Jonathan P How

List of Publications by Year in descending order

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300 papers 14,107 citations

42 h-index 87 g-index

300 all docs

300 docs citations

300 times ranked 7552 citing authors

#	Article	IF	Citations
1	Consensus-Based Decentralized Auctions for Robust Task Allocation. IEEE Transactions on Robotics, 2009, 25, 912-926.	10.3	680
2	Real-Time Motion Planning With Applications to Autonomous Urban Driving. IEEE Transactions on Control Systems Technology, 2009, 17, 1105-1118.	5.2	676
3	Socially aware motion planning with deep reinforcement learning. , 2017, , .		429
4	Spacecraft Trajectory Planning with Avoidance Constraints Using Mixed-Integer Linear Programming. Journal of Guidance, Control, and Dynamics, 2002, 25, 755-764.	2.8	402
5	A perceptionâ€driven autonomous urban vehicle. Journal of Field Robotics, 2008, 25, 727-774.	6.0	364
6	Relative Dynamics and Control of Spacecraft Formations in Eccentric Orbits. Journal of Guidance, Control, and Dynamics, 2002, 25, 48-59.	2.8	347
7	Real-time indoor autonomous vehicle test environment. IEEE Control Systems, 2008, 28, 51-64.	0.8	334
8	Performance and Lyapunov Stability of a Nonlinear Path Following Guidance Method. Journal of Guidance, Control, and Dynamics, 2007, 30, 1718-1728.	2.8	333
9	Decentralized non-communicating multiagent collision avoidance with deep reinforcement learning. , 2017, , .		319
10	Motion Planning Among Dynamic, Decision-Making Agents with Deep Reinforcement Learning. , 2018, , .		317
11	A Name New Program Cui de man La win fou Tunio et any Trophing 2004		
	A New Nonlinear Guidance Logic for Trajectory Tracking. , 2004, , .		299
12	Robust distributed model predictive control. International Journal of Control, 2007, 80, 1517-1531.	1.9	299
12		1.9	
	Robust distributed model predictive control. International Journal of Control, 2007, 80, 1517-1531.	1.9 3.4	266
13	Robust distributed model predictive control. International Journal of Control, 2007, 80, 1517-1531. Coordination and Control of Multiple UAVs., 2002,, Autonomous driving in urban environments: approaches, lessons and challenges. Philosophical		266
13 14	Robust distributed model predictive control. International Journal of Control, 2007, 80, 1517-1531. Coordination and Control of Multiple UAVs., 2002,,. Autonomous driving in urban environments: approaches, lessons and challenges. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2010, 368, 4649-4672. Probabilistically safe motion planning to avoid dynamic obstacles with uncertain motion patterns.	3.4	266 238 238
13 14 15	Robust distributed model predictive control. International Journal of Control, 2007, 80, 1517-1531. Coordination and Control of Multiple UAVs., 2002,,. Autonomous driving in urban environments: approaches, lessons and challenges. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2010, 368, 4649-4672. Probabilistically safe motion planning to avoid dynamic obstacles with uncertain motion patterns. Autonomous Robots, 2013, 35, 51-76. Driver Behavior Classification at Intersections and Validation on Large Naturalistic Data Set. IEEE	3.4 4.8	266 238 238

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19	Motion planning for urban driving using RRT., 2008,,.		158
20	Air-Combat Strategy Using Approximate Dynamic Programming. Journal of Guidance, Control, and Dynamics, 2010, 33, 1641-1654.	2.8	156
21	Cooperative Distributed Robust Trajectory Optimization Using Receding Horizon MILP. IEEE Transactions on Control Systems Technology, 2011, 19, 423-431.	5.2	142
22	Distributed Robust Receding Horizon Control for Multivehicle Guidance. IEEE Transactions on Control Systems Technology, 2007, 15, 627-641.	5.2	127
23	Hover, Transition, and Level Flight Control Design for a Single-Propeller Indoor Airplane. , 2007, , .		126
24	Observer-based control of piecewise-affine systems. International Journal of Control, 2003, 76, 459-477.	1.9	122
25	Decentralized Cooperative Trajectory Planning of Multiple Aircraft with Hard Safety Guarantees. , 2004, , .		122
26	Chance Constrained RRT for Probabilistic Robustness to Environmental Uncertainty., 2010,,.		119
27	Indoor Multi-Vehicle Flight Testbed for Fault Detection, Isolation, and Recovery. , 2006, , .		118
28	Bayesian Nonparametric Adaptive Control Using Gaussian Processes. IEEE Transactions on Neural Networks and Learning Systems, 2015, 26, 537-550.	11.3	116
29	Robust variable horizon model predictive control for vehicle maneuvering. International Journal of Robust and Nonlinear Control, 2006, 16, 333-351.	3.7	111
30	Motion Planning in Complex Environments Using Closed-loop Prediction., 2008,,.		106
31	Vision-based guidance and control of a hovering vehicle in unknown, GPS-denied environments. , 2009, , .		100
32	An Automated Battery Management System to Enable Persistent Missions With Multiple Aerial Vehicles. IEEE/ASME Transactions on Mechatronics, 2015, 20, 275-286.	5.8	99
33	Decoupled multiagent path planning via incremental sequential convex programming. , 2015, , .		96
34	FASTER: Fast and Safe Trajectory Planner for Flights in Unknown Environments. , 2019, , .		96
35	Decentralized path planning for multi-agent teams with complex constraints. Autonomous Robots, 2012, 32, 385-403.	4.8	92
36	Multi-Task Allocation and Path Planning for Cooperating UAVs. Cooperative Systems, 2003, , 23-41.	0.3	91

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37	Collision Avoidance in Pedestrian-Rich Environments With Deep Reinforcement Learning. IEEE Access, 2021, 9, 10357-10377.	4.2	86
38	Robust Adaptive Control Barrier Functions: An Adaptive and Data-Driven Approach to Safety., 2021, 5, 1031-1036.		83
39	Three Dimensional Receding Horizon Control for UAVs. , 2004, , .		82
40	Real-Time Multi-UAV Task Assignment in Dynamic and Uncertain Environments. , 2009, , .		82
41	Gauss's Variational Equation-Based Dynamics and Control for Formation Flying Spacecraft. Journal of Guidance, Control, and Dynamics, 2007, 30, 437-448.	2.8	77
42	Decentralized planning for complex missions with dynamic communication constraints. , 2010, , .		77
43	Aggressive 3-D collision avoidance for high-speed navigation. , 2017, , .		77
44	Comparison of Fixed and Variable Pitch Actuators for Agile Quadrotors. , 2011, , .		76
45	Increasing autonomy of UAVs. IEEE Robotics and Automation Magazine, 2009, 16, 43-51.	2.0	74
46	A Tutorial on Linear Function Approximators for Dynamic Programming and Reinforcement Learning. Foundations and Trends in Machine Learning, 2013, 6, 375-451.	69.0	74
47	The MIT–Cornell collision and why it happened. Journal of Field Robotics, 2008, 25, 775-807.	6.0	73
48	Threat assessment design for driver assistance system at intersections. , 2010, , .		73
49	Robust Sampling-based Motion Planning with Asymptotic Optimality Guarantees. , 2013, , .		71
50	Demonstration of Adaptive Extended Kalman Filter for Low-Earth-Orbit Formation Estimation Using CDGPS. Navigation, Journal of the Institute of Navigation, 2003, 50, 79-93.	2.8	69
51	Multi-Agent Motion Planning for Dense and Dynamic Environments via Deep Reinforcement Learning. IEEE Robotics and Automation Letters, 2020, 5, 3221-3226.	5.1	69
52	Actuator Constrained Trajectory Generation and Control for Variable-Pitch Quadrotors. , 2012, , .		68
53	Distributed Planning Strategies to Ensure Network Connectivity for Dynamic Heterogeneous Teams. IEEE Journal on Selected Areas in Communications, 2012, 30, 861-869.	14.0	67
54	Extensions of mixed- $\hat{A}\mu$ bounds to monotonic and odd monotonic nonlinearities using absolute stability theory. International Journal of Control, 1994, 60, 905-951.	1.9	65

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55	Behavior classification algorithms at intersections and validation using naturalistic data., 2011,,.		64
56	Consensus-Based Auction Approaches for Decentralized Task Assignment., 2008,,.		63
57	Gaussian Processes for Learning and Control: A Tutorial with Examples. IEEE Control Systems, 2018, 38, 53-86.	0.8	63
58	VPS-SLAM: Visual Planar Semantic SLAM for Aerial Robotic Systems. IEEE Access, 2020, 8, 60704-60718.	4.2	60
59	Seismic isolation for Advanced LIGO. Classical and Quantum Gravity, 2002, 19, 1591-1597.	4.0	59
60	Continuous trajectory planning of mobile sensors for informative forecasting. Automatica, 2010, 46, 1266-1275.	5.0	58
61	Guaranteed infinite horizon avoidance of unpredictable, dynamically constrained obstacles. Autonomous Robots, 2012, 32, 227-242.	4.8	58
62	Cooperative Vision Based Estimation and Tracking Using Multiple UAVs., 2007,, 179-189.		58
63	The Impact of Human–Automation Collaboration in Decentralized Multiple Unmanned Vehicle Control. Proceedings of the IEEE, 2012, 100, 660-671.	21.3	57
64	Analysis and Control of a Variable-Pitch Quadrotor for Agile Flight. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2015, 137, .	1.6	57
65	SLAM with objects using a nonparametric pose graph. , 2016, , .		57
66	Mission Health Management for 24/7 Persistent Surveillance Operations., 2007,,.		55
67	Planning for decentralized control of multiple robots under uncertainty. , 2015, , .		55
68	Dynamic Tube MPC for Nonlinear Systems. , 2019, , .		55
69	Mobile Agent Trajectory Prediction using Bayesian Nonparametric Reachability Trees. , 2011, , .		54
70	Robust Decentralized Task Assignment for Cooperative UAVs. , 2006, , .		53
71	Group health management of UAV teams with applications to persistent surveillance. , 2008, , .		51
72	Automated Battery Swap and Recharge to Enable Persistent UAV Missions. , 2011, , .		51

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73	Decentralized path planning for multi-agent teams in complex environments using rapidly-exploring random trees. , $2011,\ldots$		50
74	Decentralized task allocation with coupled constraints in complex missions. , 2011, , .		49
75	Embedding Health Management into Mission Tasking for UAV Teams. Proceedings of the American Control Conference, 2007, , .	0.0	47
76	MADER: Trajectory Planner in Multiagent and Dynamic Environments. IEEE Transactions on Robotics, 2022, 38, 463-476.	10.3	47
77	A robust approach to the UAV task assignment problem. International Journal of Robust and Nonlinear Control, 2008, 18, 118-134.	3.7	46
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84	A voice-commandable robotic forklift working alongside humans in minimally-prepared outdoor environments. , 2010 , , .		43
85	Improving the Efficiency of a Decentralized Tasking Algorithm for UAV Teams with Asynchronous Communications. , 2010, , .		43
86	Efficient reinforcement learning for robots using informative simulated priors. , 2015, , .		43
87	Experimental Demonstrations of Real-Time MILP Control. , 2003, , .		42
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89	Asynchronous Decentralized Task Allocation for Dynamic Environments., 2011,,.		40
90	Bounds on tracking error using closed-loop rapidly-exploring random trees. , 2010, , .		39

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97	The MIT Indoor Multi-Vehicle Flight Testbed. Proceedings - IEEE International Conference on Robotics and Automation, 2007, , .	0.0	33
98	Threat-aware path planning in uncertain urban environments. , 2010, , .		33
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102	Concurrent Learning Adaptive Model Predictive Control. , 2013, , 29-47.		32
103	Where to go Next: Learning a Subgoal Recommendation Policy for Navigation in Dynamic Environments. IEEE Robotics and Automation Letters, 2021, 6, 4616-4623.	5.1	32
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117	An online algorithm for constrained POMDPs. , 2010, , .		26
118	Design and flight testing of an autonomous variable-pitch quadrotor., 2011,,.		26
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120	Efficient Targeting of Sensor Networks for Large-Scale Systems. IEEE Transactions on Control Systems Technology, 2011, 19, 1569-1577.	5.2	25
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124	A Situationally Aware Voiceâ€commandable Robotic Forklift Working Alongside People in Unstructured Outdoor Environments. Journal of Field Robotics, 2015, 32, 590-628.	6.0	24
125	Bayesian Nonparametric Inverse Reinforcement Learning. Lecture Notes in Computer Science, 2012, , 148-163.	1.3	24
126	Three-Dimensional Flight Experiments Using On-Line Mixed-Integer Linear Programming Trajectory Optimization. Proceedings of the American Control Conference, 2007, , .	0.0	23

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127	Coordinated Targeting of Mobile Sensor Networks for Ensemble Forecast Improvement. IEEE Sensors Journal, 2011, 11, 621-633.	4.7	23
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130	Reachability Analysis of Neural Feedback Loops. IEEE Access, 2021, 9, 163938-163953.	4.2	23
131	Subspace based direct adaptive ?? control. International Journal of Adaptive Control and Signal Processing, 2001, 15, 535-561.	4.1	22
132	Off-policy reinforcement learning with Gaussian processes. IEEE/CAA Journal of Automatica Sinica, 2014, 1, 227-238.	13.1	22
133	Talk Resource-Efficiently to Me: Optimal Communication Planning for Distributed Loop Closure Detection. , 2018, , .		22
134	Real-Time Predictive Modeling and Robust Avoidance of Pedestrians with Uncertain, Changing Intentions. Springer Tracts in Advanced Robotics, 2015, , 161-177.	0.4	22
135	Cooperative Spacecraft Formation Flying: Model Predictive Control with Open- and Closed-Loop Robustness. Elsevier Astrodynamics Series, 2006, , 237-277.	0.4	21
136	Allowing non-submodular score functions in distributed task allocation., 2012,,.		21
137	Bayesian nonparametric adaptive control of time-varying systems using Gaussian processes., 2013,,.		21
138	Experimental Demonstration of Adaptive MDP-Based Planning with Model Uncertainty., 2008,,.		20
139	Predictive Planning for Heterogeneous Human-Robot Teams. , 2010, , .		20
140	Robust Adaptive Markov Decision Processes: Planning with Model Uncertainty. IEEE Control Systems, 2012, 32, 96-109.	0.8	20
141	Robust State Estimation with Sparse Outliers. Journal of Guidance, Control, and Dynamics, 2015, 38, 1229-1240.	2.8	20
142	Real-Time Planning with Multi-Fidelity Models for Agile Flights in Unknown Environments. , 2019, , .		20
143	PANTHER: Perception-Aware Trajectory Planner in Dynamic Environments. IEEE Access, 2022, 10, 22662-22677.	4.2	20
144	Ensemble-Based Adaptive Targeting of Mobile Sensor Networks. Proceedings of the American Control Conference, 2007, , .	0.0	19

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145	Throughput Optimization in Mobile Backbone Networks. IEEE Transactions on Mobile Computing, 2011, 10, 560-572.	5.8	19
146	Model Reference Adaptive Control using Nonparametric Adaptive Elements., 2012,,.		19
147	Asynchronous and Parallel Distributed Pose Graph Optimization. IEEE Robotics and Automation Letters, 2020, 5, 5819-5826.	5.1	19
148	A Perception-Driven Autonomous Urban Vehicle. Springer Tracts in Advanced Robotics, 2009, , 163-230.	0.4	19
149	Analysis of linear parameter-varying systems using a non-smooth dissipative systems framework. International Journal of Robust and Nonlinear Control, 2002, 12, 1067-1092.	3.7	18
150	Experimental Validation of Bayesian Nonparametric Adaptive Control Using Gaussian Processes. Journal of Aerospace Information Systems, 2014, 11, 565-578.	1.4	18
151	Decentralized Task Allocation Using Local Information Consistency Assumptions. Journal of Aerospace Information Systems, 2017, 14, 103-122.	1.4	18
152	<title>Space construction: an experimental testbed to develop enabling technologies</title> ., 1997,,.		17
153	Two-stage path planning approach for solving multiple spacecraft reconfiguration maneuvers. Journal of the Astronautical Sciences, 2008, 56, 515-544.	1.5	17
154	Case Studies in Data-Driven Verification of Dynamical Systems. , 2016, , .		17
155	An intelligent Cooperative Control Architecture. , 2010, , .		16
156	Nonparametric adaptive control using Gaussian Processes with online hyperparameter estimation. , 2013, , .		16
157	Small-variance nonparametric clustering on the hypersphere. , 2015, , .		16
158	Augmented dictionary learning for motion prediction. , 2016, , .		16
159	Measurable Augmented Reality for Prototyping Cyberphysical Systems: A Robotics Platform to Aid the Hardware Prototyping and Performance Testing of Algorithms. IEEE Control Systems, 2016, 36, 65-87.	0.8	16
160	Automatic Pan–Tilt Camera Control for Learning Dirichlet Process Gaussian Process (DPGP) Mixture Models of Multiple Moving Targets. IEEE Transactions on Automatic Control, 2019, 64, 159-173.	5.7	16
161	The Hybrid Information and Plan Consensus Algorithm with Imperfect Situational Awareness. Springer Tracts in Advanced Robotics, 2016, , 221-233.	0.4	16
162	J2-Modified GVE-Based MPC for Formation Flying Spacecraft. , 2005, , .		15

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163	A Robust Approach to the UAV Task Assignment Problem. , 2006, , .		15
164	Decentralized Cooperative Trajectory Optimization for UAVs with Coupling Constraints., 2006, , .		15
165	Multi-UAV network control through dynamic task allocation: Ensuring data-rate and bit-error-rate support. , 2012, , .		15
166	Adaptive Planning for Markov Decision Processes with Uncertain Transition Models via Incremental Feature Dependency Discovery. Lecture Notes in Computer Science, 2012, , 99-115.	1.3	15
167	A hyperparameter consensus method for agreement under uncertainty. Automatica, 2012, 48, 374-380.	5.0	15
168	Robust Trajectory Planning for Autonomous Parafoils under Wind Uncertainty. , 2013, , .		15
169	Information-Theoretic Motion Planning for Constrained Sensor Networks. Journal of Aerospace Information Systems, 2013, 10, 476-496.	1.4	15
170	Health Aware Planning under uncertainty for UAV missions with heterogeneous teams. , 2013, , .		15
171	Efficient distributed sensing using adaptive censoring-based inference. Automatica, 2014, 50, 1590-1602.	5.0	15
172	MAR-CPS: Measurable Augmented Reality for Prototyping Cyber-Physical Systems. , 2015, , .		15
173	Learning for multi-robot cooperation in partially observable stochastic environments with macro-actions. , 2017, , .		15
174	A Distributed Pipeline for Scalable, Deconflicted Formation Flying. IEEE Robotics and Automation Letters, 2020, 5, 5213-5220.	5.1	15
175	A resource-aware approach to collaborative loop-closure detection with provable performance guarantees. International Journal of Robotics Research, 2021, 40, 1212-1233.	8.5	15
176	Low-frequency active vibration isolation for advanced LIGO., 2004, 5500, 194.		14
177	Approximate dynamic programming using support vector regression., 2008,,.		14
178	Flight Testing a Heterogeneous Multi-UAV System with Human Supervision., 2012,,.		14
179	Planning for large-scale multiagent problems via hierarchical decomposition with applications to UAV health management. , $2014, , .$		14
180	GPS Estimation Algorithms for Precise Velocity, Slip and Race-Track Position Measurements. , 0, , .		13

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181	Experimental demonstration of coordinated control for multi-vehicle teams. International Journal of Systems Science, 2006, 37, 385-398.	5.5	13
182	Experimental Results of Concurrent Learning Adaptive Controllers. , 2012, , .		13
183	An outer-approximation approach for information-maximizing sensor selection. Optimization Letters, 2013, 7, 745-764.	1.6	13
184	Hybrid Information and Plan Consensus in Distributed Task Allocation. , 2013, , .		13
185	A Bayesian nonparametric approach to adaptive control using Gaussian Processes. , 2013, , .		13
186	Predictive Modeling of Pedestrian Motion Patterns with Bayesian Nonparametrics., 2016,,.		13
187	Distributed Control of Formation Flying Spacecraft Built on OA. , 2003, , .		12
188	Active Exploration in Robust Unmanned Vehicle Task Assignment. Journal of Aerospace Computing, Information, and Communication, 2011, 8, 250-268.	0.8	12
189	UAV cooperative control with stochastic risk models. , 2011, , .		12
190	A concurrent learning adaptive-optimal control architecture for nonlinear systems. , 2013, , .		12
191	Lightweight infrared sensing for relative navigation of quadrotors. , 2013, , .		12
192	Motion planning with diffusion maps. , 2016, , .		12
193	Transferable Pedestrian Motion Prediction Models at Intersections. , 2018, , .		12
194	Robustness Analysis of Neural Networks via Efficient Partitioning With Applications in Control Systems. , 2021, 5, 2114-2119.		12
195	Robust Cooperative Decentralized Trajectory Optimization using Receding Horizon MILP. Proceedings of the American Control Conference, 2007, , .	0.0	11
196	A Multi-UAV Targeting Algorithm for Ensemble Forecast Improvement. , 2007, , .		11
197	Approximate dynamic programming using Bellman residual elimination and Gaussian process regression. , 2009, , .		11
198	Anti-windup compensation for nonlinear systems via gradient projection: Application to adaptive control. , 2009, , .		11

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199	Probabilistic Feasibility for Nonlinear Systems with Non-Gaussian Uncertainty using RRT. , 2011, , .		11
200	Multiagent allocation of Markov decision process tasks. , 2013, , .		11
201	Human aware UAS path planning in urban environments using nonstationary MDPs. , 2014, , .		11
202	Linear Flight Control Techniques for Unmanned Aerial Vehicles. , 2015, , 529-576.		11
203	Graph-based Cross Entropy method for solving multi-robot decentralized POMDPs. , 2016, , .		11
204	Dynamic arrival rate estimation for campus Mobility On Demand network graphs. , 2016, , .		11
205	CLEAR: A Consistent Lifting, Embedding, and Alignment Rectification Algorithm for Multiview Data Association. IEEE Transactions on Robotics, 2020, 36, 1686-1703.	10.3	11
206	Human Trajectory Prediction Using Similarity-Based Multi-Model Fusion. IEEE Robotics and Automation Letters, 2021, 6, 715-722.	5.1	11
207	Search and Rescue Under the Forest Canopy Using Multiple UAS. Springer Proceedings in Advanced Robotics, 2020, , 140-152.	1.3	11
208	Partial J2 Invariance for Spacecraft Formations. , 2006, , .		10
208	Partial J2 Invariance for Spacecraft Formations. , 2006, , . Scalable reward learning from demonstration. , 2013, , .		10
209	Scalable reward learning from demonstration. , 2013, , .	5.0	10
209	Scalable reward learning from demonstration., 2013,,. Rapid transfer of controllers between UAVs using learning-based adaptive control., 2013,,. Information value in nonparametric Dirichlet-process Gaussian-process (DPGP) mixture models.	5.0	10
209 210 211	Scalable reward learning from demonstration., 2013,,. Rapid transfer of controllers between UAVs using learning-based adaptive control., 2013,,. Information value in nonparametric Dirichlet-process Gaussian-process (DPGP) mixture models. Automatica, 2016, 74, 360-368. Learning in the Curbside Coordinate Frame for a Transferable Pedestrian Trajectory Prediction Model.	5.0	10 10 10
209 210 211 212	Scalable reward learning from demonstration., 2013,,. Rapid transfer of controllers between UAVs using learning-based adaptive control., 2013,,. Information value in nonparametric Dirichlet-process Gaussian-process (DPGP) mixture models. Automatica, 2016, 74, 360-368. Learning in the Curbside Coordinate Frame for a Transferable Pedestrian Trajectory Prediction Model., 2018,,. Dynamic Clustering Algorithms via Small-Variance Analysis of Markov Chain Mixture Models. IEEE		10 10 10
209 210 211 212 213	Scalable reward learning from demonstration., 2013,,. Rapid transfer of controllers between UAVs using learning-based adaptive control., 2013,,. Information value in nonparametric Dirichlet-process Gaussian-process (DPGP) mixture models. Automatica, 2016, 74, 360-368. Learning in the Curbside Coordinate Frame for a Transferable Pedestrian Trajectory Prediction Model., 2018,,. Dynamic Clustering Algorithms via Small-Variance Analysis of Markov Chain Mixture Models. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2019, 41, 1338-1352.		10 10 10 10

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218	Collaborative Sensor Fusion and Management for Multiple UAVs. , 2011, , .		9
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