

Jan Tommy Gravdahl

List of Publications by Year in descending order

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162
papers

3,840
citations

172207

29
h-index

161609

54
g-index

163
all docs

163
docs citations

163
times ranked

2253
citing authors

#	ARTICLE	IF	CITATIONS
1	Integral Line-of-Sight Guidance and Control of Underactuated Marine Vehicles: Theory, Simulations, and Experiments. IEEE Transactions on Control Systems Technology, 2016, 24, 1623-1642.	3.2	226
2	A review on modelling, implementation, and control of snake robots. Robotics and Autonomous Systems, 2012, 60, 29-40.	3.0	213
3	Spacecraft coordination control in 6DOF: Integrator backstepping vs passivity-based control. Automatica, 2008, 44, 2896-2901.	3.0	205
4	Satellite Attitude Control by Quaternion-Based Backstepping. IEEE Transactions on Control Systems Technology, 2009, 17, 227-232.	3.2	189
5	Centrifugal compressor surge and speed control. IEEE Transactions on Control Systems Technology, 1999, 7, 567-579.	3.2	121
6	Snake Robots. Advances in Industrial Control, 2013, , .	0.4	115
7	Modelling of UAV formation flight using 3D potential field. Simulation Modelling Practice and Theory, 2008, 16, 1453-1462.	2.2	112
8	Integral Line-of-Sight Guidance for Path Following Control of Underwater Snake Robots: Theory and Experiments. IEEE Transactions on Robotics, 2017, 33, 610-628.	7.3	107
9	Spacecraft attitude control using explicit model predictive control. Automatica, 2005, 41, 2107-2114.	3.0	106
10	Compressor Surge and Rotating Stall. Advances in Industrial Control, 1999, , .	0.4	104
11	Robotic in-row weed control in vegetables. Computers and Electronics in Agriculture, 2018, 154, 36-45.	3.7	96
12	Innovation in Underwater Robots: Biologically Inspired Swimming Snake Robots. IEEE Robotics and Automation Magazine, 2016, 23, 44-62.	2.2	94
13	Drive torque actuation in active surge control of centrifugal compressors. Automatica, 2002, 38, 1881-1893.	3.0	91
14	Controllability and Stability Analysis of Planar Snake Robot Locomotion. IEEE Transactions on Automatic Control, 2011, 56, 1365-1380.	3.6	84
15	Mamba - A waterproof snake robot with tactile sensing. , 2014, , .		77
16	Damping and Tracking Control Schemes for Nanopositioning. IEEE/ASME Transactions on Mechatronics, 2014, 19, 432-444.	3.7	65
17	Hybrid Modelling and Control of Obstacle-Aided Snake Robot Locomotion. IEEE Transactions on Robotics, 2010, 26, 781-799.	7.3	63
18	Snake Robot Locomotion in Environments With Obstacles. IEEE/ASME Transactions on Mechatronics, 2012, 17, 1158-1169.	3.7	59

#	ARTICLE	IF	CITATIONS
19	Experimental Investigation of Obstacle-Aided Locomotion With a Snake Robot. IEEE Transactions on Robotics, 2011, 27, 792-800.	7.3	58
20	Modeling of underwater snake robots. , 2014, , .		58
21	Explicit Model Predictive Control for Large-Scale Systems via Model Reduction. Journal of Guidance, Control, and Dynamics, 2008, 31, 918-926.	1.6	49
22	Modeling of Surge in Free-Spool Centrifugal Compressors: Experimental Validation. Journal of Propulsion and Power, 2004, 20, 849-857.	1.3	48
23	Singularity-free dynamic equations of vehicleâ€“manipulator systems. Simulation Modelling Practice and Theory, 2010, 18, 712-731.	2.2	48
24	UAV formation flight using 3D potential field. , 2008, , .		45
25	Path following of underactuated autonomous underwater vehicles in the presence of ocean currents. , 2012, , .		44
26	Vehicle-Manipulator Systems. Advances in Industrial Control, 2014, , .	0.4	42
27	Optimal Paint Gun Orientation in Spray Paint Applicationsâ€“Experimental Results. IEEE Transactions on Automation Science and Engineering, 2011, 8, 438-442.	3.4	41
28	The Underwater Swimming Manipulatorâ€“A Bioinspired Solution for Subsea Operations. IEEE Journal of Oceanic Engineering, 2018, 43, 402-417.	2.1	41
29	A simplified model of planar snake robot locomotion. , 2010, , .		40
30	Active surge control of compression system using drive torque. Automatica, 2008, 44, 1135-1140.	3.0	36
31	Adaptive feed-forward hysteresis compensation for piezoelectric actuators. Review of Scientific Instruments, 2012, 83, 085001.	0.6	35
32	Planar Path Following of Underwater Snake Robots in the Presence of Ocean Currents. IEEE Robotics and Automation Letters, 2016, 1, 383-390.	3.3	34
33	Integral LOS guidance for horizontal path following of underactuated autonomous underwater vehicles in the presence of vertical ocean currents. , 2012, , .		33
34	Comparison of two second-order sliding mode control algorithms for an articulated intervention AUV: Theory and experimental results. Ocean Engineering, 2021, 222, 108480.	1.9	33
35	Lyapunov Estimator for High-Speed Demodulation in Dynamic Mode Atomic Force Microscopy. IEEE Transactions on Control Systems Technology, 2018, 26, 765-772.	3.2	30
36	Locomotion Efficiency Optimization of Biologically Inspired Snake Robots. Applied Sciences (Switzerland), 2018, 8, 80.	1.3	30

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37	6-DOF mutual synchronization of formation flying spacecraft. , 2006, , .		29
38	Tracking Control of an Articulated Intervention Autonomous Underwater Vehicle in 6DOF Using Generalized Super-twisting: Theory and Experiments. IEEE Transactions on Control Systems Technology, 2021, 29, 353-369.	3.2	27
39	Integral line-of-sight for path following of underwater snake robots. , 2014, , .		25
40	Trajectory Tracking for Underwater Swimming Manipulators using a Super Twisting Algorithm. Asian Journal of Control, 2019, 21, 208-223.	1.9	25
41	Ocean Color Hyperspectral Remote Sensing With High Resolution and Low Latencyâ€”The HYPSO-1 CubeSat Mission. IEEE Transactions on Geoscience and Remote Sensing, 2022, 60, 1-19.	2.7	25
42	Motion planning and control of robotic manipulators on seaborne platforms. Control Engineering Practice, 2011, 19, 809-819.	3.2	24
43	A Simplified Method for Discrete-Time Repetitive Control Using Model-Less Finite Impulse Response Filter Inversion. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2016, 138, .	0.9	24
44	Low-order continuous-time robust repetitive control: Application in nanopositioning. Mechatronics, 2015, 30, 231-243.	2.0	22
45	A Real-Time Algorithm for Determining the Optimal Paint Gun Orientation in Spray Paint Applications. IEEE Transactions on Automation Science and Engineering, 2010, 7, 803-816.	3.4	21
46	Bond graph modeling of centrifugal compression systems. Simulation, 2015, 91, 998-1013.	1.1	21
47	Set-Based Control for Autonomous Spray Painting. IEEE Transactions on Automation Science and Engineering, 2018, 15, 1785-1796.	3.4	20
48	A waypoint guidance strategy for underwater snake robots. , 2014, , .		19
49	Path Following, Obstacle Detection and Obstacle Avoidance for Thrusted Underwater Snake Robots. Frontiers in Robotics and AI, 2019, 6, 57.	2.0	16
50	Differential geometric modelling and robust path following control of snake robots using sliding mode techniques. , 2014, , .		15
51	A 3D motion planning framework for snake robots. , 2014, , .		15
52	Energy efficiency of underwater robots. IFAC-PapersOnLine, 2015, 48, 152-159.	0.5	15
53	Energy efficiency of underwater snake robot locomotion. , 2015, , .		15
54	Combined kinematic and dynamic control of vehicle-manipulator systems. Mechatronics, 2020, 69, 102380.	2.0	15

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55	Compliant control of the body shape of snake robots. , 2014, , .		14
56	A novel hybrid analysis and modeling approach applied to aluminum electrolysis process. Journal of Process Control, 2021, 105, 62-77.	1.7	14
57	A modular and waterproof snake robot joint mechanism with a novel force/torque sensor. , 2012, , .		13
58	Quaternion-Based Backstepping Control of Relative Attitude in a Spacecraft Formation. , 2006, , .		12
59	Controllability analysis of planar snake robots influenced by viscous ground friction. , 2009, , .		12
60	Singularity-free dynamic equations of spacecraft-manipulator systems. Acta Astronautica, 2011, 69, 1057-1065.	1.7	12
61	Boarding control system for improved accessibility to offshore wind turbines: Full-scale testing. Control Engineering Practice, 2015, 45, 207-218.	3.2	12
62	Active Compressor Surge Control Using Piston Actuation. , 2011, , .		11
63	Path following control of planar snake robots using virtual holonomic constraints. , 2013, , .		11
64	A control-oriented model of underwater snake robots. , 2014, , .		11
65	Fundamental properties of snake robot locomotion. , 2010, , .		10
66	Stability analysis of snake robot locomotion based on averaging theory. , 2010, , .		10
67	Topics on Current Compensation for Path Following Applications of Underactuated Underwater Vehicles. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 184-191.	0.4	10
68	Nonlinear observer design for a Greitzer compressor model. , 2013, , .		10
69	Non-linear model predictive control for constrained robot navigation in row crops. , 2015, , .		10
70	Formation Modelling and 6DOF Spacecraft Coordination Control. Proceedings of the American Control Conference, 2007, , .	0.0	9
71	A control framework for snake robot locomotion based on shape control points interconnected by Bézier curves. , 2012, , .		9
72	Stability analysis of underwater snake robot locomotion based on averaging theory. , 2014, , .		9

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73	Optimal dynamic force mapping for obstacle-aided locomotion in 2D snake robots. , 2014, , .		9
74	Design and control of precision drop-on-demand herbicide application in agricultural robotics. , 2014, , .		9
75	A control-oriented model of underwater snake robots exposed to currents. , 2015, , .		9
76	A Machine Vision System for Robust Sorting of Herring Fractions. Food and Bioprocess Technology, 2016, 9, 1893-1900.	2.6	9
77	Set-based collision avoidance applications to robotic systems. Mechatronics, 2020, 69, 102399.	2.0	9
78	Energy optimal attitude control for a solar-powered spacecraft. European Journal of Control, 2021, 62, 192-197.	1.6	9
79	Representing Attitudes as Sets of Frames. Proceedings of the American Control Conference, 2007, , .	0.0	8
80	PI2-Controller Applied to a Piezoelectric Nanopositioner Using Conditional Integrators and Optimal Tuning. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2011, 44, 887-892.	0.4	8
81	Lateral undulation of snake robots: a simplified model and fundamental properties. Robotica, 2013, 31, 1005-1036.	1.3	8
82	Heave Motion Estimation on a Craft Using a Strapdown Inertial Measurement Unit. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2013, 46, 298-303.	0.4	8
83	Modeling of underwater snake robots moving in a vertical plane in 3D. , 2014, , .		8
84	Discrete-time repetitive control with model-less FIR filter inversion for high performance nanopositioning. , 2014, , .		8
85	Topography and force imaging in atomic force microscopy by state and parameter estimation. , 2015, , .		8
86	Active Compressor Surge Control System by Using Piston Actuation: Implementation and Experimental Results**The authors acknowledge the financial support of Siemens Oil and Gas Solutions Offshore through the Siemens-NTNU research collaboration project.. IFAC-PapersOnLine, 2016, 49, 347-352.	0.5	8
87	General Solutions to functional and kinematic Redundancy. , 2007, , .		7
88	Robust damping PI repetitive control for nanopositioning. , 2012, , .		7
89	Path following of marine surface vessels with saturated transverse actuators. , 2013, , .		7
90	Linear and Nonlinear State Estimation in the Czochralski Process*. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2013, 46, 523-528.	0.4	7

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91	Path Following of Underactuated Surface Vessels in Presence of Unknown Constant Environmental Forces: Preliminary Results. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2013, 46, 85-90.	0.4	7
92	Analysis of underwater snake robot locomotion based on a control-oriented model. , 2015, , .		7
93	Experimental comparison of adaptive controllers for trajectory tracking in agricultural robotics. , 2015, , .		7
94	Tracking control of an articulated intervention AUV in 6DOF using the generalized super-twisting algorithm. , 2019, , .		7
95	A Comparative Study of Different Control Structures for Flight Control With New Results. IEEE Transactions on Control Systems Technology, 2020, 28, 291-305.	3.2	7
96	On the influence of ship motion prediction accuracy on motion planning and control of robotic manipulators on seaborne platforms. , 2010, , .		6
97	Experimental comparison of online parameter identification schemes for a nanopositioning stage with variable mass. , 2011, , .		6
98	Introducing Back-up to Active Compressor Surge Control System. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 263-268.	0.4	6
99	Mixed-integer formulation of unit commitment problem for power systems: Focus on start-up cost. , 2013, , .		6
100	Counter-Current and Co-Current Guidance of Underactuated Unmanned Marine Vehicles. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2013, 46, 60-66.	0.4	6
101	The nonlinear heat equation with state-dependent parameters and its connection to the Burgers' and the potential Burgers' equation. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2014, 47, 7019-7024.	0.4	6
102	Dynamic formulation of the unit commitment and economic dispatch problems. , 2015, , .		6
103	Modelling and simulation of a flywheel based energy storage system for an industrial manipulator. , 2015, , .		6
104	Optimal boundary control of a contact thawing process for foodstuff. IFAC-PapersOnLine, 2016, 49, 183-188.	0.5	6
105	Robust control of a two-state Greitzer compressor model by state-feedback linearization. , 2016, , .		6
106	A heat equation for freezing processes with phase change: stability analysis and applications. International Journal of Control, 2016, 89, 833-849.	1.2	6
107	Model-Based Identification of Nanomechanical Properties in Atomic Force Microscopy: Theory and Experiments. IEEE Transactions on Control Systems Technology, 2019, 27, 2045-2057.	3.2	6
108	Wire-arc additive manufacturing of structures with overhang: Experimental results depositing material onto fixed substrate. CIRP Journal of Manufacturing Science and Technology, 2022, 38, 186-203.	2.3	6

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109	A hybrid model of obstacle-aided snake robot locomotion. , 2010, , .		5
110	Experimental investigation of fundamental properties of snake robot locomotion. , 2010, , .		5
111	Path following control of snake robots in unstructured environments. , 2011, , .		5
112	On the Boundedness Property of the Inertia Matrix and Skew-Symmetric Property of the Coriolis Matrix for Vehicle-Manipulator Systems. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2012, 134, .	0.9	5
113	Optimal boundary control for the heat equation with application to freezing with phase change. , 2013, , .		5
114	Design of a nonlinear damping control scheme for nanopositioning. , 2013, , .		5
115	Simulator and Control System Design for a Free Floating Surface Effect Ship at Zero Vessel Speed. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2013, 46, 67-72.	0.4	5
116	Discrete state-space model to solve the unit commitment and economic dispatch problems. Energy Systems, 2017, 8, 525-547.	1.8	5
117	Robot Dynamics with URDF & CasADi. , 2019, , .		5
118	Towards Vision-based Closed-loop Additive Manufacturing: A Review. , 2020, , .		5
119	Quaternion-Based Generalized Super-Twisting Algorithm for Spacecraft Attitude Control. IFAC-PapersOnLine, 2020, 53, 14811-14818.	0.5	5
120	Spacecraft Attitude and Angular Rate Tracking using Reaction Wheels and Magnetorquers. IFAC-PapersOnLine, 2020, 53, 14819-14826.	0.5	5
121	The generalized super-twisting algorithm with adaptive gains. International Journal of Robust and Nonlinear Control, 2022, 32, 7240-7270.	2.1	5
122	On the equivalence of orientation error and positive definiteness of matrices. , 2008, , .		4
123	Stability analysis of snake robot locomotion based on Poincaré maps. , 2009, , .		4
124	Implementation and Comparison of Attitude Estimation Methods for Agricultural Robotics. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2013, 46, 52-57.	0.4	4
125	Modeling and control of a marine diesel engine driving a synchronous machine and a propeller. , 2014, , .		4
126	Two general state feedback control laws for compressor surge stabilization. , 2016, , .		4

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127	Robotised Wire Arc Additive Manufacturing Using Set-based Control: Experimental Results. IFAC-PapersOnLine, 2020, 53, 10044-10051.	0.5	4
128	Passivity based controller-observer schemes for relative translation of a formation of spacecraft. Proceedings of the American Control Conference, 2007, , .	0.0	3
129	Tracking Control for a Piezoelectric Nanopositioner Using Estimated States and Feedforward Compensation of Hysteresis. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2010, 43, 96-104.	0.4	3
130	Fixed-Structure, Low-Order Damping and Tracking Control Schemes for Nanopositioning. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2013, 46, 28-36.	0.4	3
131	Estimation of inner-domain temperatures for a freezing process. , 2014, , .		3
132	Simple method for parameter identification of a nonlinear Greitzer compressor model. IFAC-PapersOnLine, 2018, 51, 198-203.	0.5	3
133	Adaptive Boarding Control System in Surface Effect Ships. , 2019, , .		3
134	Additive Manufacturing Path Generation for Robot Manipulators Based on CAD Models. IFAC-PapersOnLine, 2020, 53, 10037-10043.	0.5	3
135	Active surge control using drive torque: dynamic control laws. , 2006, , .		2
136	Circle criterion observer for a compression system. Proceedings of the American Control Conference, 2007, , .	0.0	2
137	Two new design concepts for snake robot locomotion in unstructured environments. Paladyn, 2010, 1, .	1.9	2
138	Improvement of a Robotic Manipulator Model Based on Multivariate Residual Modeling. Frontiers in Robotics and AI, 2017, 4, .	2.0	2
139	Stability of the Tracking Problem with Task-Priority Inverse Kinematics. IFAC-PapersOnLine, 2018, 51, 121-125.	0.5	2
140	Analysis of PI-Control for Atomic Force Microscopy in Contact Mode. IEEE Transactions on Control Systems Technology, 2022, 30, 1681-1695.	3.2	2
141	The Generalized Lyapunov Demodulator: High-Bandwidth, Low-Noise Amplitude and Phase Estimation. , 2022, 1, 69-84.		2
142	Attitude Determination for the student satellite n.... , 2005, , .		1
143	Considering Passive Joints in Cooperative Manipulation as Functional Redundancy. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2008, 41, 4349-4354.	0.4	1
144	Adaptive control of a nanopositioning device. , 2012, , .		1

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145	RBF network pruning techniques for adaptive learning controllers. , 2013, , .		1
146	Mixed-integer minimization of the cost function of the Unit Commitment problem for isolated power systems. , 2013, , .		1
147	Snake Robots From Biology to Nonlinear Control. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2013, 46, 110-115.	0.4	1
148	A Geometric Approach to Actuator Failure in Robotic Manipulators. Proceedings in Applied Mathematics and Mechanics, 2014, 14, 79-80.	0.2	1
149	Stability properties of a heat equation with state-dependent parameters and asymmetric boundary conditions. IFAC-PapersOnLine, 2015, 48, 587-592.	0.5	1
150	Boarding Control System - for Improved Accessibility to Offshore Wind Turbines. IFAC-PapersOnLine, 2015, 48, 229-234.	0.5	1
151	Robustness of ISS systems to inputs with limited moving average: Application to spacecraft formations. International Journal of Robust and Nonlinear Control, 2016, 26, 816-833.	2.1	1
152	Mid-Level MPC and 6 DOF output path following for robotic manipulators. , 2017, , .		1
153	On the globally exponentially convergent immersion and invariance speed observer for mechanical systems. , 2017, , .		1
154	Output control of spacecraft in leader follower formation. , 2008, , .		0
155	Representing sets of orientations as convex cones. , 2009, , .		0
156	Real-time optimal trajectory planning for robotic manipulators with functional redundancy. , 2009, , .		0
157	Fault Tolerance of Parallel Manipulators with Passive Joints. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2009, 42, 1240-1245.	0.4	0
158	Optimal mapping from a continuous 3D curve to the position and shape of a snake robot. , 2013, , .		0
159	Compressor surge control design using linear matrix inequality approach. , 2017, , .		0
160	Combined state and parameter estimation for not fully observable dynamic systems. IFAC Journal of Systems and Control, 2020, 13, 100103.	1.1	0
161	Collision Avoidance using Mixed H2/H ∞ Control for an Articulated Intervention-AUV. , 2020, , .		0
162	Output feedback control of relative spacecraft attitude. , 2009, , .		0