Mahdi Shahbakhti

List of Publications by Year
in descending order

79 papers	1,421 citations	471509 17 h-index	434195 31 g-index
80 all docs	80 docs citations	80 times ranked	1003 citing authors

#	Article	IF	Citations
1	Performance prediction of HCCI engines with oxygenated fuels using artificial neural networks. Applied Energy, 2015, 138, 460-473.	10.1	139
2	Modeling, diagnostics, optimization, and control of internal combustion engines via modern machine learning techniques: A review and future directions. Progress in Energy and Combustion Science, 2022, 88, 100967.	31.2	99
3	Modeling and controller design architecture for cycle-by-cycle combustion control of homogeneous charge compression ignition (HCCI) engines â€“ A comprehensive review. Energy Conversion and Management, 2017, 139, 1-19.	9.2	78
4	Understanding and detecting misfire in an HCCI engine fuelled with ethanol. Applied Energy, 2013, 108, 24-33.	10.1	77
5	Bilevel Optimization Framework for Smart Building-to-Grid Systems. IEEE Transactions on Smart Grid, 2018, 9, 582-593.	9.0	75
6	Modeling of combustion phasing of a reactivity-controlled compression ignition engine for control applications. International Journal of Engine Research, 2016, 17, 421-435.	2.3	49
7	Optimization of performance and operational cost for a dual mode diesel-natural gas RCCI and diesel combustion engine. Applied Energy, 2018, 231, 549-561.	10.1	46
8	A SKELETAL KINETIC MECHANISM FOR PRF COMBUSTION IN HCCI ENGINES. Combustion Science and Technology, 2007, 179, 1059-1083.	2.3	43
9	Reactivity controlled compression ignition engine: Pathways towards commercial viability. Applied Energy, 2021, 282, 116174.	10.1	43
10	Model-based predictive control for optimal MicroCSP operation integrated with building HVAC systems. Energy Conversion and Management, 2019, 199, 111924.	9.2	38
11	Physics Based Control Oriented Model for HCCI Combustion Timing. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2010, 132, .	1.6	36
12	Real-time modeling of ringing in HCCI engines using artificial neural networks. Energy, 2017, 125, 509-518.	8.8	36
13	Model Predictive Control of Internal Combustion Engines: A Review and Future Directions. Energies, 2021, 14, 6251.	3.1	36
14	Energy Optimization and Fuel Economy Investigation of a Series Hybrid Electric Vehicle Integrated with Diesel/RCCI Engines. Energies, 2016, 9, 1020.	3.1	35
15	Model-Based Control of Combustion Phasing in an HCCI Engine. SAE International Journal of Engines, 0, 5, 1163-1176.	0.4	24
16	Early model-based verification of automotive control system implementation. , 2012, , .		23
17	Identification of ringing operation for low temperature combustion engines. Applied Energy, 2016, 171, 142-152.	10.1	23
18	An experimental investigation on combustion and performance characteristics of supercharged HCCI operation in low compression ratio engine setting. Applied Thermal Engineering, 2020, 180, 115858.	6.0	23

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19	Experimental investigation into effects of high reactive fuel on combustion and emission characteristics of the Diesel - Natural gas Reactivity Controlled Compression Ignition engine. Applied Energy, 2019, 239, 948-956.	10.1	21
20	Two-Input Two-Output Control of Blended Fuel HCCI Engines. , 2013, , .		20
21	A Novel Singular Perturbation Technique for Model-Based Control of Cold Start Hydrocarbon Emission. SAE International Journal of Engines, 0, 7, 1290-1301.	0.4	20
22	HCCI Engine Combustion Phasing Prediction Using a Symbolic-Statistics Approach. Journal of Engineering for Gas Turbines and Power, 2010, 132, .	1.1	18
23	Control Oriented Modeling of Combustion Phasing for an HCCI Engine. Proceedings of the American Control Conference, 2007, , .	0.0	16
24	Modeling, design and implementation of a closed-loop combustion controller for an RCCI engine. , 2017, , .		16
25	Epistemic Uncertainty Quantification in State-Space LPV Model Identification Using Bayesian Neural Networks. , 2021, 5, 719-724.		16
26	Analysis and modeling of exhaust gas temperature in an ethanol fuelled HCCI engine. Journal of Mechanical Science and Technology, 2013, 27, 3531-3539.	1.5	14
27	Analysis and Control of a Torque Blended Hybrid Electric Powertrain with a Multi-Mode LTC-SI Engine. SAE International Journal of Alternative Powertrains, 0, 6, 54-67.	0.8	14
28	Hybrid Machine Learning Approaches and a Systematic Model Selection Process for Predicting Soot Emissions in Compression Ignition Engines. Energies, 2021, 14, 7865.	3.1	14
29	Soot Emission Modeling of a Compression Ignition Engine Using Machine Learning. IFAC-PapersOnLine, 2021, 54, 826-833.	0.9	14
30	Dynamic Modeling of HCCI Combustion Timing in Transient Fueling Operation. SAE International Journal of Engines, 2009, 2, 1098-1113.	0.4	13
31	Incorporation of implementation imprecision in automotive control design. , 2013, , .		12
32	Real-Time Hybrid Switching Control of Automotive Cold Start Hydrocarbon Emission. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2014, 136, .	1.6	12
33	Exergy-based model predictive control for building HVAC systems. , 2015, , .		11
34	Development of a Kalman filter estimator for simulation and control of particulate matter distribution of a diesel catalyzed particulate filter. International Journal of Engine Research, 2020, 21, 866-884.	2.3	11
35	Data-driven Modeling and Predictive Control of Maximum Pressure Rise Rate in RCCI Engines. , 2020, , .		11
36	Bidirectional optimal operation of smart building-to-grid systems. , 2015, , .		10

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37	Discrete adaptive second order sliding mode controller design with application to automotive control systems with model uncertainties. , 2017, , .		10
38	Enabling Demand Response programs via Predictive Control of Building-to-Grid systems integrated with PV Panels and Energy Storage Systems. , 2017, , .		10
39	Adaptive Discrete Second-Order Sliding Mode Control With Application to Nonlinear Automotive Systems. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2018, 140, .	1.6	10
40	Model Predictive Control of an RCCI Engine. , 2018, , .		10
41	Identification of State-space Linear Parameter-varying Models Using Artificial Neural Networks. IFAC-PapersOnLine, 2020, 53, 5286-5291.	0.9	10
42	An Online Transfer Learning Approach for Identification and Predictive Control Design With Application to RCCI Engines. , 2020, , .		10
43	Grey-box modeling and control of HCCI engine emissions. , 2014, , .		9
44	Predicting Pressure Drop, Temperature, and Particulate Matter Distribution of a Catalyzed Diesel Particulate Filter Using a Multi-Zone Model Including Cake Permeability. Emission Control Science and Technology, 2017, 3, 171-201.	1.5	9
45	Investigation of Impacts of Spark Plug Orientation on Early Flame Development and Combustion in a DI Optical Engine. SAE International Journal of Engines, 0, 10, 995-1010.	0.4	9
46	Modeling Ranges of Cyclic Variability for HCCI Ignition Timing Control. , 2011, , .		8
47	Development of a Catalyzed Diesel Particulate Filter Multi-zone Model for Simulation of Axial and Radial Substrate Temperature and Particulate Matter Distribution. Emission Control Science and Technology, 2015, 1, 183-202.	1.5	8
48	Connected Vehicle Based Distributed Meta-Learning for Online Adaptive Engine/Powertrain Fuel Consumption Modeling. IEEE Transactions on Vehicular Technology, 2020, 69, 9553-9565.	6.3	8
49	Hybrid Physical and Machine Learning-Oriented Modeling Approach to Predict Emissions in a Diesel Compression Ignition Engine. , 0, , .		8
50	Experimental and Simulation Analysis of Temperature and Particulate Matter Distribution for a Catalyzed Diesel Particulate Filter. Emission Control Science and Technology, 2015, 1, 255-283.	1.5	7
51	Discrete sliding controller design with robustness to implementation imprecisions via online uncertainty prediction. , 2016, , .		7
52	Connected Vehicles and Powertrain Optimization. Mechanical Engineering, 2017, 139, S12-S18.	0.1	7
53	Optimal Map-Based Mode Selection and Powertrain Control for a Multi-Mode Plug-in Hybrid Electric Vehicle. , 2018, , .		7
54	Cold Climate Impact on Air-Pollution-Related Health Outcomes: A Scoping Review. International Journal of Environmental Research and Public Health, 2022, 19, 1473.	2.6	7

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55	Grey-box modeling architectures for rotational dynamic control in automotive engines. , 2012, , .		6
56	Hybrid switching control of automotive cold start hydrocarbon emission. , 2013, , .		6
57	Integration and Optimal Control of MicroCSP with Building HVAC Systems: Review and Future Directions. Energies, 2021, 14, 730.	3.1	6
58	Data-Driven Modeling and Control of Cyclic Variability of an Engine Operating in Low Temperature Combustion Modes. IFAC-PapersOnLine, 2021, 54, 834-839.	0.9	6
59	Integrated cycle-to-cycle control of exhaust gas temperature, load, and combustion phasing in an HCCI engine. , 2015, , .		5
60	Development of a 2D Model of a SCR Catalyst on a DPF. Emission Control Science and Technology, 2019, 5, 133-171.	1.5	5
61	Model-Based Dynamic In-Cylinder Air Charge, Residual Gas and Temperature Estimation for a GDI Spark Ignition Engine Using Cylinder, Intake and Exhaust Pressures. , 2020, , .		5
62	Look-forward longitudinal dynamic modelling for a series-parallel hybrid electric vehicle. International Journal of Electric and Hybrid Vehicles, 2008, 1, 342.	0.3	4
63	Novel Exergy-wise predictive control of Internal Combustion Engines. , 2016, , .		4
64	MPC-trained ANFIS for Control of MicroCSP Integrated into a Building HVAC System. , 2019, , .		4
65	Thermo-kinetic modelling of variable valve timing effects on HCCI engine combustion. International Journal of Automotive Engineering and Technologies, 2015, 4, 54.	0.5	4
66	Drivetrain clunk control via a reference governor. IFAC-PapersOnLine, 2021, 54, 846-851.	0.9	4
67	Misfiring cycle pressure measurement for diesel-converted HCCI engine. , 2013, , .		3
68	Model Predictive Control of Micro-CSP Integrated Into a Building HVAC System for Load Following Demand Response Programs. , 2019, , .		3
69	Experimental Studies of Low-Load Limit in a Stoichiometric Micro-Pilot Diesel Natural Gas Engine. Energies, 2022, 15, 728.	3.1	3
70	Robust Model-Based Discrete Sliding Mode Control of an Automotive Electronic Throttle Body. SAE International Journal of Commercial Vehicles, 2017, 10, 317-330.	0.4	2
71	A real-time control-oriented discrete nonlinear model development for in-cylinder air charge, residual gas and temperature prediction of a Gasoline Direct Injection engine using cylinder, intake and exhaust pressures. Control Engineering Practice, 2022, 119, 104978.	5.5	2
72	Real-Time Estimation of Backlash Size in Automotive Drivetrains. IEEE/ASME Transactions on Mechatronics, 2022, 27, 3362-3372.	5.8	2

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73	Buildingâ€toâ€grid optimal control of integrated MicroCSP and building HVAC system for optimal demand response services. Optimal Control Applications and Methods, 2023, 44, 866-884.	2.1	2
74	Multi-Variable Sensitivity Analysis and Ranking of Control Factors Impact in a Stoichiometric Micro-Pilot Natural Gas Engine at Medium Loads. , 0, , .		2
75	Experimental and simulation study of in-cylinder strategies for regeneration of lean nitrogen oxide traps in a high-speed direct-injection diesel engine. Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering, 2013, 227, 1661-1673.	1.9	1
76	Predictive Second Order Sliding Control of Constrained Linear Systems with Application to Automotive Control Systems. , 2018, , .		1
77	Optimal Exergy-wise Predictive Control for a Combined MicroCSP and HVAC System in a Building. , 2019, , .		1
78	Model predictive control of a dual fuel engine integrated with waste heat recovery used for electric power in buildings. Optimal Control Applications and Methods, 0, , .	2.1	0
79	Development of a medium-duty stoichiometric diesel micro-pilot natural gas engine. International Journal of Engine Research, 0, , 146808742210879.	2.3	0