

Claire J Tomlin

List of Publications by Citations

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162
papers

3,968
citations

32
h-index

58
g-index

177
ext. papers

5,254
ext. citations

5.4
avg, IF

5.89
L-index

#	Paper	IF	Citations
162	Quadrotor Helicopter Flight Dynamics and Control: Theory and Experiment 2007 ,		475
161	Provably safe and robust learning-based model predictive control. <i>Automatica</i> , 2013 , 49, 1216-1226	5.7	231
160	Mobile Sensor Network Control Using Mutual Information Methods and Particle Filters. <i>IEEE Transactions on Automatic Control</i> , 2010 , 55, 32-47	5.9	182
159	Reducing Transient and Steady State Electricity Consumption in HVAC Using Learning-Based Model-Predictive Control. <i>Proceedings of the IEEE</i> , 2012 , 100, 240-253	14.3	156
158	Biology by numbers: mathematical modelling in developmental biology. <i>Nature Reviews Genetics</i> , 2007 , 8, 331-40	30.1	125
157	Applications of hybrid reachability analysis to robotic aerial vehicles. <i>International Journal of Robotics Research</i> , 2011 , 30, 335-354	5.7	110
156	Reachability-based safe learning with Gaussian processes 2014 ,		97
155	Microtubules provide directional information for core PCP function. <i>ELife</i> , 2014 , 3, e02893	8.9	90
154	Overapproximating Reachable Sets by Hamilton-Jacobi Projections. <i>Journal of Scientific Computing</i> , 2003 , 19, 323-346	2.3	85
153	A General Safety Framework for Learning-Based Control in Uncertain Robotic Systems. <i>IEEE Transactions on Automatic Control</i> , 2019 , 64, 2737-2752	5.9	83
152	Learning-based model predictive control on a quadrotor: Onboard implementation and experimental results 2012 ,		82
151	Aircraft Autolander Safety Analysis Through Optimal Control-Based Reach Set Computation. <i>Journal of Guidance, Control, and Dynamics</i> , 2007 , 30, 68-77	2.1	78
150	FaSTrack: A modular framework for fast and guaranteed safe motion planning 2017 ,		77
149	Guaranteed decentralized pursuit-evasion in the plane with multiple pursuers 2011 ,		76
148	Differentiation-state plasticity is a targetable resistance mechanism in basal-like breast cancer. <i>Nature Communications</i> , 2018 , 9, 3815	17.4	75
147	2017 ,		70
146	Design of guaranteed safe maneuvers using reachable sets: Autonomous quadrotor aerobatics in theory and practice 2010 ,		69

145	Reach-avoid problems with time-varying dynamics, targets and constraints 2015 ,		59
144	Learning quadrotor dynamics using neural network for flight control 2016 ,		57
143	Multiplayer Reach-Avoid Games via Pairwise Outcomes. <i>IEEE Transactions on Automatic Control</i> , 2017 , 62, 1451-1457	5.9	55
142	Monotone Approximations of Minimum and Maximum Functions and Multi-objective Problems. <i>Applied Mathematics and Optimization</i> , 2012 , 66, 455-473	1.5	51
141	Decomposition of Reachable Sets and Tubes for a Class of Nonlinear Systems. <i>IEEE Transactions on Automatic Control</i> , 2018 , 63, 3675-3688	5.9	49
140	A differential game approach to planning in adversarial scenarios: A case study on capture-the-flag 2011 ,		43
139	A Hierarchical Flight Planning Framework for Air Traffic Management. <i>Proceedings of the IEEE</i> , 2012 , 100, 179-194	14.3	41
138	On Identification of Distribution Grids. <i>IEEE Transactions on Control of Network Systems</i> , 2019 , 6, 950-960		39
137	Reachability calculations for automated aerial refueling 2008 ,		38
136	Closed-loop belief space planning for linear, Gaussian systems 2011 ,		37
135	Secure State Estimation and Control for Cyber Security of the Nonlinear Power Systems. <i>IEEE Transactions on Control of Network Systems</i> , 2018 , 5, 1310-1321	4	35
134	A general, open-loop formulation for reach-avoid games 2012 ,		35
133	Decentralized cooperative collision avoidance for acceleration constrained vehicles 2008 ,		35
132	Automation-Assisted Capture-the-Flag: A Differential Game Approach. <i>IEEE Transactions on Control Systems Technology</i> , 2015 , 23, 1014-1028	4.8	34
131	On the Optimal Solutions of the Infinite-Horizon Linear Sensor Scheduling Problem. <i>IEEE Transactions on Automatic Control</i> , 2014 , 59, 2825-2830	5.9	32
130	Guaranteed Safe Online Learning via Reachability: tracking a ground target using a quadrotor 2012 ,		32
129	Pursuit, evasion and defense in the plane 2012 ,		32
128	Safe sequential path planning of multi-vehicle systems via double-obstacle Hamilton-Jacobi-Isaacs variational inequality 2015 ,		31

127	Reachability-based synthesis of feedback policies for motion planning under bounded disturbances 2011,		29
126	Reachability-Based Safety and Goal Satisfaction of Unmanned Aerial Platoons on Air Highways. <i>Journal of Guidance, Control, and Dynamics</i> , 2017 , 40, 1360-1373	2.1	27
125	Exact reconstruction of gene regulatory networks using compressive sensing. <i>BMC Bioinformatics</i> , 2014 , 15, 400	3.6	27
124	Probabilistically Safe Robot Planning with Confidence-Based Human Predictions		26
123	Toward Distributed Energy Services: Decentralizing Optimal Power Flow With Machine Learning. <i>IEEE Transactions on Smart Grid</i> , 2020 , 11, 1296-1306	10.7	26
122	Identifying models of HVAC systems using semiparametric regression 2012,		25
121	Multi-vehicle collision avoidance via hamilton-jacobi reachability and mixed integer programming 2016,		25
120	An Efficient Reachability-Based Framework for Provably Safe Autonomous Navigation in Unknown Environments 2019,		23
119	Plug-and-play model predictive control for electric vehicle charging and voltage control in smart grids 2014,		22
118	A numerical method for the optimal control of switched systems 2010,		22
117	Fast reachable set approximations via state decoupling disturbances 2016,		22
116	A probabilistic approach to planning and control in autonomous urban driving 2013,		21
115	Event detection and localization in distribution grids with phasor measurement units 2017,		20
114	Contract design for frequency regulation by aggregations of commercial buildings 2014,		20
113	Optimal load management system for Aircraft Electric Power distribution 2013,		20
112	Hamilton-Jacobi Reachability: Some Recent Theoretical Advances and Applications in Unmanned Airspace Management. <i>Annual Review of Control, Robotics, and Autonomous Systems</i> , 2018 , 1, 333-358	11.8	20
111	Stochastic Control With Uncertain Parameters via Chance Constrained Control. <i>IEEE Transactions on Automatic Control</i> , 2016 , 61, 2892-2905	5.9	19
110	Energy management via pricing in LQ dynamic games 2013,		19

109	Time-optimal multi-stage motion planning with guaranteed collision avoidance via an open-loop game formulation 2012 ,		19
108	Confidence-aware motion prediction for real-time collision avoidance1. <i>International Journal of Robotics Research</i> , 2020 , 39, 250-265	5-7	19
107	Robust reach-avoid controller synthesis for switched nonlinear systems 2010 ,		17
106	Polytopic Approximations of Reachable Sets Applied to Linear Dynamic Games and a Class of Nonlinear Systems 2005 , 3-19		17
105	Decoupling of the PI3K Pathway via Mutation Necessitates Combinatorial Treatment in HER2+ Breast Cancer. <i>PLoS ONE</i> , 2015 , 10, e0133219	3-7	16
104	Evasion of a team of dubins vehicles from a hidden pursuer 2014 ,		15
103	Residential demand response targeting using machine learning with observational data 2016 ,		15
102	A Scalable Framework For Real-Time Multi-Robot, Multi-Human Collision Avoidance 2019 ,		14
101	Exact and efficient Hamilton-Jacobi guaranteed safety analysis via system decomposition 2017 ,		14
100	On the optimal solutions of the infinite-horizon linear sensor scheduling problem 2010 ,		14
99	Game-theoretic routing of GPS-assisted vehicles for energy efficiency 2011 ,		14
98	On feedback design and risk allocation in chance constrained control 2011 ,		14
97	Cost-Aware Path Planning Under Co-Safe Temporal Logic Specifications. <i>IEEE Robotics and Automation Letters</i> , 2017 , 2, 2308-2315	4.2	13
96	Guaranteed safe online learning of a bounded system		13
95	On efficient sensor scheduling for linear dynamical systems 2010 ,		12
94	Trajectory generation for aircraft subject to dynamic weather uncertainty 2010 ,		12
93	Robust Trajectory Planning for a Multirotor against Disturbance based on Hamilton-Jacobi Reachability Analysis 2019 ,		12
92	Plug-and-Play Model Predictive Control for Load Shaping and Voltage Control in Smart Grids. <i>IEEE Transactions on Smart Grid</i> , 2019 , 10, 2334-2344	10.7	12

91	Discrete time stochastic hybrid dynamical games: Verification & controller synthesis 2011 ,		11
90	2020 ,		11
89	A hybrid method for chance constrained control in uncertain environments 2012 ,		10
88	Locally optimal decomposition for autonomous obstacle avoidance with the Tunnel-MILP algorithm 2008 ,		10
87	DeepReach: A Deep Learning Approach to High-Dimensional Reachability 2021 ,		10
86	Bridging Hamilton-Jacobi Safety Analysis and Reinforcement Learning 2019 ,		9
85	Modeling differentiation-state transitions linked to therapeutic escape in triple-negative breast cancer. <i>PLoS Computational Biology</i> , 2019 , 15, e1006840	5	9
84	Optimal control of partially observable discrete time stochastic hybrid systems for safety specifications 2013 ,		9
83	A Classification-based Approach for Approximate Reachability 2019 ,		8
82	A hybrid framework for multi-vehicle collision avoidance 2017 ,		8
81	Reducing Conservativeness in Safety Guarantees by Learning Disturbances Online: Iterated Guaranteed Safe Online Learning		8
80	Reachability-Based Safety Guarantees using Efficient Initializations 2019 ,		8
79	Milligram-Scale Micro Aerial Vehicle Design for Low-Voltage Operation 2018 ,		8
78	Performance Evaluation and Optimization of Communication Infrastructure for the Next Generation Air Transportation System. <i>IEEE Transactions on Parallel and Distributed Systems</i> , 2015 , 26, 1106-1116	3.7	7
77	. <i>IEEE Transactions on Control Systems Technology</i> , 2019 , 27, 1566-1582	4.8	7
76	A practical reachability-based collision avoidance algorithm for sampled-data systems: Application to ground robots 2014 ,		7
75	Investigating Communication Infrastructure of Next Generation Air Traffic Management 2012 ,		7
74	Stanford Testbed of Autonomous Rotorcraft for Multi-Agent Control 2009 ,		7

73	A Risk-Sensitive Finite-Time Reachability Approach for Safety of Stochastic Dynamic Systems 2019 ,		7
72	Plug and Play Distributed Model Predictive Control for Heavy Duty Vehicle Platooning and Interaction with Passenger Vehicles 2018 ,		7
71	Robust Control Barrier Value Functions for Safety-Critical Control 2021 ,		7
70	On the Powerball Method: Variants of Descent Methods for Accelerated Optimization 2019 , 3, 601-606		6
69	Approximation Algorithms for Optimization of Combinatorial Dynamical Systems. <i>IEEE Transactions on Automatic Control</i> , 2016 , 61, 2644-2649	5.9	6
68	Mathematics of the Integrative Cancer Biology Program. <i>Interface Focus</i> , 2013 , 3, 20130023	3.9	6
67	Indirect load control for electricity market risk management via risk-limiting dynamic contracts 2015 ,		6
66	Evasion as a team against a faster pursuer 2013 ,		6
65	Data-driven graph reconstruction using compressive sensing 2012 ,		6
64	Monotone Piecewise Affine Systems. <i>IEEE Transactions on Automatic Control</i> , 2009 , 54, 1913-1918	5.9	6
63	Guaranteed safe online learning of a bounded system		6
62	Linear Single- and Three-Phase Voltage Forecasting and Bayesian State Estimation With Limited Sensing. <i>IEEE Transactions on Power Systems</i> , 2020 , 35, 1674-1683	7	6
61	Safely Probabilistically Complete Real-Time Planning and Exploration in Unknown Environments 2019 ,		5
60	Long-Short Term Memory Neural Network Stability and Stabilization using Linear Matrix Inequalities 2019 ,		5
59	Secure state estimation for nonlinear power systems under cyber attacks 2017 ,		5
58	Inference of temporally evolving network dynamics with applications in biological systems 2011 ,		5
57	Graph-theoretic topological control of biological genetic networks 2009 ,		5
56	Solving the aircraft routing problem using network flow algorithms. <i>Proceedings of the American Control Conference</i> , 2007 ,	1.2	5

55	An Insect-Scale Self-Sufficient Rolling Microrobot. <i>IEEE Robotics and Automation Letters</i> , 2020 , 5, 167-172.	4.2	5
54	Ensuring safety for sampled data systems: An efficient algorithm for filtering potentially unsafe input signals 2016 ,		5
53	2019 ,		4
52	Design of the First Sub-Milligram Flapping Wing Aerial Vehicle 2019 ,		4
51	Stability analysis of wholesale electricity markets under dynamic consumption models and real-time pricing 2017 ,		4
50	Inverse covariance estimation from data with missing values using the Concave-Convex Procedure 2014 ,		4
49	Scalable Learning of Safety Guarantees for Autonomous Systems using Hamilton-Jacobi Reachability 2021 ,		4
48	Learning to control in power systems: Design and analysis guidelines for concrete safety problems. <i>Electric Power Systems Research</i> , 2020 , 189, 106615	3.5	4
47	A model of phenotypic state dynamics initiates a promising approach to control heterogeneous malignant cell populations 2016 ,		4
46	FaSTrack: a Modular Framework for Real-Time Motion Planning and Guaranteed Safe Tracking. <i>IEEE Transactions on Automatic Control</i> , 2021 , 1-1	5.9	4
45	Online Learning to Approach a Person With No Regret. <i>IEEE Robotics and Automation Letters</i> , 2018 , 3, 52-59	4.2	4
44	Reachability Analysis as a Design Tool for Stormwater Systems 2018 ,		4
43	Efficient Computation of Feedback Control for Equality-Constrained LQR 2019 ,		3
42	Incorporating Safety Into Parametric Dynamic Movement Primitives. <i>IEEE Robotics and Automation Letters</i> , 2019 , 4, 2260-2267	4.2	3
41	Some Local Stability Properties of an Autonomous Long Short-Term Memory Neural Network Model 2018 ,		3
40	Temporal-difference learning for online reachability analysis 2015 ,		3
39	Computer-aided drug discovery for pathway and genetic diseases 2010 ,		3
38	On sensor scheduling of linear dynamical systems with error bounds 2010 ,		3

37	Statistics for sparse, high-dimensional, and nonparametric system identification 2009 ,		3
36	Visual Navigation Among Humans With Optimal Control as a Supervisor. <i>IEEE Robotics and Automation Letters</i> , 2021 , 6, 2288-2295	4.2	3
35	Optimal mode-switching and control synthesis for floating offshore wind turbines 2016 ,		3
34	Science of design for societal-scale cyber-physical systems: challenges and opportunities. <i>Cyber-Physical Systems</i> , 2019 , 5, 145-172	1.1	2
33	. <i>IEEE Robotics and Automation Letters</i> , 2020 , 5, 4188-4193	4.2	2
32	On the powerball method 2017 ,		2
31	Hedging strategies for load-serving entities in wholesale electricity markets 2017 ,		2
30	Direct load control for electricity market risk management via risk-limiting dynamic contracts 2014 ,		2
29	On efficiency in mean field differential games 2013 ,		2
28	Multiphase mixed-integer optimal control framework for aircraft conflict avoidance 2012 ,		2
27	Provably Safe and Scalable Multivehicle Trajectory Planning. <i>IEEE Transactions on Control Systems Technology</i> , 2020 , 1-17	4.8	2
26	Iterative Method using the Generalized Hopf Formula: Avoiding Spatial Discretization for Computing Solutions of Hamilton-Jacobi Equations for Nonlinear Systems 2019 ,		2
25	Blind identification of fully observed linear time-varying systems via sparse recovery. <i>Automatica</i> , 2019 , 100, 330-335	5.7	2
24	A Robust Control Framework for Human Motion Prediction. <i>IEEE Robotics and Automation Letters</i> , 2021 , 6, 24-31	4.2	2
23	On the Analysis of Cyclic Drug Schedules for Cancer Treatment using Switched Dynamical Systems 2018 ,		2
22	Variance-Constrained Risk Sharing in Stochastic Systems. <i>IEEE Transactions on Automatic Control</i> , 2017 , 62, 1865-1879	5.9	1
21	Heterogeneity in cancer dynamics: A convex formulation to dissect dynamic trajectories and infer LTV models of networked systems 2015 ,		1
20	Disentangling multidimensional spatio-temporal data into their common and aberrant responses. <i>PLoS ONE</i> , 2015 , 10, e0121607	3.7	1

19	Retrieving common dynamics of gene regulatory networks under various perturbations 2015 ,		1
18	A design of neural decoder by reducing discrepancy between Manual Control (MC) and Brain Control (BC) 2014 ,		1
17	Incentive design for efficient building quality of service 2012 ,		1
16	Regularization-based identification for level set equations 2013 ,		1
15	Verification and control of hybrid systems using reachability analysis 2011 ,		1
14	An ODE model for the HER2/3-AKT signaling pathway in cancers that overexpress HER2 2010 ,		1
13	System identification of hunchback protein patterning in early drosophila embryogenesis 2009 ,		1
12	Trajectory optimization in convex underapproximations of safe regions 2009 ,		1
11	Optimal discovery of a stochastic genetic network 2008 ,		1
10	Robust Tracking with Model Mismatch for Fast and Safe Planning: An SOS Optimization Approach. <i>Springer Proceedings in Advanced Robotics</i> , 2020 , 545-564	0.6	1
9	Parallelizing LQR Computation Through Endpoint-Explicit Riccati Recursion 2019 ,		1
8	Haptic Assistance via Inverse Reinforcement Learning 2018 ,		1
7	Computation of Regions of Attraction for Hybrid Limit Cycles Using Reachability: An Application to Walking Robots. <i>IEEE Robotics and Automation Letters</i> , 2022 , 7, 4504-4511	4.2	1
6	Towards CyberPhysical Systems Robust to Communication Delays: A Differential Game Approach 2022 , 6, 2042-2047		0
5	Efficient Dynamics Estimation with Adaptive Model Sets. <i>IEEE Robotics and Automation Letters</i> , 2021 , 6, 2373-2380	4.2	0
4	A Hopf-Lax Formula in Hamilton-Jacobi Analysis of Reach-Avoid Problems 2021 , 5, 1055-1060		0
3	A Successive-Elimination Approach to Adaptive Robotic Source Seeking. <i>IEEE Transactions on Robotics</i> , 2021 , 37, 34-47	6.5	0
2	Reconstruction of Gene Regulatory Networks based on Repairing Sparse Low-rank Matrices. <i>IEEE/ACM Transactions on Computational Biology and Bioinformatics</i> , 2016 , 13, 767-777	3	

- 1 Dynamically Computing Adversarial Perturbations for Recurrent Neural Networks. *IEEE Transactions on Control Systems Technology*, **2022**, 1-15 4.8