J Christian Gerdes

List of Publications by Year
in descending order

62 papers	3,459 citations	159358 30 h-index	264894 42 g-index
62 all docs	62 docs citations	62 times ranked	2130 citing authors

#	Article	IF	Citations
1	Model Predictive Control for Vehicle Stabilization at the Limits of Handling. IEEE Transactions on Control Systems Technology, 2013, 21, 1258-1269.	3.2	343
2	Collision Avoidance and Stabilization for Autonomous Vehicles in Emergency Scenarios. IEEE Transactions on Control Systems Technology, 2017, 25, 1204-1216.	3.2	272
3	Integrating INS Sensors With GPS Measurements for Continuous Estimation of Vehicle Sideslip, Roll, and Tire Cornering Stiffness. IEEE Transactions on Intelligent Transportation Systems, 2006, 7, 483-493.	4.7	255
4	Safe driving envelopes for path tracking in autonomous vehicles. Control Engineering Practice, 2017, 61, 307-316.	3.2	230
5	Design of a feedback-feedforward steering controller for accurate path tracking and stability at the limits of handling. Vehicle System Dynamics, 2015, 53, 1687-1704.	2.2	159
6	Autonomous vehicle control at the limits of handling. International Journal of Vehicle Autonomous Systems, 2012, 10, 271.	0.2	141
7	Estimation of Tire Slip Angle and Friction Limits Using Steering Torque. IEEE Transactions on Control Systems Technology, 2010, 18, 896-907.	3.2	134
8	Neural network vehicle models for high-performance automated driving. Science Robotics, 2019, 4, .	9.9	127
9	Designing Steering Feel for Steer-by-Wire Vehicles Using Objective Measures. IEEE/ASME Transactions on Mechatronics, 2015, 20, 373-383.	3.7	100
10	Using the centre of percussion to design a steering controller for an autonomous race car. Vehicle System Dynamics, 2012, 50, 33-51.	2.2	95
11	Up to the limits: Autonomous Audi TTS. , 2012, , .		89
12	Motor learning affects car-to-driver handover in automated vehicles. Science Robotics, 2016, 1, .	9.9	82
13	Dynamic Modeling of Residual-Affected Homogeneous Charge Compression Ignition Engines with Variable Valve Actuation. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2005, 127, 374-381.	0.9	76
14	Staying within the nullcline boundary for vehicle envelope control using a sliding surface. Vehicle System Dynamics, 2013, 51, 199-217.	2.2	71
15	Analysis and control of high sideslip manoeuvres. Vehicle System Dynamics, 2010, 48, 317-336.	2.2	69
16	Model-Based Control of HCCI Engines Using Exhaust Recompression. IEEE Transactions on Control Systems Technology, 2010, 18, 1289-1302.	3.2	68
17	Incorporating Ethical Considerations Into Automated Vehicle Control. IEEE Transactions on Intelligent Transportation Systems, 2017, 18, 1429-1439.	4.7	64
18	Handwheel Force Feedback for Lanekeeping Assistance: Combined Dynamics and Stability. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2006, 128, 532-542.	0.9	62

#	Article	IF	Citations
19	Vehicle control synthesis using phase portraits of planar dynamics. Vehicle System Dynamics, 2019, 57, 1318-1337.	2.2	62
20	A Sequential Two-Step Algorithm for Fast Generation of Vehicle Racing Trajectories. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2016, 138, .	0.9	59
21	Toward Automated Vehicle Control Beyond the Stability Limits: Drifting Along a General Path. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2020, 142, .	0.9	56
22	A Controller Framework for Autonomous Drifting: Design, Stability, and Experimental Validation. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2014, 136, .	0.9	51
23	Game-Theoretic Planning for Self-Driving Cars in Multivehicle Competitive Scenarios. IEEE Transactions on Robotics, 2021, 37, 1313-1325.	7.3	50
24	Design of Variable Vehicle Handling Characteristics Using Four-Wheel Steer-by-Wire. IEEE Transactions on Control Systems Technology, 2016, 24, 1529-1540.	3.2	49
25	Physics-Based Modeling and Control of Residual-Affected HCCI Engines. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2009, 131, .	0.9	48
26	From the Racetrack to the Road: Real-Time Trajectory Replanning for Autonomous Driving. IEEE Transactions on Intelligent Vehicles, 2019, 4, 309-320.	9.4	48
27	Path-tracking for autonomous vehicles at the limit of friction. , 2017, , .		44
28	Coordinating Tire Forces to Avoid Obstacles Using Nonlinear Model Predictive Control. IEEE Transactions on Intelligent Vehicles, 2020, 5, 21-31.	9.4	42
29	A New Yaw Dynamic Model for Improved High Speed Control of a Farm Tractor. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2002, 124, 659-667.	0.9	41
30	Predictive Haptic Feedback for Obstacle Avoidance Based on Model Predictive Control. IEEE Transactions on Automation Science and Engineering, 2016, 13, 26-31.	3.4	39
31	Implementation and Analysis of a Repetitive Controller for an Electro-Hydraulic Engine Valve System. IEEE Transactions on Control Systems Technology, 2011, 19, 1102-1113.	3.2	37
32	Neural, physiological, and behavioral correlates of visuomotor cognitive load. Scientific Reports, 2017, 7, 8866.	1.6	37
33	Simultaneous stabilization and tracking of basic automobile drifting trajectories. , 2016, , .		33
34	Path tracking of highly dynamic autonomous vehicle trajectories via iterative learning control. , 2015, , .		29
35	Neural Network Model Predictive Motion Control Applied to Automated Driving With Unknown Friction. IEEE Transactions on Control Systems Technology, 2022, 30, 1934-1945.	3.2	26
36	Mind over motor mapping: Driver response to changing vehicle dynamics. Human Brain Mapping, 2018, 39, 3915-3927.	1.9	24

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37	Modeling and Control of an Exhaust Recompression HCCI Engine Using Split Injection. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2012, 134, .	0.9	23
38	Impacts of Model Fidelity on Trajectory Optimization for Autonomous Vehicles in Extreme Maneuvers. IEEE Transactions on Intelligent Vehicles, 2021, 6, 546-558.	9.4	22
39	Insights into vehicle trajectories at the handling limits: analysing open data from race car drivers. Vehicle System Dynamics, 2017, 55, 191-207.	2.2	21
40	Long-Horizon Vehicle Motion Planning and Control Through Serially Cascaded Model Complexity. IEEE Transactions on Control Systems Technology, 2022, 30, 166-179.	3.2	20
41	Cooperative Collision Avoidance via proximal message passing. , 2015, , .		18
42	Autonomous vehicle control for emergency maneuvers: The effect of topography. , 2015, , .		18
43	A Hybrid Control Design for Autonomous Vehicles at Uncontrolled Crosswalks. , 2019, , .		14
44	Control of exhaust recompression HCCI using hybrid model predictive control. , 2011, , .		12
45	Nonlinear Optimization of a Racing Line for an Autonomous Racecar Using Professional Driving Techniques. , 2012, , .		12
46	Learning at the Racetrack: Data-Driven Methods to Improve Racing Performance Over Multiple Laps. IEEE Transactions on Vehicular Technology, 2020, 69, 8232-8242.	3.9	12
47	Toward Closing the Loop on Human Values. IEEE Transactions on Intelligent Vehicles, 2019, 4, 437-446.	9.4	10
48	Modeling and control of exhaust recompression HCCI using split injection. , 2010, , .		9
49	Analysis of Feasible Tire Force Regions for Optimal Tire Force Allocation with Limited Actuation. IEEE Intelligent Transportation Systems Magazine, 2017, 9, 75-87.	2.6	8
50	Predictive control of vehicle roll dynamics with rear wheel steering. , 2010, , .		7
51	An analytical method for reducing combustion instability in homogeneous charge compression ignition engines through cycle-to-cycle control. International Journal of Engine Research, 2015, 16, 485-500.	1.4	7
52	A synthetic input approach to slip angle based steering control for autonomous vehicles. , 2017, , .		6
53	Repetitive control of an electro-hydraulic engine valve actuation system. , 2008, , .		5
54	Representing recompression HCCI dynamics with a switching linear model. , 2010, , .		4

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55	Creating predictive haptic feedback for obstacle avoidance using a model predictive control (MPC) framework. , 2015, , .		4
56	Prescriptive and proscriptive moral regulation for autonomous vehicles in approach and avoidance. , 2016, , .		4
57	Robust Stabilization and Collision Avoidance through Minimizing Open-Loop Velocity Uncertainty. , 2020, , .		3
58	High Speed Emulation in a Vehicle-in-the-Loop Driving Simulator. IEEE Transactions on Intelligent Vehicles, 2023, 8, 1826-1836.	9.4	3
59	Transient responses of alternative vehicle configurations: A theoretical and experimental study on the effects of atypical moments of inertia. , 2008, , .		2
60	Neural networks overtake humans in Gran Turismo racing game. Nature, 2022, 602, 213-214.	13.7	2
61	Optimal Decision Making for Automated Vehicles Using Homotopy Generation and Nonlinear Model Predictive Control. , 2021, , .		1
62	Degenerate Mechanical Systems A Framework for Tracking Control. Proceedings of the American Control Conference, 2007, , .	0.0	0