

Claire J Tomlin

List of Publications by Year in descending order

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176
papers

6,503
citations

257450

24
h-index

168389

53
g-index

177
all docs

177
docs citations

177
times ranked

4489
citing authors

#	ARTICLE	IF	CITATIONS
1	Towards Cyber-Physical Systems Robust to Communication Delays: A Differential Game Approach. , 2022, 6, 2042-2047.		3
2	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
3	Dynamically Computing Adversarial Perturbations for Recurrent Neural Networks. IEEE Transactions on Control Systems Technology, 2022, 30, 2615-2629.	5.2	0
4	Maximum Likelihood Constraint Inference on Continuous State Spaces. , 2022, , .		0
5	A Hopf-Lax Formula in Hamilton-Jacobi Analysis of Reach-Avoid Problems. , 2021, 5, 1055-1060.		7
6	A Successive-Elimination Approach to Adaptive Robotic Source Seeking. IEEE Transactions on Robotics, 2021, 37, 34-47.	10.3	11
7	A Robust Control Framework for Human Motion Prediction. IEEE Robotics and Automation Letters, 2021, 6, 24-31.	5.1	14
8	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
9	Efficient Dynamics Estimation With Adaptive Model Sets. IEEE Robotics and Automation Letters, 2021, 6, 2373-2380.	5.1	2
10	Visual Navigation Among Humans With Optimal Control as a Supervisor. IEEE Robotics and Automation Letters, 2021, 6, 2288-2295.	5.1	21
11	Provably Safe and Scalable Multivehicle Trajectory Planning. IEEE Transactions on Control Systems Technology, 2021, 29, 2473-2489.	5.2	5
12	DeepReach: A Deep Learning Approach to High-Dimensional Reachability. , 2021, , .		42
13	Scalable Learning of Safety Guarantees for Autonomous Systems using Hamilton-Jacobi Reachability. , 2021, , .		11
14	Robust Control Barrier-Value Functions for Safety-Critical Control. , 2021, , .		44
15	Confidence-aware motion prediction for real-time collision avoidance. International Journal of Robotics Research, 2020, 39, 250-265.	8.5	63
16	Toward Distributed Energy Services: Decentralizing Optimal Power Flow With Machine Learning. IEEE Transactions on Smart Grid, 2020, 11, 1296-1306.	9.0	53
17	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
18	An Insect-Scale Self-Sufficient Rolling Microrobot. IEEE Robotics and Automation Letters, 2020, 5, 167-172.	5.1	15

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19	Learning to control in power systems: Design and analysis guidelines for concrete safety problems. <i>Electric Power Systems Research</i> , 2020, 189, 106615.	3.6	16
20	Efficient Iterative Linear-Quadratic Approximations for Nonlinear Multi-Player General-Sum Differential Games. , 2020, , .		49
21	Design of an Electromagnetic Actuator for an Insect-Scale Spinning-Wing Robot. <i>IEEE Robotics and Automation Letters</i> , 2020, 5, 4188-4193.	5.1	8
22	Robust Tracking with Model Mismatch for Fast and Safe Planning: An SOS Optimization Approach. <i>Springer Proceedings in Advanced Robotics</i> , 2020, , 545-564.	1.3	8
23	Robust Sequential Trajectory Planning Under Disturbances and Adversarial Intruder. <i>IEEE Transactions on Control Systems Technology</i> , 2019, 27, 1566-1582.	5.2	18
24	A Classification-based Approach for Approximate Reachability. , 2019, , .		18
25	Design of the First Sub-Milligram Flapping Wing Aerial Vehicle. , 2019, , .		5
26	Bridging Hamilton-Jacobi Safety Analysis and Reinforcement Learning. , 2019, , .		38
27	A Scalable Framework For Real-Time Multi-Robot, Multi-Human Collision Avoidance. , 2019, , .		39
28	Efficient Computation of Feedback Control for Equality-Constrained LQR. , 2019, , .		6
29	Safely Probabilistically Complete Real-Time Planning and Exploration in Unknown Environments. , 2019, , .		12
30	Removing Leaking Corners to Reduce Dimensionality in Hamilton-Jacobi Reachability. , 2019, , .		6
31	Science of design for societal-scale cyber-physical systems: challenges and opportunities. <i>Cyber-Physical Systems</i> , 2019, 5, 145-172.	2.0	6
32	Long-Short Term Memory Neural Network Stability and Stabilization using Linear Matrix Inequalities. , 2019, , .		6
33	On the Powerball Method: Variants of Descent Methods for Accelerated Optimization. , 2019, 3, 601-606.		12
34	Incorporating Safety Into Parametric Dynamic Movement Primitives. <i>IEEE Robotics and Automation Letters</i> , 2019, 4, 2260-2267.	5.1	5
35	Modeling differentiation-state transitions linked to therapeutic escape in triple-negative breast cancer. <i>PLoS Computational Biology</i> , 2019, 15, e1006840.	3.2	18
36	Frequency Regulation using Sparse Learned Controllers in Power Grids with Variable Inertia due to Renewable Energy. , 2019, , .		1

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37	Parallelizing LQR Computation Through Endpoint-Explicit Riccati Recursion. , 2019, , .		5
38	A Risk-Sensitive Finite-Time Reachability Approach for Safety of Stochastic Dynamic Systems. , 2019, , .		29
39	Iterative Method using the Generalized Hopf Formula: Avoiding Spatial Discretization for Computing Solutions of Hamilton-Jacobi Equations for Nonlinear Systems. , 2019, , .		3
40	Robust Trajectory Planning for a Multirotor against Disturbance based on Hamilton-Jacobi Reachability Analysis. , 2019, , .		24
41	An Efficient Reachability-Based Framework for Provably Safe Autonomous Navigation in Unknown Environments. , 2019, , .		52
42	Reachability-Based Safety Guarantees using Efficient Initializations. , 2019, , .		23
43	On Identification of Distribution Grids. IEEE Transactions on Control of Network Systems, 2019, 6, 950-960.	3.7	80
44	Blind identification of fully observed linear time-varying systems via sparse recovery. Automatica, 2019, 100, 330-335.	5.0	4
45	A General Safety Framework for Learning-Based Control in Uncertain Robotic Systems. IEEE Transactions on Automatic Control, 2019, 64, 2737-2752.	5.7	202
46	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
47	Decomposition of Reachable Sets and Tubes for a Class of Nonlinear Systems. IEEE Transactions on Automatic Control, 2018, 63, 3675-3688.	5.7	96
48	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
49	Online Learning to Approach a Person With No Regret. IEEE Robotics and Automation Letters, 2018, 3, 52-59.	5.1	5
50	Milligram-Scale Micro Aerial Vehicle Design for Low-Voltage Operation. , 2018, , .		9
51	On the Analysis of Cyclic Drug Schedules for Cancer Treatment using Switched Dynamical Systems. , 2018, , .		6
52	Haptic Assistance via Inverse Reinforcement Learning. , 2018, , .		5
53	Reachability Analysis as a Design Tool for Stormwater Systems. , 2018, , .		8
54	Plug and Play Distributed Model Predictive Control for Heavy Duty Vehicle Platooning and Interaction with Passenger Vehicles. , 2018, , .		15

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55	Differentiation-state plasticity is a targetable resistance mechanism in basal-like breast cancer. Nature Communications, 2018, 9, 3815.	12.8	137
56	Hamilton-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
57	Some Local Stability Properties of an Autonomous Long Short-Term Memory Neural Network Model. , 2018, , .		3
58	Multiplayer Reach-Avoid Games via Pairwise Outcomes. IEEE Transactions on Automatic Control, 2017, 62, 1451-1457.	5.7	104
59	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
60	Exact and efficient Hamilton-Jacobi guaranteed safety analysis via system decomposition. , 2017, , .		25
61	Cost-Aware Path Planning Under Co-Safe Temporal Logic Specifications. IEEE Robotics and Automation Letters, 2017, 2, 2308-2315.	5.1	22
62	Stability analysis of wholesale electricity markets under dynamic consumption models and real-time pricing. , 2017, , .		7
63	Secure state estimation for nonlinear power systems under cyber attacks. , 2017, , .		6
64	Variance-Constrained Risk Sharing in Stochastic Systems. IEEE Transactions on Automatic Control, 2017, 62, 1865-1879.	5.7	2
65	Event detection and localization in distribution grids with phasor measurement units. , 2017, , .		36
66	Hedging strategies for load-serving entities in wholesale electricity markets. , 2017, , .		6
67	FaSTrack: A modular framework for fast and guaranteed safe motion planning. , 2017, , .		136
68	A hybrid framework for multi-vehicle collision avoidance. , 2017, , .		14
69	Hamilton-Jacobi reachability: A brief overview and recent advances. , 2017, , .		214
70	On the powerball method. , 2017, , .		3
71	A Bayesian perspective on Residential Demand Response using smart meter data. , 2016, , .		9
72	A model of phenotypic state dynamics initiates a promising approach to control heterogeneous malignant cell populations. , 2016, , .		8

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73	Ensuring safety for sampled data systems: An efficient algorithm for filtering potentially unsafe input signals. , 2016, , .		8
74	Residential demand response targeting using machine learning with observational data. , 2016, , .		31
75	Initial designs for an automatic forced landing system for safer inclusion of small unmanned air vehicles into the national airspace. , 2016, , .		8
76	Optimal mode-switching and control synthesis for floating offshore wind turbines. , 2016, , .		4
77	Multi-vehicle collision avoidance via hamilton-jacobi reachability and mixed integer programming. , 2016, , .		42
78	Learning quadrotor dynamics using neural network for flight control. , 2016, , .		99
79	Fast reachable set approximations via state decoupling disturbances. , 2016, , .		29
80	Stochastic Control With Uncertain Parameters via Chance Constrained Control. IEEE Transactions on Automatic Control, 2016, 61, 2892-2905.	5.7	32
81	Approximation Algorithms for Optimization of Combinatorial Dynamical Systems. IEEE Transactions on Automatic Control, 2016, 61, 2644-2649.	5.7	6
82	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
83	Heterogeneity in cancer dynamics: A convex formulation to dissect dynamic trajectories and infer LTV models of networked systems. , 2015, , .		2
84	Disentangling Multidimensional Spatio-Temporal Data into Their Common and Aberrant Responses. PLoS ONE, 2015, 10, e0121607.	2.5	1
85	Automation-Assisted Capture-the-Flag: A Differential Game Approach. IEEE Transactions on Control Systems Technology, 2015, 23, 1014-1028.	5.2	54
86	Iterative function separation for gene regulatory function identification. , 2015, , .		0
87	Safe sequential path planning of multi-vehicle systems via double-obstacle Hamilton-Jacobi-Isaacs variational inequality. , 2015, , .		44
88	Temporal-difference learning for online reachability analysis. , 2015, , .		5
89	Indirect load control for electricity market risk management via risk-limiting dynamic contracts. , 2015, , .		10
90	Retrieving common dynamics of gene regulatory networks under various perturbations. , 2015, , .		2

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91	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
92	Reach-avoid problems with time-varying dynamics, targets and constraints. , 2015, , .		106
93	Decoupling of the PI3K Pathway via Mutation Necessitates Combinatorial Treatment in HER2+ Breast Cancer. PLoS ONE, 2015, 10, e0133219.	2.5	19
94	On the Optimal Solutions of the Infinite-Horizon Linear Sensor Scheduling Problem. IEEE Transactions on Automatic Control, 2014, 59, 2825-2830.	5.7	49
95	Reachability-based safe learning with Gaussian processes. , 2014, , .		153
96	Utility learning model predictive control for personal electric loads. , 2014, , .		0
97	A practical reachability-based collision avoidance algorithm for sampled-data systems: Application to ground robots. , 2014, , .		10
98	Inverse covariance estimation from data with missing values using the Concave-Convex Procedure. , 2014, , .		8
99	Design of a neural decoder by sensory prediction and error correction. , 2014, , .		0
100	Contract design for frequency regulation by aggregations of commercial buildings. , 2014, , .		22
101	Direct load control for electricity market risk management via risk-limiting dynamic contracts. , 2014, , .		3
102	Evasion of a team of dubins vehicles from a hidden pursuer. , 2014, , .		19
103	A design of neural decoder by reducing discrepancy between Manual Control (MC) and Brain Control (BC). , 2014, , .		2
104	Exact reconstruction of gene regulatory networks using compressive sensing. BMC Bioinformatics, 2014, 15, 400.	2.6	36
105	Plug-and-play model predictive control for electric vehicle charging and voltage control in smart grids. , 2014, , .		29
106	Microtubules provide directional information for core PCP function. ELife, 2014, 3, e02893.	6.0	104
107	Mathematics of the Integrative Cancer Biology Program. Interface Focus, 2013, 3, 20130023.	3.0	6
108	Energy management via pricing in LQ dynamic games. , 2013, , .		24

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109	A dynamic VCG mechanism for random allocation spaces. , 2013, , .		0
110	Provably safe and robust learning-based model predictive control. Automatica, 2013, 49, 1216-1226.	5.0	386
111	Regularization-based identification for level set equations. , 2013, , .		2
112	Optimal load management system for Aircraft Electric Power distribution. , 2013, , .		27
113	A probabilistic approach to planning and control in autonomous urban driving. , 2013, , .		25
114	Evasion as a team against a faster pursuer. , 2013, , .		16
115	On efficiency in mean field differential games. , 2013, , .		4
116	Optimal control of partially observable discrete time stochastic hybrid systems for safety specifications. , 2013, , .		15
117	Identifying models of HVAC systems using semiparametric regression. , 2012, , .		42
118	A general, open-loop formulation for reach-avoid games. , 2012, , .		52
119	Multiphase mixed-integer optimal control framework for aircraft conflict avoidance. , 2012, , .		4
120	Data-driven graph reconstruction using compressive sensing. , 2012, , .		9
121	Pursuit, evasion and defense in the plane. , 2012, , .		48
122	A hybrid method for chance constrained control in uncertain environments. , 2012, , .		10
123	Learning-based model predictive control on a quadrotor: Onboard implementation and experimental results. , 2012, , .		122
124	Guaranteed Safe Online Learning via Reachability: tracking a ground target using a quadrotor. , 2012, , .		52
125	Investigating Communication Infrastructure of Next Generation Air Traffic Management. , 2012, , .		11
126	Time-optimal multi-stage motion planning with guaranteed collision avoidance via an open-loop game formulation. , 2012, , .		26

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127	Incentive design for efficient building quality of service. , 2012, , .		2
128	Monotone Approximations of Minimum and Maximum Functions and Multi-objective Problems. Applied Mathematics and Optimization, 2012, 66, 455-473.	1.6	62
129	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
130	A Hierarchical Flight Planning Framework for Air Traffic Management. Proceedings of the IEEE, 2012, 100, 179-194.	21.3	54
131	Game-theoretic routing of GPS-assisted vehicles for energy efficiency. , 2011, , .		17
132	Decentralized flight path planning for air traffic management. , 2011, , .		1
133	Inference of temporally evolving network dynamics with applications in biological systems. , 2011, , .		5
134	Verification and control of hybrid systems using reachability analysis. , 2011, , .		1
135	Applications of hybrid reachability analysis to robotic aerial vehicles. International Journal of Robotics Research, 2011, 30, 335-354.	8.5	155
136	Optimization-based inference for temporally evolving Boolean networks with applications in biology. , 2011, , .		0
137	Guaranteed safe online learning of a bounded system. , 2011, , .		23
138	A differential game approach to planning in adversarial scenarios: A case study on capture-the-flag. , 2011, , .		70
139	Guaranteed decentralized pursuit-evasion in the plane with multiple pursuers. , 2011, , .		108
140	Closed-loop belief space planning for linear, Gaussian systems. , 2011, , .		49
141	Discrete time stochastic hybrid dynamical games: Verification & controller synthesis. , 2011, , .		17
142	Reachability-based synthesis of feedback policies for motion planning under bounded disturbances. , 2011, , .		47
143	On feedback design and risk allocation in chance constrained control. , 2011, , .		25
144	Grasping unknown objects using an Early Cognitive Vision system for general scene understanding. , 2011, , .		6

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145	Grasping unknown objects using an Early Cognitive Vision system for general scene understanding. , 2011, , .		15
146	Grasping of unknown objects via curvature maximization using active vision. , 2011, , .		0
147	A numerical method for the optimal control of switched systems. , 2010, , .		29
148	An ODE model for the HER2/3-AKT signaling pathway in cancers that overexpress HER2. , 2010, , .		4
149	Computer-aided drug discovery for pathway and genetic diseases. , 2010, , .		7
150	On the optimal solutions of the infinite-horizon linear sensor scheduling problem. , 2010, , .		18
151	On sensor scheduling of linear dynamical systems with error bounds. , 2010, , .		3
152	Modeling and analysis of cell differentiation using hybrid systems. , 2010, , .		1
153	On efficient sensor scheduling for linear dynamical systems. , 2010, , .		18
154	Robust reach-avoid controller synthesis for switched nonlinear systems. , 2010, , .		21
155	Mobile Sensor Network Control Using Mutual Information Methods and Particle Filters. IEEE Transactions on Automatic Control, 2010, 55, 32-47.	5.7	244
156	Trajectory generation for aircraft subject to dynamic weather uncertainty. , 2010, , .		22
157	Design of guaranteed safe maneuvers using reachable sets: Autonomous quadrotor aerobatics in theory and practice. , 2010, , .		86
158	System identification of hunchback protein patterning in early drosophila embryogenesis. , 2009, , .		2
159	Trajectory optimization in convex underapproximations of safe regions. , 2009, , .		1
160	Statistics for sparse, high-dimensional, and nonparametric system identification. , 2009, , .		4
161	Graph-theoretic topological control of biological genetic networks. , 2009, , .		6
162	Monotone Piecewise Affine Systems. IEEE Transactions on Automatic Control, 2009, 54, 1913-1918.	5.7	13

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163	Stanford Testbed of Autonomous Rotorcraft for Multi-Agent Control. , 2009, , .		11
164	Decentralized cooperative collision avoidance for acceleration constrained vehicles. , 2008, , .		45
165	Optimal discovery of a stochastic genetic network. , 2008, , .		1
166	Locally optimal decomposition for autonomous obstacle avoidance with the Tunnel-MILP algorithm. , 2008, , .		14
167	Reachability calculations for automated aerial refueling. , 2008, , .		46
168	Solving the aircraft routing problem using network flow algorithms. Proceedings of the American Control Conference, 2007, , .	0.0	6
169	Aircraft Autolander Safety Analysis Through Optimal Control-Based Reach Set Computation. Journal of Guidance, Control, and Dynamics, 2007, 30, 68-77.	2.8	99
170	Quadrotor Helicopter Flight Dynamics and Control: Theory and Experiment. , 2007, , .		684
171	Biology by numbers: mathematical modelling in developmental biology. Nature Reviews Genetics, 2007, 8, 331-340.	16.3	160
172	Tractable Algorithm for Open Loop Stochastic Control. , 2006, , .		1
173	Polytopic Approximations of Reachable Sets Applied to Linear Dynamic Games and a Class of Nonlinear Systems. , 2005, , 3-19.		30
174	Overapproximating Reachable Sets by Hamilton-Jacobi Projections. Journal of Scientific Computing, 2003, 19, 323-346.	2.3	103
175	Probabilistically Safe Robot Planning with Confidence-Based Human Predictions. , 0, , .		65
176	Reducing Conservativeness in Safety Guarantees by Learning Disturbances Online: Iterated Guaranteed Safe Online Learning. , 0, , .		8