Claire J Tomlin

List of Publications by Year
in descending order

176	6,503	257450 24	168389 53
papers	citations	h-index	g-index

177	177	177	4489
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Quadrotor Helicopter Flight Dynamics and Control: Theory and Experiment. , 2007, , .		684
2	Provably safe and robust learning-based model predictive control. Automatica, 2013, 49, 1216-1226.	5.0	386
3	Mobile Sensor Network Control Using Mutual Information Methods and Particle Filters. IEEE Transactions on Automatic Control, 2010, 55, 32-47.	5.7	244
4	Hamilton-Jacobi reachability: A brief overview and recent advances. , 2017, , .		214
5	Reducing Transient and Steady State Electricity Consumption in HVAC Using Learning-Based Model-Predictive Control. Proceedings of the IEEE, 2012, 100, 240-253.	21.3	208
6	A General Safety Framework for Learning-Based Control in Uncertain Robotic Systems. IEEE Transactions on Automatic Control, 2019, 64, 2737-2752.	5.7	202
7	Biology by numbers: mathematical modelling in developmental biology. Nature Reviews Genetics, 2007, 8, 331-340.	16.3	160
8	Applications of hybrid reachability analysis to robotic aerial vehicles. International Journal of Robotics Research, 2011, 30, 335-354.	8.5	155
9	Reachability-based safe learning with Gaussian processes. , 2014, , .		153
10	Differentiation-state plasticity is a targetable resistance mechanism in basal-like breast cancer. Nature Communications, 2018, 9, 3815.	12.8	137
11	FaSTrack: A modular framework for fast and guaranteed safe motion planning. , 2017, , .		136
12	Learning-based model predictive control on a quadrotor: Onboard implementation and experimental results. , 2012, , .		122
13	Guaranteed decentralized pursuit-evasion in the plane with multiple pursuers. , 2011, , .		108
14	Reach-avoid problems with time-varying dynamics, targets and constraints. , 2015, , .		106
15	Multiplayer Reach-Avoid Games via Pairwise Outcomes. IEEE Transactions on Automatic Control, 2017, 62, 1451-1457.	5.7	104
16	Microtubules provide directional information for core PCP function. ELife, 2014, 3, e02893.	6.0	104
17	Overapproximating Reachable Sets by Hamilton-Jacobi Projections. Journal of Scientific Computing, 2003, 19, 323-346.	2.3	103
18	Aircraft Autolander Safety Analysis Through Optimal Control-Based Reach Set Computation. Journal of Guidance, Control, and Dynamics, 2007, 30, 68-77.	2.8	99

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19	Learning quadrotor dynamics using neural network for flight control. , 2016, , .		99
20	Decomposition of Reachable Sets and Tubes for a Class of Nonlinear Systems. IEEE Transactions on Automatic Control, 2018, 63, 3675-3688.	5.7	96
21	Design of guaranteed safe maneuvers using reachable sets: Autonomous quadrotor aerobatics in theory and practice. , 2010, , .		86
22	On Identification of Distribution Grids. IEEE Transactions on Control of Network Systems, 2019, 6, 950-960.	3.7	80
23	A differential game approach to planning in adversarial scenarios: A case study on capture-the-flag. , 2011, , .		70
24	Probabilistically Safe Robot Planning with Confidence-Based Human Predictions. , 0, , .		65
25	Confidence-aware motion prediction for real-time collision avoidance¹. International Journal of Robotics Research, 2020, 39, 250-265.	8.5	63
26	Monotone Approximations of Minimum and Maximum Functions and Multi-objective Problems. Applied Mathematics and Optimization, 2012, 66, 455-473.	1.6	62
27	A Hierarchical Flight Planning Framework for Air Traffic Management. Proceedings of the IEEE, 2012, 100, 179-194.	21.3	54
28	Automation-Assisted Capture-the-Flag: A Differential Game Approach. IEEE Transactions on Control Systems Technology, 2015, 23, 1014-1028.	5.2	54
29	Toward Distributed Energy Services: Decentralizing Optimal Power Flow With Machine Learning. IEEE Transactions on Smart Grid, 2020, 11, 1296-1306.	9.0	53
30	A general, open-loop formulation for reach-avoid games. , 2012, , .		52
31	Guaranteed Safe Online Learning via Reachability: tracking a ground target using a quadrotor. , 2012, , .		52
32	An Efficient Reachability-Based Framework for Provably Safe Autonomous Navigation in Unknown Environments. , 2019, , .		52
33	Secure State Estimation and Control for Cyber Security of the Nonlinear Power Systems. IEEE Transactions on Control of Network Systems, 2018, 5, 1310-1321.	3.7	51
34	Closed-loop belief space planning for linear, Gaussian systems. , 2011, , .		49
35	On the Optimal Solutions of the Infinite-Horizon Linear Sensor Scheduling Problem. IEEE Transactions on Automatic Control, 2014, 59, 2825-2830.	5.7	49
36	Efficient Iterative Linear-Quadratic Approximations for Nonlinear Multi-Player General-Sum Differential Games. , 2020, , .		49

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37	Pursuit, evasion and defense in the plane. , 2012, , .		48
38	Reachability-based synthesis of feedback policies for motion planning under bounded disturbances. , 2011, , .		47
39	Hamiltonâ€“Jacobi Reachability: Some Recent Theoretical Advances and Applications in Unmanned Airspace Management. Annual Review of Control, Robotics, and Autonomous Systems, 2018, 1, 333-358.	11.8	47
40	Reachability calculations for automated aerial refueling. , 2008, , .		46
41	Decentralized cooperative collision avoidance for acceleration constrained vehicles. , 2008, , .		45
42	Safe sequential path planning of multi-vehicle systems via double-obstacle Hamilton-Jacobi-Isaacs variational inequality. , 2015, , .		44
43	Robust Control Barrierâ€“Value Functions for Safety-Critical Control. , 2021, , .		44
44	Identifying models of HVAC systems using semiparametric regression. , 2012, , .		42
45	Multi-vehicle collision avoidance via hamilton-jacobi reachability and mixed integer programming. , 2016, , .		42
46	DeepReach: A Deep Learning Approach to High-Dimensional Reachability. , 2021, , .		42
47	A Scalable Framework For Real-Time Multi-Robot, Multi-Human Collision Avoidance. , 2019, , .		39
48	Reachability-Based Safety and Goal Satisfaction of Unmanned Aerial Platoons on Air Highways. Journal of Guidance, Control, and Dynamics, 2017, 40, 1360-1373.	2.8	38
49	Bridging Hamilton-Jacobi Safety Analysis and Reinforcement Learning. , 2019, , .		38
50	Exact reconstruction of gene regulatory networks using compressive sensing. BMC Bioinformatics, 2014, 15, 400.	2.6	36
51	Event detection and localization in distribution grids with phasor measurement units. , 2017, , .		36
52	Stochastic Control With Uncertain Parameters via Chance Constrained Control. IEEE Transactions on Automatic Control, 2016, 61, 2892-2905.	5.7	32
53	Residential demand response targeting using machine learning with observational data. , 2016, , .		31
54	Polytopic Approximations of Reachable Sets Applied to Linear Dynamic Games and a Class of Nonlinear Systems. , 2005, , 3-19.		30

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55	A numerical method for the optimal control of switched systems. , 2010, , .		29
56	Plug-and-play model predictive control for electric vehicle charging and voltage control in smart grids. , 2014, , .		29
57	Fast reachable set approximations via state decoupling disturbances. , 2016, , .		29
58	A Risk-Sensitive Finite-Time Reachability Approach for Safety of Stochastic Dynamic Systems. , 2019, , .		29
59	Optimal load management system for Aircraft Electric Power distribution. , 2013, , .		27
60	Time-optimal multi-stage motion planning with guaranteed collision avoidance via an open-loop game formulation. , 2012, , .		26
61	On feedback design and risk allocation in chance constrained control. , 2011, , .		25
62	A probabilistic approach to planning and control in autonomous urban driving. , 2013, , .		25
63	Exact and efficient Hamilton-Jacobi guaranteed safety analysis via system decomposition. , 2017, , .		25
64	Energy management via pricing in LQ dynamic games. , 2013, , .		24
65	Robust Trajectory Planning for a Multirotor against Disturbance based on Hamilton-Jacobi Reachability Analysis. , 2019, , .		24
66	Guaranteed safe online learning of a bounded system. , 2011, , .		23
67	Reachability-Based Safety Guarantees using Efficient Initializations. , 2019, , .		23
68	Trajectory generation for aircraft subject to dynamic weather uncertainty. , 2010, , .		22
69	Contract design for frequency regulation by aggregations of commercial buildings. , 2014, , .		22
70	Cost-Aware Path Planning Under Co-Safe Temporal Logic Specifications. IEEE Robotics and Automation Letters, 2017, 2, 2308-2315.	5.1	22
71	Robust reach-avoid controller synthesis for switched nonlinear systems. , 2010, , .		21
72	Visual Navigation Among Humans With Optimal Control as a Supervisor. IEEE Robotics and Automation Letters, 2021, 6, 2288-2295.	5.1	21

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73	Plug-and-Play Model Predictive Control for Load Shaping and Voltage Control in Smart Grids. IEEE Transactions on Smart Grid, 2019, 10, 2334-2344.	9.0	20
74	Linear Single- and Three-Phase Voltage Forecasting and Bayesian State Estimation With Limited Sensing. IEEE Transactions on Power Systems, 2020, 35, 1674-1683.	6.5	20
75	FaSTrack:A Modular Framework for Real-Time Motion Planning and Guaranteed Safe Tracking. IEEE Transactions on Automatic Control, 2021, 66, 5861-5876.	5.7	20
76	Evasion of a team of dubins vehicles from a hidden pursuer. , 2014, , .		19
77	Decoupling of the PI3K Pathway via Mutation Necessitates Combinatorial Treatment in HER2+ Breast Cancer. PLoS ONE, 2015, 10, e0133219.	2.5	19
78	On the optimal solutions of the infinite-horizon linear sensor scheduling problem. , 2010, , .		18
79	On efficient sensor scheduling for linear dynamical systems. , 2010, , .		18
80	Robust Sequential Trajectory Planning Under Disturbances and Adversarial Intruder. IEEE Transactions on Control Systems Technology, 2019, 27, 1566-1582.	5.2	18
81	A Classification-based Approach for Approximate Reachability. , 2019, , .		18
82	Modeling differentiation-state transitions linked to therapeutic escape in triple-negative breast cancer. PLoS Computational Biology, 2019, 15, e1006840.	3.2	18
83	Game-theoretic routing of GPS-assisted vehicles for energy efficiency. , 2011, , .		17
84	Discrete time stochastic hybrid dynamical games: Verification & controller synthesis. , 2011, , .		17
85	Evasion as a team against a faster pursuer. , 2013, , .		16
86	Learning to control in power systems: Design and analysis guidelines for concrete safety problems. Electric Power Systems Research, 2020, 189, 106615.	3.6	16
87	Optimal control of partially observable discrete time stochastic hybrid systems for safety specifications. , 2013, , .		15
88	Plug and Play Distributed Model Predictive Control for Heavy Duty Vehicle Platooning and Interaction with Passenger Vehicles. , 2018, , .		15
89	An Insect-Scale Self-Sufficient Rolling Microrobot. IEEE Robotics and Automation Letters, 2020, 5, 167-172.	5.1	15
90	Grasping unknown objects using an Early Cognitive Vision system for general scene understanding. , 2011, , .		15

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91	Locally optimal decomposition for autonomous obstacle avoidance with the Tunnel-MILP algorithm. , 2008, , .		14
92	A hybrid framework for multi-vehicle collision avoidance. , 2017, , .		14
93	A Robust Control Framework for Human Motion Prediction. IEEE Robotics and Automation Letters, 2021, 6, 24-31.	5.1	14
94	Monotone Piecewise Affine Systems. IEEE Transactions on Automatic Control, 2009, 54, 1913-1918.	5.7	13
95	Safely Probabilistically Complete Real-Time Planning and Exploration in Unknown Environments. , 2019, , .		12
96	On the Powerball Method: Variants of Descent Methods for Accelerated Optimization. , 2019, 3, 601-606.		12
97	Stanford Testbed of Autonomous Rotorcraft for Multi-Agent Control. , 2009, , .		11
98	Investigating Communication Infrastructure of Next Generation Air Traffic Management. , 2012, , .		11
99	A Successive-Elimination Approach to Adaptive Robotic Source Seeking. IEEE Transactions on Robotics, 2021, 37, 34-47.	10.3	11
100	Scalable Learning of Safety Guarantees for Autonomous Systems using Hamilton-Jacobi Reachability. , 2021, , .		11
101	A hybrid method for chance constrained control in uncertain environments. , 2012, , .		10
102	A practical reachability-based collision avoidance algorithm for sampled-data systems: Application to ground robots. , 2014, , .		10
103	Indirect load control for electricity market risk management via risk-limiting dynamic contracts. , 2015, , .		10
104	Data-driven graph reconstruction using compressive sensing. , 2012, , .		9
105	A Bayesian perspective on Residential Demand Response using smart meter data. , 2016, , .		9
106	Milligram-Scale Micro Aerial Vehicle Design for Low-Voltage Operation. , 2018, , .		9
107	Inverse covariance estimation from data with missing values using the Concave-Convex Procedure. , 2014, , .		8
108	Performance Evaluation and Optimization of Communication Infrastructure for the Next Generation Air Transportation System. IEEE Transactions on Parallel and Distributed Systems, 2015, 26, 1106-1116.	5.6	8

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109	A model of phenotypic state dynamics initiates a promising approach to control heterogeneous malignant cell populations. , 2016, , .		8
110	Ensuring safety for sampled data systems: An efficient algorithm for filtering potentially unsafe input signals. , 2016, , .		8
111	Initial designs for an automatic forced landing system for safer inclusion of small unmanned air vehicles into the national airspace. , 2016, , .		8
112	Reachability Analysis as a Design Tool for Stormwater Systems. , 2018, , .		8
113	Design of an Electromagnetic Actuator for an Insect-Scale Spinning-Wing Robot. IEEE Robotics and Automation Letters, 2020, 5, 4188-4193.	5.1	8
114	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
115	Reducing Conservativeness in Safety Guarantees by Learning Disturbances Online: Iterated Guaranteed Safe Online Learning. , 0, , .		8
116	Computer-aided drug discovery for pathway and genetic diseases. , 2010, , .		7
117	Stability analysis of wholesale electricity markets under dynamic consumption models and real-time pricing. , 2017, , .		7
118	A Hopf-Lax Formula in Hamiltonâ€“Jacobi Analysis of Reach-Avoid Problems. , 2021, 5, 1055-1060.		7
119	Solving the aircraft routing problem using network flow algorithms. Proceedings of the American Control Conference, 2007, , .	0.0	6
120	Graph-theoretic topological control of biological genetic networks. , 2009, , .		6
121	Mathematics of the Integrative Cancer Biology Program. Interface Focus, 2013, 3, 20130023.	3.0	6
122	Approximation Algorithms for Optimization of Combinatorial Dynamical Systems. IEEE Transactions on Automatic Control, 2016, 61, 2644-2649.	5.7	6
123	Secure state estimation for nonlinear power systems under cyber attacks. , 2017, , .		6
124	Hedging strategies for load-serving entities in wholesale electricity markets. , 2017, , .		6
125	On the Analysis of Cyclic Drug Schedules for Cancer Treatment using Switched Dynamical Systems. , 2018, , .		6
126	Efficient Computation of Feedback Control for Equality-Constrained LQR. , 2019, , .		6

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127	Removing Leaking Corners to Reduce Dimensionality in Hamilton-Jacobi Reachability. , 2019, , .		6
128	Science of design for societal-scale cyber-physical systems: challenges and opportunities. Cyber-Physical Systems, 2019, 5, 145-172.	2.0	6
129	Long-Short Term Memory Neural Network Stability and Stabilization using Linear Matrix Inequalities. , 2019, , .		6
130	Grasping unknown objects using an Early Cognitive Vision system for general scene understanding. , 2011, , .		6
131	Inference of temporally evolving network dynamics with applications in biological systems. , 2011, , .		5
132	Temporal-difference learning for online reachability analysis. , 2015, , .		5
133	Online Learning to Approach a Person With No Regret. IEEE Robotics and Automation Letters, 2018, 3, 52-59.	5.1	5
134	Haptic Assistance via Inverse Reinforcement Learning. , 2018, , .		5
135	Design of the First Sub-Milligram Flapping Wing Aerial Vehicle. , 2019, , .		5
136	Incorporating Safety Into Parametric Dynamic Movement Primitives. IEEE Robotics and Automation Letters, 2019, 4, 2260-2267.	5.1	5
137	Parallelizing LQR Computation Through Endpoint-Explicit Riccati Recursion. , 2019, , .		5
138	Provably Safe and Scalable Multivehicle Trajectory Planning. IEEE Transactions on Control Systems Technology, 2021, 29, 2473-2489.	5.2	5
139	Statistics for sparse, high-dimensional, and nonparametric system identification. , 2009, , .		4
140	An ODE model for the HER2/3-AKT signaling pathway in cancers that overexpress HER2. , 2010, , .		4
141	Multiphase mixed-integer optimal control framework for aircraft conflict avoidance. , 2012, , .		4
142	On efficiency in mean field differential games. , 2013, , .		4
143	Optimal mode-switching and control synthesis for floating offshore wind turbines. , 2016, , .		4
144	Blind identification of fully observed linear time-varying systems via sparse recovery. Automatica, 2019, 100, 330-335.	5.0	4

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145	On sensor scheduling of linear dynamical systems with error bounds. , 2010, , .		3
146	Direct load control for electricity market risk management via risk-limiting dynamic contracts. , 2014, , .		3
147	On the powerball method. , 2017, , .		3
148	Some Local Stability Properties of an Autonomous Long Short-Term Memory Neural Network Model. , 2018, , .		3
149	Iterative Method using the Generalized Hopf Formula: Avoiding Spatial Discretization for Computing Solutions of Hamilton-Jacobi Equations for Nonlinear Systems. , 2019, , .		3
150	Towards Cyberâ€“Physical Systems Robust to Communication Delays: A Differential Game Approach. , 2022, 6, 2042-2047.		3
151	System identification of hunchback protein patterning in early drosophila embryogenesis. , 2009, , .		2
152	Incentive design for efficient building quality of service. , 2012, , .		2
153	Regularization-based identification for level set equations. , 2013, , .		2
154	A design of neural decoder by reducing discrepancy between Manual Control (MC) and Brain Control (BC). , 2014, , .		2
155	Heterogeneity in cancer dynamics: A convex formulation to dissect dynamic trajectories and infer LTV models of networked systems. , 2015, , .		2
156	Retrieving common dynamics of gene regulatory networks under various perturbations. , 2015, , .		2
157	Variance-Constrained Risk Sharing in Stochastic Systems. IEEE Transactions on Automatic Control, 2017, 62, 1865-1879.	5.7	2
158	Efficient Dynamics Estimation With Adaptive Model Sets. IEEE Robotics and Automation Letters, 2021, 6, 2373-2380.	5.1	2
159	Computation of Regions of Attraction for Hybrid Limit Cycles Using Reachability: An Application to Walking Robots. IEEE Robotics and Automation Letters, 2022, 7, 4504-4511.	5.1	2
160	Tractable Algorithm for Open Loop Stochastic Control. , 2006, , .		1
161	Optimal discovery of a stochastic genetic network. , 2008, , .		1
162	Trajectory optimization in convex underapproximations of safe regions. , 2009, , .		1

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163	Modeling and analysis of cell differentiation using hybrid systems. , 2010, , .		1
164	Decentralized flight path planning for air traffic management. , 2011, , .		1
165	Verification and control of hybrid systems using reachability analysis. , 2011, , .		1
166	Disentangling Multidimensional Spatio-Temporal Data into Their Common and Aberrant Responses. PLoS ONE, 2015, 10, e0121607.	2.5	1
167	Reconstruction of Gene Regulatory Networks Based on Repairing Sparse Low-Rank Matrices. IEEE/ACM Transactions on Computational Biology and Bioinformatics, 2016, 13, 767-777.	3.0	1
168	Frequency Regulation using Sparse Learned Controllers in Power Grids with Variable Inertia due to Renewable Energy. , 2019, , .		1
169	Optimization-based inference for temporally evolving Boolean networks with applications in biology. , 2011, , .		0
170	A dynamic VCG mechanism for random allocation spaces. , 2013, , .		0
171	Utility learning model predictive control for personal electric loads. , 2014, , .		0
172	Design of a neural decoder by sensory prediction and error correction. , 2014, , .		0
173	Iterative function separation for gene regulatory function identification. , 2015, , .		0
174	Grasping of unknown objects via curvature maximization using active vision. , 2011, , .		0
175	Dynamically Computing Adversarial Perturbations for Recurrent Neural Networks. IEEE Transactions on Control Systems Technology, 2022, 30, 2615-2629.	5.2	0
176	Maximum Likelihood Constraint Inference on Continuous State Spaces. , 2022, , .		0