Matthias Preindl

List of Publications by Year
in descending order

115 papers	4,411 citations	236612 25 h-index	214527 47 g-index
115 all docs	115 docs citations	115 times ranked	3365 citing authors

#	Article	IF	Citations
1	Long Short-Term Memory Networks for Accurate State-of-Charge Estimation of Li-ion Batteries. IEEE Transactions on Industrial Electronics, 2018, 65, 6730-6739.	5.2	469
2	State-of-charge estimation of Li-ion batteries using deep neural networks: A machine learning approach. Journal of Power Sources, 2018, 400, 242-255.	4.0	462
3	Model Predictive Direct Speed Control with Finite Control Set of PMSM Drive Systems. IEEE Transactions on Power Electronics, 2013, 28, 1007-1015.	5.4	430
4	Making the Case for Electrified Transportation. IEEE Transactions on Transportation Electrification, 2015, 1, 4-17.	5.3	328
5	Model Predictive Direct Torque Control With Finite Control Set for PMSM Drive Systems, Part 1: Maximum Torque Per Ampere Operation. IEEE Transactions on Industrial Informatics, 2013, 9, 1912-1921.	7.2	324
6	Electrochemical and Electrostatic Energy Storage and Management Systems for Electric Drive Vehicles: State-of-the-Art Review and Future Trends. IEEE Journal of Emerging and Selected Topics in Power Electronics, 2016, 4, 1117-1134.	3.7	204
7	Model Predictive Direct Torque Control With Finite Control Set for PMSM Drive Systems, Part 2: Field Weakening Operation. IEEE Transactions on Industrial Informatics, 2013, 9, 648-657.	7.2	190
8	Switching Frequency Reduction Using Model Predictive Direct Current Control for High-Power Voltage Source Inverters. IEEE Transactions on Industrial Electronics, 2011, 58, 2826-2835.	5.2	182
9	Optimal State Reference Computation With Constrained MTPA Criterion for PM Motor Drives. IEEE Transactions on Power Electronics, 2015, 30, 4524-4535.	5.4	122
10	Sensorless Model Predictive Direct Current Control Using Novel Second-Order PLL Observer for PMSM Drive Systems. IEEE Transactions on Industrial Electronics, 2011, 58, 4087-4095.	5.2	120
11	Fast Model Predictive Control for Redistributive Lithium-Ion Battery Balancing. IEEE Transactions on Industrial Electronics, 2017, 64, 1350-1357.	5.2	107
12	Thermal management of electric machines. IET Electrical Systems in Transportation, 2017, 7, 104-116.	1.5	94
13	Robust Control Invariant Sets and Lyapunov-Based MPC for IPM Synchronous Motor Drives. IEEE Transactions on Industrial Electronics, 2016, 63, 3925-3933.	5.2	84
14	Bus Bar Design for High-Power Inverters. IEEE Transactions on Power Electronics, 2018, 33, 2354-2367.	5.4	82
15	Modeling and Analysis of Electric Motors: State-of-the-Art Review. IEEE Transactions on Transportation Electrification, 2019, 5, 602-617.	5.3	77
16	Unified Wide-Speed Sensorless Scheme Using Nonlinear Optimization for IPMSM Drives. IEEE Transactions on Power Electronics, 2017, 32, 6308-6322.	5.4	63
17	MTPA Fitting and Torque Estimation Technique Based on a New Flux-Linkage Model for Interior-Permanent-Magnet Synchronous Machines. IEEE Transactions on Industry Applications, 2017, 53, 5451-5460.	3.3	57
18	Optimization-Based Position Sensorless Finite Control Set Model Predictive Control for IPMSMs. IEEE Transactions on Power Electronics, 2018, 33, 8672-8682.	5.4	56

#	Article	IF	Citations
19	Comparison of direct and PWM model predictive control for power electronic and drive systems. , 2013, , .		54
20	Review and Trends of Thermoelectric Generator Heat Recovery in Automotive Applications. IEEE Transactions on Vehicular Technology, 2019, 68, 5366-5378.	3.9	45
21	A Battery Balancing Auxiliary Power Module With Predictive Control for Electrified Transportation. IEEE Transactions on Industrial Electronics, 2018, 65, 6552-6559.	5.2	43
22	Online multiâ€parameter estimation of interior permanent magnet motor drives with finite control set model predictive control. IET Electric Power Applications, 2017, 11, 944-951.	1.1	41
23	A Comprehensive Analysis for High-Power Density, High-Efficiency 60 kW Interleaved Boost Converter Design for Electrified Powertrains. IEEE Transactions on Vehicular Technology, 2020, 69, 7131-7145.	3.9	36
24	A Convolutional Neural Network Approach for Estimation of Li-Ion Battery State of Health from Charge Profiles. Energies, 2022, 15, 1185.	1.6	36
25	Estimating switching losses for SiC MOSFETs with non-flat miller plateau region. , 2017, , .		33
26	Multi-objective optimization and comparative evaluation of Si soft-switched and SiC hard-switched automotive DC-DC converters. , 2009, , .		32
27	Towards unified machine learning characterization of lithium-ion battery degradation across multiple levels: A critical review. Applied Energy, 2022, 316, 119030.	5.1	31
28	Performance evaluation of battery balancing hardware. , 2013, , .		29
29	Model Predictive Torque Control with PWM using fast gradient method. , 2013, , .		27
30	Virtual-Flux Finite Control Set Model Predictive Control of Switched Reluctance Motor Drives. , 2019, , .		26
31	Overview of Current Thermal Management of Automotive Power Electronics for Traction Purposes and Future Directions. IEEE Transactions on Transportation Electrification, 2022, 8, 2412-2428.	5.3	26
32	Optimized design of two and three level full-scale voltage source converters for multi-MW wind power plants at different voltage levels. , 2011, , .		24
33	The Magnetic Diagnostic Set for ITER. IEEE Transactions on Plasma Science, 2010, 38, 284-294.	0.6	21
34	Model predictive direct speed control with finite control set of PMSM-VSI drive systems. , 2011, , .		21
35	Bidirectional Nonisolated Fast Charger Integrated in the Electric Vehicle Traction Drivetrain. IEEE Transactions on Transportation Electrification, 2022, 8, 180-195.	5.3	20
36	Hybrid electric vehicle specific engines: State-of-the-art review. Energy Reports, 2022, 8, 832-851.	2.5	20

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37	High frequency injection maximum power point tracking for thermoelectric generators. Energy Conversion and Management, 2019, 198, 111832.	4.4	19
38	Variable-Frequency Critical Soft-Switching of Wide-Bandgap Devices for Efficient High-Frequency Nonisolated DC-DC Converters. IEEE Transactions on Vehicular Technology, 2020, 69, 6094-6106.	3.9	18
39	Discrete-time modeling of Li-ion batteries with electrochemical overpotentials including diffusion. Journal of Power Sources, 2021, 500, 229991.	4.0	17
40	Dual Cell Links for Battery-Balancing Auxiliary Power Modules: A Cost-Effective Increase of Accessible Pack Capacity. IEEE Transactions on Industry Applications, 2020, 56, 1752-1765.	3.3	14
41	Control Design of a 99% Efficiency Transformerless EV Charger Providing Standardized Grid Services. IEEE Transactions on Power Electronics, 2022, 37, 4022-4038.	5.4	13
42	Minimizing battery wear in a hybrid energy storage system using a linear quadratic regulator. , 2015, , .		12
43	Closed loop control of a six phase interleaved bidirectional dc-dc boost converter for an EV/HEV application. , 2016, , .		12
44	SPIDERS$+$: A light-weight, wireless, and low-cost glasses-based wearable platform for emotion sensing and bio-signal acquisition. Pervasive and Mobile Computing, 2021, 75, 101424.	2.1	12
45	Variable-Switching Constant-Sampling Frequency Critical Soft Switching MPC for DC/DC Converters. IEEE Transactions on Energy Conversion, 2021, 36, 1548-1561.	3.7	11
46	Health and performance diagnostics in Li-ion batteries with pulse-injection-aided machine learning. Applied Energy, 2022, 315, 119005.	5.1	11
47	Analysis and design of a high efficiency, high power density three-phase silicon carbide inverter. , 2016, , .		10
48	A Current Observer to Reduce the Sensor Count in Three-Phase PM Synchronous Machine Drives. IEEE Transactions on Industry Applications, 2019, 55, 4780-4789.	3.3	10
49	Load torque compensator for Model Predictive Direct Current Control in high power PMSM drive systems. , 2010, , .		9
50	Optimization of the generator to rotor ratio of MW wind turbines based on the cost of energy with focus on low wind speeds. , 2011, , .		9
51	DC-bus design with hybrid capacitor bank in single-phase PV inverters. , 2017, , .		9
52	Active-Flux-Based Motion-Sensorless Control of PMSM Using Moving Horizon Estimator. , 2018, , .		9
53	Time-Efficient Integrated Electrothermal Model for a 60-kW Three-Phase Bidirectional Synchronous DC–DC Converter. IEEE Transactions on Industry Applications, 2020, 56, 654-668.	3.3	9
54	Non-dissipative battery cell balancing using half-bridge switching circuit. , 2016, , .		8

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55	Inductor Design for Nonisolated Critical Soft Switching Converters Using Solid and Litz PCB and Wire Windings Leveraging Neural Network Model. IEEE Transactions on Power Electronics, 2022, 37, 3357-3373.	5.4	8
56	Robust Control Design for Ride-Through/Trip of Transformerless Onboard Bidirectional EV Charger With Variable-Frequency Critical-Soft-Switching. IEEE Transactions on Industry Applications, 2022, 58, 4825-4837.	3.3	8
57	Optimal Tracking and Resonance Damping Design of Cascaded Modular Model Predictive Control for a Common-Mode Stabilized Grid-Tied LCL Inverter. IEEE Transactions on Power Electronics, 2022, 37, 9226-9240.	5.4	8
58	Bidirectional three-level DC-DC converters: Sum-difference modeling and control. , 2017, , .		7
59	Bidirectional Transformerless EV Charging System with Low Device Cost and Leakage Current. , 2018, , .		7
60	Time Efficient Integrated Electro-Thermal Model for Bidirectional Synchronous DC-DC Converter in Hybrid Electric Vehicles. , 2018, , .		7
61	An Optimization-Based Reduced Sensor Virtual Flux Observer for PM Synchronous Machines. IEEE Transactions on Industrial Electronics, 2021, 68, 4320-4330.	5.2	7
62	Turn-off energy minimization for soft-switching power converters with wide bandgap devices. , 2017, , .		6
63	Modeling and control of a dual cell link for battery-balancing auxiliary power modules. , 2018, , .		6
64	Maximum-Power-Per-Ampere Variable Frequency Modulation for Dual Active Bridge Converters in Battery-Balancing Application. IEEE Transactions on Industrial Electronics, 2022, 69, 5900-5910.	5.2	6
65	Zero Sequence Voltage Control Enabling Transformerless Electric Vehicle Chargers. , 2021, , .		6
66	Maximum power point tracking for thermoelectric generators with high frequency injection. , 2015, , .		5
67	Simplified control for redistributive balancing systems using bidirectional flyback converters. , 2015, , .		5
68	Bidirectional Transformerless EV Charging System via Reconfiguration of 4Ã—4 Drivetrain. , 2018, , .		5
69	High-Performance Selective and Output Filter Techniques for Sensorless Direct Position and Speed Estimation. IEEE Transactions on Industrial Electronics, 2020, 67, 6000-6009.	5.2	5
70	Nonlinear modeling and design of initial position estimation and polarity detection of IPM drives. , 2015, , .		4
71	Modeling and analysis of AC resistance of a permanent magnet machine for online estimation purposes. , 2015, , .		4
72	Modeling and analysis of core losses of an IPM machine for online estimation purposes. , 2015, , .		4

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73	Optimal generalized overmodulation for multiphase PMSM drives. , 2017, , .		4
74	Homotopy continuation based observer for position sensorless PM synchronous machine drives. , 2017, , .		4
75	Optimization-Based Position Sensorless Control for Induction Machines. , 2018, , .		4
76	A Soft Switching Inverter Minimizing Bearing Currents in 800V Electric Vehicle Drives. , 2021, , .		4
77	Modular Model Predictive Control of a 15-kW, Kilo-to-Mega-Hertz Variable-Frequency Critical-Soft-Switching Nonisolated Grid-Tied Inverter With High Efficiency. IEEE Transactions on Power Electronics, 2022, 37, 12591-12605.	5.4	4
78	Low speed position estimation scheme for model predictive control with finite control set. , 2016, , .		3
79	Smallest control invariant set and error boundaries of FCS-MPC for PMSM. , 2017, , .		3
80	Moving Horizon Estimator of PMSM N Onlinearities. , 2018, , .		3
81	Design and Implementation of a Dual Cell Link for Battery-Balancing Auxiliary Power Modules. , 2018, , .		3
82	Optimal-Frequency Critical Soft Switching Method of Synchronous DC/DC Converter Based on Model Predictive Control. , 2019, , .		3
83	Convergence Properties of Direct Position and Speed Estimation in Synchronous Motor Drives. , 2019, , .		3
84	Decentralized Circulating Current Attenuation With Model Predictive Control for Distributed/Shunted Single/Three-Phase Grid-Tied Inverters. IEEE Transactions on Power Electronics, 2022, 37, 11534-11539.	5.4	3
85	Conversational AI Therapist for Daily Function Screening in Home Environments. , 2022, , .		3
86	Piecewise Affine Maximum Torque per Ampere for the Wound Rotor Synchronous Machine. , 2022, , .		3
87	Linear programming based design and analysis of battery pack balancing topologies. , 2015, , .		2
88	Extended ZVS Modulation for a Dual Cell Link in the Demand of Faster Balancing. , 2019, , .		2
89	Three-Phase Transformer-less Hybrid-Bypass Inverter. , 2019, , .		2
90	Design of Transformerless Electric Vehicle Charger with Symmetric AC and DC Interfaces. , 2021, , .		2

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91	Comparison of Litz Wire and PCB Inductor Designs for Bidirectional Transformerless EV Charger with High Efficiency. , 2021, , .		2
92	Snapshot SoC identification with Pulse Injection Aided Machine Learning. Journal of Energy Storage, 2021, 41, 102891.	3.9	2
93	A Software-Defined Stacked Multilevel Motor Drive Inverter with Linear Component Scaling. , 2022, , .		2
94	Deep Reinforcement Learning Based Approach for Optimal Power Flow of Microgrid with Grid Services Implementation. , 2022, , .		2
95	MTPA fitting and torque estimation technique based on a new flux-linkage model for interior permanent magnet synchronous machines. , 2016, , .		1
96	A stochastic optimization technique for discrete DC capacitor bank design. , 2017, , .		1
97	Optimization-Based Position Estimation of PM Synchronous Motor Drives with Magnetic Saturation. , 2018, , .		1
98	Convex Optimization-Based Sensorless Control for IPMSM Drives with Reduced Complexity. , 2018, , .		1
99	Transformerless Three Phase NPC Inverter with Reduced Switches. , 2018, , .		1
100	Compensation of Nonlinear Effects in Automotive 48V Position Sensorless IPMSM Drive Systems. , 2018, , .		1
101	A Current Observer to Reduce the Sensor Count in Three-Phase PM Synchronous Machine Drives. , 2018, , .		1
102	Variable-Frequency Explicit Model Predictive Control of Wide Band Gap DC/DC Converter with Critical Soft Switching. , 2019, , .		1
103	Optimal Frequency and Critical Soft Switching Control of DC/DC Converter. , 2019, , .		1
104	A Review of Virtual-Flux Model Predictive Control and Receding Horizon Estimation in Motor Drives. , 2021, , .		1
105	Wound Rotor Synchronous Machine Current Estimation Using a Linear Luenberger Observer. , 2022, , .		1
106	Fast Time-domain Impedance Spectroscopy of Lithium-ion Batteries using Pulse Perturbation. , 2022, , .		1
107	Guest Editorial Model Predictive Control in Energy Conversion Systems. IEEE Transactions on Energy Conversion, 2021, 36, 1311-1312.	3.7	0
108	Novel Upper Capacitor for Half-Bridge Switching Converter Topologies that Reduces EMI and Capacitor Ripple Current. , 2022, , .		0

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109	Direct Contact Jet Impingement Cooling with Non-conductive Fluid for Power Converters that Enables Increased Power Density. , 2022, , .		0
110	Zero Sequence Power Balancing Compensation for Third Harmonic Injection of Multi-Stage Grid-Tied Energy Conversion Systems. , 2022, , .		0
111	Receding Horizon Estimation and Model Predictive Control for Basic Power Module with High Performance. , 2022, , .		0
112	State of Charge Imbalance Classification of Lithium-ion Battery Strings using Pulse-Injection-Aided Machine Learning. , 2022, , .		0
113	Model Predictive Control for the Wound Rotor Synchronous Machine using Piecewise Affine Flux Maps. , 2022, , .		0
114	I-core PCB Planar Inductor Design for High Frequency and High Power Converters. , 2022, , .		0
115	Assessing Degradation-Aware Model Predictive Control for Energy Management of a Grid-Connected PV-Battery Microgrid. , 2022, , .		0