines for ancillary services: A comparison of pitch and torque control methodologies. , 2016, , .		26
47	Alternatives to Monte-Carlo simulation evaluations of two multisensor fusion algorithms. Automatica, 1998, 34, 103-110.	5.0	24
48	System-level design studies for large rotors. Wind Energy Science, 2019, 4, 595-618.	3.3	24
49	Achieving pareto optimality through distributed learning. , 2012, , .		23
50	Ensemble Kalman filtering for wind field estimation in wind farms. , 2017, , .		23
51	Synergistic visual/haptic rendering modes for scientific visualization. IEEE Computer Graphics and Applications, 2004, 24, 22-30.	1.2	22
52	Optimal blade pitch control with realistic preview wind measurements. Wind Energy, 2016, 19, 2153-2169.	4.2	22
53	Gearbox and drivetrain models to study dynamic effects of modern wind turbines. , 2013, , .		21
54	Online model calibration for a simplified LES model in pursuit of real-time closed-loop wind farm control. Wind Energy Science, 2018, 3, 749-765.	3.3	21

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55	Reducing LIDAR wind speed measurement error with optimal filtering. , 2013, , .		20
56	Analysis of the Frequency, Damping, and Total Insensitivities of Input Shaping Designs. Journal of Guidance, Control, and Dynamics, 1997, 20, 909-915.	2.8	18
57	Comparison of feedforward and model predictive control of wind turbines using LIDAR. , 2012, , .		18
58	Flow Control Leveraging Downwind Rotors for Improved Wind Power Plant Operation. , 2019, , .		18
59	Model Predictive Active Power Control for Optimal Structural Load Equalization in Waked Wind Farms. IEEE Transactions on Control Systems Technology, 2022, 30, 30-44.	5.2	18
60	Robust Control of Nonlinear Tape Transport Systems With and Without Tension Sensors. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2007, 129, 41-55.	1.6	17
61	LIDAR Wind Speed Measurements of Evolving Wind Fields. , 2012, , .		17
62	A spectral model for evaluating the effect of wind evolution on wind turbine preview control. , 2013, , .		15
63	Model Inversion Architectures for Settle Time Applications with Uncertainty. , 2006, , .		14
64	Architectures for Tracking Control in Atomic Force Microscopes. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2008, 41, 8236-8250.	0.4	14
65	A Discrete-Time Single-Parameter Combined Feedforward/Feedback Adaptive-Delay Algorithm With Applications to Piezo-Based Raster Tracking. IEEE Transactions on Control Systems Technology, 2012, 20, 416-423.	5.2	14
66	Importance of lidar measurement timing accuracy for wind turbine control. , 2014, , .		13
67	Experimental Testing of a Preview-Enabled Model Predictive Controller for Blade Pitch Control of Wind Turbines. IEEE Transactions on Control Systems Technology, 2022, 30, 583-597.	5.2	13
68	Automatic controller tuning using a zeroth-order optimization algorithm. Wind Energy Science, 2020, 5, 1579-1600.	3.3	13
69	Comparison of wind turbine operating transitions through the use of iterative learning control. , 2011, , .		12
70	Correlation between Rotating LIDAR Measurements and Blade Effective Wind Speed. , 2013, , .		12
71	Design and Testing of a Scaled Demonstrator Turbine at the National Wind Technology Center. , 2019, , .		12
72	A comparison of ILC architectures for nanopositioners with applications to AFM raster tracking. , 2011, , .		11

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73	The fatigue loading effects of yaw control for wind plants. , 2016, , .		11
74	Models used for the simulation and control of a segmented ultralight morphing rotor. IFAC-PapersOnLine, 2017, 50, 4478-4483.	0.9	11
75	Benefit of wind turbine preview control as a function of measurement coherence and preview time. , 2013, , .		10
76	Optimizing the Layout of Heaters for Distributed Active De-Icing of Wind Turbine Blades. Wind Engineering, 2014, 38, 587-600.	1.9	10
77	Model Predictive Active Power Control of Waked Wind Farms. , 2018, , .		10
78	Power increases using wind direction spatial filtering for wind farm control: Evaluation using FLORIS, modified for dynamic settings. Journal of Renewable and Sustainable Energy, 2021, 13, 023310.	2.0	10
79	Constrained power reference control for wind turbines. Wind Energy, 2022, 25, 914-934.	4.2	10
80	Hardware Demonstration of Atomic Force Microscopy Imaging Via Compressive Sensing and <tex>mu</tex>-Path Scans. , 2018, , .		9
81	Constrained Wind Turbine Power Control. , 2019, , .		9
82	Adaptive-delay combined feedforward/feedback control for raster tracking with applications to AFMs. , 2010, , .		8
83	Optimal trajectory tracking control for wind turbines during operating region transitions. , 2013, , .		8
84	Servo-aero-gravo-elastic (SAGE) scaling and its application to a 13-MW downwind turbine. Journal of Renewable and Sustainable Energy, 2020, 12, 063301.	2.0	8
85	On Frequency-Domain and Time-Domain Input Shaping for Multi-Mode Flexible Structures. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2003, 125, 494-497.	1.6	8
86	Positivity Preservation Properties of the Rantzer Multipliers. IEEE Transactions on Automatic Control, 2011, 56, 190-194.	5.7	7
87	Improving the Image Acquisition Rate of an Atomic Force Microscope Through Spatial Subsampling and Reconstruction. IEEE/ASME Transactions on Mechatronics, 2020, 25, 570-580.	5.8	7
88	Stability analysis of a wind turbine active power control system. , 2013, , .		6
89	Large-eddy simulation study of wind farm active power control with a coordinated load distribution. Journal of Physics: Conference Series, 2018, 1037, 032018.	0.4	6
90	Regulating web tension in tape systems with time-varying radii. , 2009, , .		5

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91	Impulse optimization for data association. , 2010, , .		5
92	Proximate Time-Optimal Control of a Harmonic Oscillator. IEEE Transactions on Automatic Control, 2018, 63, 1676-1691.	5.7	5
93	Estimation of Large-Scale Wind Field Characteristics using Supervisory Control and Data Acquisition Measurements. , 2020, , .		5
94	Adaptive inverse control for settling performance improvements. , 2009, , .		4
95	Proximate time-optimal control of a second-order flexible structure. , 2015, , .		4
96	Analysis of gain-scheduling implementation for the NREL 5-MW turbine blade pitch controller. , 2016, , .		4
97	Fast setpoint tracking of an Atomic Force Microscope Xâˆ'Y stage via optimal trajectory tracking. , 2017, , .		4
98	Lifetime extension of waked wind farms using active power control. Journal of Physics: Conference Series, 2019, 1256, 012029.	0.4	4
99	On stability analysis of systems featuring a multiplicative combination of nonlinear and linear timeâ€‘invariant feedback. International Journal of Robust and Nonlinear Control, 2011, 21, 2101-2108.	3.7	3
100	Proximate time-optimal reference tracking of an undamped harmonic oscillator. , 2016, , .		3
101	A Comparison of Individual and Collective Pitch Model Predictive Controllers for Wind Turbines. , 2018, , .		3
102	Feedforward control to attenuate tension error in time-varying tape systems. , 2008, , .		2
103	Simultaneous numerical optimization for data association and parameter estimation. , 2011, , .		2
104	Trajectory optimization estimator for impulsive data association. , 2011, , .		2
105	A Harmonic Model for Loads Analysis and Control Design of a 2-bladed Wind Turbine. , 2019, , .		2
106	Field tests of a highly flexible downwind ultralight rotor to mimic a 13-MW turbine rotor. Journal of Physics: Conference Series, 2022, 2265, 032031.	0.4	2
107	H<inf>2</inf> model matching feedforward control for tape head positioning servo systems. , 2013, , .		1
108	An application of the fast gradient method to model predictive control of an atomic force microscope X-Y stage. , 2017, , .		1

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109	Controllability of Formation Systems on Special Orthogonal Groups Over Directed Graphs. IEEE Transactions on Control of Network Systems, 2021, 8, 872-883.	3.7	1
110	Active rotor coning for a 25 MW downwind offshore wind turbine. Journal of Physics: Conference Series, 2022, 2265, 032022.	0.4	1
111	Data association with ambiguous measurements. , 2008, , .		0
112	Stochastic sampling based data association. , 2010, , .		0
113	Multi-Blade Coordinate and direct techniques for asymptotic disturbance rejection in wind turbines. , 2012, , .		0
114	Linear time-varying impulse optimization for data association. , 2012, , .		0
115	Intersample ripple resulting from discrete-time feedforward control. , 2013, , .		0
116	Wind Tunnel Testing of an Optimal Feedback/feedfoward Control Law for Wind Turbines. IFAC-PapersOnLine, 2020, 53, 12638-12643.	0.9	0
117	A comparison of tracking step inputs with a piezo stage using model predictive control and saturated linear quadratic Gaussian control. Control Engineering Practice, 2022, 118, 104972.	5.5	0