

Marco Pavone

List of Publications by Year in descending order

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143
papers

5,077
citations

159585

30
h-index

155660

55
g-index

143
all docs

143
docs citations

143
times ranked

2821
citing authors

#	ARTICLE	IF	CITATIONS
1	Fast marching tree: A fast marching sampling-based method for optimal motion planning in many dimensions. International Journal of Robotics Research, 2015, 34, 883-921.	8.5	319
2	Control of robotic mobility-on-demand systems: A queueing-theoretical perspective. International Journal of Robotics Research, 2016, 35, 186-203.	8.5	251
3	Trajectron++: Dynamically-Feasible Trajectory Forecasting with Heterogeneous Data. Lecture Notes in Computer Science, 2020, , 683-700.	1.3	249
4	Toward a Systematic Approach to the Design and Evaluation of Automated Mobility-on-Demand Systems: A Case Study in Singapore. Lecture Notes in Mobility, 2014, , 229-245.	0.2	239
5	The Trajectron: Probabilistic Multi-Agent Trajectory Modeling With Dynamic Spatiotemporal Graphs. , 2019, , .		230
6	Robotic load balancing for mobility-on-demand systems. International Journal of Robotics Research, 2012, 31, 839-854.	8.5	218
7	Decentralized Policies for Geometric Pattern Formation and Path Coverage. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2007, 129, 633-643.	1.6	141
8	Robust online motion planning via contraction theory and convex optimization. , 2017, , .		106
9	Routing autonomous vehicles in congested transportation networks: structural properties and coordination algorithms. Autonomous Robots, 2018, 42, 1427-1442.	4.8	100
10	Multimodal Probabilistic Model-Based Planning for Human-Robot Interaction. , 2018, , .		89
11	Model predictive control of autonomous mobility-on-demand systems. , 2016, , .		88
12	Distributed Control of Spacecraft Formations via Cyclic Pursuit: Theory and Experiments. Journal of Guidance, Control, and Dynamics, 2010, 33, 1655-1669.	2.8	87
13	Distributed Algorithms for Environment Partitioning in Mobile Robotic Networks. IEEE Transactions on Automatic Control, 2011, 56, 1834-1848.	5.7	86
14	Adaptive and Distributed Algorithms for Vehicle Routing in a Stochastic and Dynamic Environment. IEEE Transactions on Automatic Control, 2011, 56, 1259-1274.	5.7	84
15	How Should a Robot Assess Risk? Towards an Axiomatic Theory of Risk in Robotics. Springer Proceedings in Advanced Robotics, 2020, , 75-84.	1.3	75
16	Beyond The Force. , 2019, , .		74
17	Robot Motion Planning in Learned Latent Spaces. IEEE Robotics and Automation Letters, 2019, 4, 2407-2414.	5.1	74
18	Review of Multi-Agent Algorithms for Collective Behavior: a Structural Taxonomy. IFAC-PapersOnLine, 2018, 51, 112-117.	0.9	72

#	ARTICLE	IF	CITATIONS
19	Deterministic sampling-based motion planning: Optimality, complexity, and performance. <i>International Journal of Robotics Research</i> , 2018, 37, 46-61.	8.5	71
20	Chance-constrained dynamic programming with application to risk-aware robotic space exploration. <i>Autonomous Robots</i> , 2015, 39, 555-571.	4.8	65
21	Data-Driven Model Predictive Control of Autonomous Mobility-on-Demand Systems. , 2018, , .		65
22	On the Interaction Between Autonomous Mobility-on-Demand Systems and the Power Network: Models and Coordination Algorithms. <i>IEEE Transactions on Control of Network Systems</i> , 2020, 7, 384-397.	3.7	64
23	A Stochastic and Dynamic Vehicle Routing Problem with Time Windows and Customer Impatience. <i>Mobile Networks and Applications</i> , 2009, 14, 350-364.	3.3	59
24	Asymptotically Optimal Algorithms for One-to-One Pickup and Delivery Problems With Applications to Transportation Systems. <i>IEEE Transactions on Automatic Control</i> , 2013, 58, 2261-2276.	5.7	58
25	A BCMP network approach to modeling and controlling autonomous mobility-on-demand systems. <i>International Journal of Robotics Research</i> , 2019, 38, 357-374.	8.5	58
26	GuSTO: Guaranteed Sequential Trajectory optimization via Sequential Convex Programming. , 2019, , .		58
27	Spacecraft Autonomy Challenges for Next-Generation Space Missions. <i>Lecture Notes in Control and Information Sciences</i> , 2016, , 1-48.	1.0	57
28	On the Interaction between Autonomous Mobility-on-Demand and Public Transportation Systems. , 2018, , .		55
29	Optimal sampling-based motion planning under differential constraints: The driftless case. , 2015, 2015, 2368-2375.		51
30	Rebalancing the rebalancers: optimally routing vehicles and drivers in mobility-on-demand systems. , 2013, , .		50
31	Autonomous Mobility-on-Demand Systems for Future Urban Mobility. , 2015, , 399-416.		50
32	On infusing reachability-based safety assurance within planning frameworks for human-robot vehicle interactions. <i>International Journal of Robotics Research</i> , 2020, 39, 1326-1345.	8.5	49
33	Dynamic Vehicle Routing with Priority Classes of Stochastic Demands. <i>SIAM Journal on Control and Optimization</i> , 2010, 48, 3224-3245.	2.1	45
34	Models, algorithms, and evaluation for autonomous mobility-on-demand systems. , 2015, , .		43
35	Design, Control, and Experimentation of Internally-Actuated Rovers for the Exploration of Low-gravity Planetary Bodies. <i>Journal of Field Robotics</i> , 2017, 34, 5-24.	6.0	43
36	A Real-Time Framework for Kinodynamic Planning with Application to Quadrotor Obstacle Avoidance. , 2016, , .		42

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37	Multimodal Deep Generative Models for Trajectory Prediction: A Conditional Variational Autoencoder Approach. IEEE Robotics and Automation Letters, 2021, 6, 295-302.	5.1	42
38	Intermodal Autonomous Mobility-on-Demand. IEEE Transactions on Intelligent Transportation Systems, 2020, 21, 3946-3960.	8.0	41
39	Monte Carlo Motion Planning for Robot Trajectory Optimization Under Uncertainty. Springer Proceedings in Advanced Robotics, 2018, , 343-361.	1.3	40
40	A Framework for Time-Consistent, Risk-Sensitive Model Predictive Control: Theory and Algorithms. IEEE Transactions on Automatic Control, 2019, 64, 2905-2912.	5.7	40
41	Generative Modeling of Multimodal Multi-Human Behavior. , 2018, , .		38
42	Fast, Safe, Propellant-Efficient Spacecraft Motion Planning Under Clohessyâ€Wiltshireâ€Hill Dynamics. Journal of Guidance, Control, and Dynamics, 2017, 40, 418-438.	2.8	35
43	Model Predictive Control of Ride-sharing Autonomous Mobility-on-Demand Systems. , 2019, , .		35
44	An asymptotically-optimal sampling-based algorithm for Bi-directional motion planning. , 2015, 2015, 2072-2078.		34
45	Analysis and Control of Autonomous Mobility-on-Demand Systems. Annual Review of Control, Robotics, and Autonomous Systems, 2022, 5, 633-658.	11.8	34
46	Analysis, Control, and Evaluation of Mobility-on-Demand Systems: A Queueing-Theoretical Approach. IEEE Transactions on Control of Network Systems, 2019, 6, 115-126.	3.7	33
47	Network offloading policies for cloud robotics: a learning-based approach. Autonomous Robots, 2021, 45, 997-1012.	4.8	31
48	A Congestion-aware Routing Scheme for Autonomous Mobility-on-Demand Systems. , 2019, , .		31
49	Stochastic Model Predictive Control for Autonomous Mobility on Demand. , 2018, , .		30
50	Optimal sampling-based motion planning under differential constraints: The drift case with linear affine dynamics. , 2015, 2015, 2574-2581.		29
51	Network Offloading Policies for Cloud Robotics: A Learning-Based Approach. , 0, , .		29
52	Expected science return of spatially-extended in-situ exploration at small Solar system bodies. , 2012, , .		27
53	A real-time framework for kinodynamic planning in dynamic environments with application to quadrotor obstacle avoidance. Robotics and Autonomous Systems, 2019, 115, 174-193.	5.1	27
54	Efficient Large-Scale Multi-Drone Delivery Using Transit Networks. , 2020, , .		27

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55	Cooperative Object Transport in 3D with Multiple Quadrotors Using No Peer Communication. , 2018, , .		26
56	Revisiting the Asymptotic Optimality of RRT. , 2020, , .		26
57	Distributed policies for equitable partitioning: Theory and applications. , 2008, , .		24
58	A convex optimization approach to smooth trajectories for motion planning with car-like robots. , 2015, , .		24
59	Control of Robotic Mobility-On-Demand Systems: a Queueing-Theoretical Perspective. , 0, , .		24
60	Risk-sensitive Inverse Reinforcement Learning via Coherent Risk Models. , 0, , .		23
61	Fundamental performance limits and efficient polices for Transportation-On-Demand systems. , 2010, , .		22
62	A queueing network approach to the analysis and control of mobility-on-demand systems. , 2015, , .		21
63	Chance-Constrained Sequential Convex Programming for Robust Trajectory Optimization. , 2020, , .		21
64	Stochastic Motion Planning for Hopping Rovers on Small Solar System Bodies. Springer Proceedings in Advanced Robotics, 2020, , 877-893.	1.3	19
65	Load Balancing for Mobility-on-Demand Systems. , 0, , .		19
66	Graph Neural Network Reinforcement Learning for Autonomous Mobility-on-Demand Systems. , 2021, , .		19
67	A framework for time-consistent, risk-averse model predictive control: Theory and algorithms. , 2014, , .		18
68	The Team Surviving Orienteers problem: routing teams of robots in uncertain environments with survival constraints. Autonomous Robots, 2018, 42, 927-952.	4.8	17
69	Routing and Rebalancing Intermodal Autonomous Mobility-on-Demand Systems in Mixed Traffic. IEEE Transactions on Intelligent Transportation Systems, 2022, 23, 12263-12275.	8.0	17
70	On the Interaction Between Autonomous Mobility on Demand Systems and Power Distribution Networksâ€™An Optimal Power Flow Approach. IEEE Transactions on Control of Network Systems, 2021, 8, 1163-1176.	3.7	17
71	Sharing the load. IEEE Robotics and Automation Magazine, 2009, 16, 52-61.	2.0	16
72	Internally-actuated rovers for all-access surface mobility: Theory and experimentation. , 2013, , .		16

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73	Fast Marching Trees: A Fast Marching Sampling-Based Method for Optimal Motion Planning in Many Dimensions. Springer Tracts in Advanced Robotics, 2016, , 667-684.	0.4	16
74	Risk-Sensitive Sequential Action Control with Multi-Modal Human Trajectory Forecasting for Safe Crowd-Robot Interaction. , 2020, , .		16
75	Safe Active Dynamics Learning and Control: A Sequential Explorationâ€œExploitation Framework. IEEE Transactions on Robotics, 2022, 38, 2888-2907.	10.3	16
76	BaRC: Backward Reachability Curriculum for Robotic Reinforcement Learning. , 2019, , .		15
77	UAV Routing and Coordination in Stochastic, Dynamic Environments. , 2015, , 2079-2109.		14
78	Reach-Avoid Games Via Mixed-Integer Second-Order Cone Programming. , 2018, , .		14
79	Autonomous Mobility-on-Demand Systems for Future Urban Mobility. , 2016, , 387-404.		14
80	Congestion-aware Routing and Rebalancing of Autonomous Mobility-on-Demand Systems in Mixed Traffic. , 2020, , .		14
81	Deterministic Sampling-Based Motion Planning: Optimality, Complexity, and Performance. Springer Proceedings in Advanced Robotics, 2018, , 507-525.	1.3	13
82	Collision-Inclusive Trajectory Optimization for Free-Flying Spacecraft. Journal of Guidance, Control, and Dynamics, 2020, 43, 1247-1258.	2.8	13
83	Soft Robot Optimal Control Via Reduced Order Finite Element Models. , 2021, , .		13
84	Joint Optimization of Autonomous Electric Vehicle Fleet Operations and Charging Station Siting. , 2021, , .		13
85	Trading Safety Versus Performance: Rapid Deployment of Robotic Swarms With Robust Performance Constraints. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2015, 137, .	1.6	12
86	Shapeshifter: A Multi-Agent, Multi-Modal Robotic Platform for Exploration of Titan. , 2020, , .		12
87	Optimal Picking Policies in E-Commerce Warehouses. Management Science, 2022, 68, 7497-7517.	4.1	12
88	Tube-Certified Trajectory Tracking for Nonlinear Systems With Robust Control Contraction Metrics. IEEE Robotics and Automation Letters, 2022, 7, 5528-5535.	5.1	12
89	Risk-sensitive inverse reinforcement learning via semi- and non-parametric methods. International Journal of Robotics Research, 2018, 37, 1713-1740.	8.5	11
90	Optimal Routing and Energy Management Strategies for Plug-in Hybrid Electric Vehicles. , 2019, , .		11

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91	On the interaction between Autonomous Mobility-on-Demand systems and the power network: models and coordination algorithms. , 0, , .		11
92	Scalable and Congestion-Aware Routing for Autonomous Mobility-On-Demand Via Frank-Wolfe Optimization. , 0, , .		11
93	Dynamic vehicle routing with heterogeneous demands. , 2008, , .		10
94	Models and efficient algorithms for pickup and delivery problems on roadmaps. , 2012, , .		10
95	Rapid multirobot deployment with time constraints. , 2014, , .		10
96	Real-time stochastic kinodynamic motion planning via multiobjective search on GPUs. , 2017, , .		10
97	Learning stabilizable nonlinear dynamics with contraction-based regularization. International Journal of Robotics Research, 2021, 40, 1123-1150.	8.5	10
98	Back-Propagation Through Signal Temporal Logic Specifications: Infusing Logical Structure into Gradient-Based Methods. Springer Proceedings in Advanced Robotics, 2021, , 432-449.	1.3	10
99	Learning Mixed-Integer Convex Optimization Strategies for Robot Planning and Control. , 2020, , .		10
100	Real-time, propellant-optimized spacecraft motion planning under Clohessy-Wiltshire-Hill dynamics. , 2016, , .		9
101	The Team Surviving Orienteers Problem: Routing Robots in Uncertain Environments with Survival Constraints. , 2017, , .		9
102	Robust Tracking with Model Mismatch for Fast and Safe Planning: An SOS Optimization Approach. Springer Proceedings in Advanced Robotics, 2020, , 545-564.	1.3	8
103	On the Co-Design of AV-Enabled Mobility Systems. , 2020, , .		8
104	Infusing Reachability-Based Safety into Planning and Control for Multi-agent Interactions. , 2020, , .		8
105	CoCo: Online Mixed-Integer Control Via Supervised Learning. IEEE Robotics and Automation Letters, 2022, 7, 1447-1454.	5.1	8
106	Decentralized policies for geometric pattern formation. , 2007, , .		7
107	Group Marching Tree: Sampling-Based Approximately Optimal Motion Planning on GPUs. , 2017, , .		7
108	Learning-based Warm-Starting for Fast Sequential Convex Programming and Trajectory Optimization. , 2020, , .		7

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109	Leveraging Neural Network Gradients within Trajectory Optimization for Proactive Human-Robot Interactions. , 2021, , .		7
110	On Infusing Reachability-Based Safety Assurance Within Probabilistic Planning Frameworks for Human-Robot Vehicle Interactions. Springer Proceedings in Advanced Robotics, 2020, , 561-574.	1.3	7
111	An asymptotically optimal algorithm for pickup and delivery problems. , 2011, , .		6
112	Toward a real-time framework for solving the kinodynamic motion planning problem. , 2015, , .		6
113	Sample Complexity of Probabilistic Roadmaps via $\hat{\mu}$ -nets. , 2020, , .		6
114	Experimental Methods for Mobility and Surface Operations of Microgravity Robots. Springer Proceedings in Advanced Robotics, 2017, , 752-763.	1.3	6
115	Trust but Verify: Cryptographic Data Privacy for Mobility Management. IEEE Transactions on Control of Network Systems, 2022, 9, 50-61.	3.7	6
116	Dynamic multi-vehicle routing with multiple classes of demands. , 2009, , .		5
117	A risk-constrained multi-stage decision making approach to the architectural analysis of planetary missions. , 2012, , .		5
118	Flying Smartphones: When Portable Computing Sprouts Wings. IEEE Pervasive Computing, 2016, 15, 83-88.	1.3	5
119	Multi-objective optimal control for proactive decision making with temporal logic models. International Journal of Robotics Research, 2019, 38, 1490-1512.	8.5	5
120	A Model Predictive Control Scheme for Intermodal Autonomous Mobility-on-Demand. , 2019, , .		5
121	UAV Aircraft Carrier Landing Using CFD-Based Model Predictive Control. , 2020, , .		5
122	Control Barrier Functions for Cyber-Physical Systems and Applications to NMPC. IEEE Robotics and Automation Letters, 2021, 6, 8623-8630.	5.1	5
123	Composable Geometric Motion Policies using Multi-Task Pullback Bundle Dynamical Systems. , 2021, , .		5
124	Near-Optimal Multi-Robot Motion Planning with Finite Sampling. , 2021, , .		5
125	AdaPT: Zero-Shot Adaptive Policy Transfer for Stochastic Dynamical Systems. Springer Proceedings in Advanced Robotics, 2020, , 437-453.	1.3	5
126	Particle MPC for Uncertain and Learning-Based Control. , 2021, , .		5

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127	Simultaneous model identification and task satisfaction in the presence of temporal logic constraints. , 2016, , .		4
128	Testing Gecko-Inspired Adhesives With Astrobee Aboard the International Space Station: Readyng the Technology for Space. IEEE Robotics and Automation Magazine, 2022, 29, 24-33.	2.0	4
129	Propagating State Uncertainty Through Trajectory Forecasting. , 2022, , .		4
130	Soft Tensegrity Systems for Planetary Landing and Exploration. , 2021, , .		3
131	On Local Computation for Network-Structured Convex Optimization in Multiagent Systems. IEEE Transactions on Control of Network Systems, 2021, 8, 542-554.	3.7	3
132	Fast Near-Optimal Heterogeneous Task Allocation via Flow Decomposition. , 2021, , .		3
133	Multi-vehicle Routing. , 2014, , 1-11.		3
134	Perception-Aware Motion Planning via Multiobjective Search on GPUs. Springer Proceedings in Advanced Robotics, 2020, , 895-912.	1.3	3
135	Bilevel Optimization for Planning Through Contact: A Semidirect Method. Springer Proceedings in Advanced Robotics, 2022, , 789-804.	1.3	3
136	Integration of Reinforcement Learning in a Virtual Robotic Surgical Simulation. Surgical Innovation, 2023, 30, 94-102.	0.9	3
137	Real-Time Control of Mixed Fleets in Mobility-on-Demand Systems. , 2021, , .		2
138	Vision-based Autonomous Disinfection of High-Touch Surfaces in Indoor Environments. , 2021, , .		2
139	Guest Editorial: Special issue on constrained decision-making in robotics. Autonomous Robots, 2015, 39, 465-467.	4.8	0
140	Kinodynamic Planning. , 2021, , 1-9.		0
141	Multi-vehicle Routing. , 2021, , 1402-1410.		0
142	Multi-objective Optimal Control for Proactive Decision Making with Temporal Logic Models. Springer Proceedings in Advanced Robotics, 2020, , 127-144.	1.3	0
143	A BCMP Network Approach to Modeling and Controlling Autonomous Mobility-on-Demand Systems. Springer Proceedings in Advanced Robotics, 2020, , 831-847.	1.3	0