

Joris De Schutter

List of Publications by Year in descending order

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145
papers

3,561
citations

279798

23
h-index

189892

50
g-index

148
all docs

148
docs citations

148
times ranked

2803
citing authors

#	ARTICLE	IF	CITATIONS
1	Time-Optimal Path Tracking for Robots: A Convex Optimization Approach. IEEE Transactions on Automatic Control, 2009, 54, 2318-2327.	5.7	384
2	Dynamic Model Identification for Industrial Robots. IEEE Control Systems, 2007, 27, 58-71.	0.8	276
3	Kalman filters for non-linear systems: a comparison of performance. International Journal of Control, 2004, 77, 639-653.	1.9	264
4	Constraint-based Task Specification and Estimation for Sensor-Based Robot Systems in the Presence of Geometric Uncertainty. International Journal of Robotics Research, 2007, 26, 433-455.	8.5	218
5	Force Control. , 2008, , 161-185.		140
6	Robust high-order repetitive control: Optimal performance trade-offs. Automatica, 2008, 44, 2628-2634.	5.0	136
7	An adaptable system for RGB-D based human body detection and pose estimation. Journal of Visual Communication and Image Representation, 2014, 25, 39-52.	2.8	99
8	Design and Control of an Unmanned Aerial Vehicle for Autonomous Parcel Delivery with Transition from Vertical Take-off to Forward Flight – VertiKUL, a Quadcopter Tailsitter. International Journal of Micro Air Vehicles, 2015, 7, 395-405.	1.3	72
9	eTaSL/eTC: A constraint-based task specification language and robot controller using expression graphs. , 2014, , .		70
10	Time-Optimal Path Following for Robots With Convex-Concave Constraints Using Sequential Convex Programming. IEEE Transactions on Robotics, 2013, 29, 1485-1495.	10.3	66
11	Contact-State Segmentation Using Particle Filters for Programming by Human Demonstration in Compliant-Motion Tasks. , 2007, 23, 218-231.		59
12	Integrated Vision/Force Robotic Servoing in the Task Frame Formalism. International Journal of Robotics Research, 2003, 22, 941-954.	8.5	55
13	Subject-Exoskeleton Contact Model Calibration Leads to Accurate Interaction Force Predictions. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2019, 27, 1597-1605.	4.9	55
14	Force Control. Springer Handbooks, 2016, , 195-220.	0.6	54
15	Time-energy optimal path tracking for robots: a numerically efficient optimization approach. , 2008, , .		52
16	Extending iTaSC to support inequality constraints and non-instantaneous task specification. , 2009, , .		50
17	A hybrid pose / wrench control framework for quadrotor helicopters. , 2012, , .		47
18	Model-based control for exoskeletons with series elastic actuators evaluated on sit-to-stand movements. Journal of NeuroEngineering and Rehabilitation, 2019, 16, 65.	4.6	47

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19	Kinematic Models for Model-Based Compliant Motion in the Presence of Uncertainty. International Journal of Robotics Research, 1995, 14, 465-482.	8.5	44
20	Polyhedral contact formation identification for autonomous compliant motion: exact nonlinear bayesian filtering. , 2005, 21, 124-129.		38
21	An Accurate and Efficient Gaussian Fit Centroiding Algorithm for Star Trackers. Journal of the Astronautical Sciences, 2014, 61, 60-84.	1.5	38
22	Invariant Description of Rigid Body Motion Trajectories. Journal of Mechanisms and Robotics, 2010, 2, .	2.2	37
23	Hybrid fuzzy probabilistic data association filter and joint probabilistic data association filter. Information Sciences, 2002, 142, 195-226.	6.9	32
24	A Smoothed GMS Friction Model Suited for Gradient-Based Friction State and Parameter Estimation. IEEE/ASME Transactions on Mechatronics, 2014, 19, 1593-1602.	5.8	31
25	Sensitivity of predicted muscle forces during gait to anatomical variability in musculotendon geometry. Journal of Biomechanics, 2015, 48, 2116-2123.	2.1	31
26	iTASC: a tool for multi-sensor integration in robot manipulation. , 2008, , .		30
27	Identification of Contact Dynamics Parameters for Stiff Robotic Payloads. IEEE Transactions on Robotics, 2009, 25, 240-252.	10.3	29
28	Invariant Hybrid Force/Position Control of a Velocity Controlled Robot with Compliant End Effector Using Modal Decoupling. International Journal of Robotics Research, 1997, 16, 340-356.	8.5	28
29	Real-Time Gait Event Detection Based on Kinematic Data Coupled to a Biomechanical Model â€. Sensors, 2017, 17, 671.	3.8	27
30	Gait Trajectory and Event Prediction from State Estimation for Exoskeletons During Gait. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2020, 28, 211-220.	4.9	25
31	Inverse dynamic estimates of muscle recruitment and joint contact forces are more realistic when minimizing muscle activity rather than metabolic energy or contact forces. Gait and Posture, 2019, 74, 223-230.	1.4	24
32	Input Torque Balancing Using an Inverted Cam Mechanism. Journal of Mechanical Design, Transactions of the ASME, 2005, 127, 887.	2.9	23
33	Geometric Relations Between Rigid Bodies (Part 1): Semantics for Standardization. IEEE Robotics and Automation Magazine, 2013, 20, 84-93.	2.0	23
34	iTASC: A Tool for Multi-Sensor Integration in Robot Manipulation. Lecture Notes in Electrical Engineering, 2009, , 235-254.	0.4	23
35	Possibilistic Kalman filtering for radar 2D tracking. Information Sciences, 2000, 130, 85-107.	6.9	22
36	Mechanical effort predicts the selection of ankle over hip strategies in nonstepping postural responses. Journal of Neurophysiology, 2016, 116, 1937-1945.	1.8	22

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37	On-line time-optimal path tracking for robots. , 2009, , .		21
38	A Framework for Recognition and Prediction of Human Motions in Human-Robot Collaboration Using Probabilistic Motion Models. IEEE Robotics and Automation Letters, 2020, 5, 5151-5158.	5.1	21
39	Force from Shape"Estimating the Location and Magnitude of the External Force on Flexible Instruments. IEEE Transactions on Robotics, 2021, 37, 1826-1833.	10.3	21
40	Combining Imitation Learning With Constraint-Based Task Specification and Control. IEEE Robotics and Automation Letters, 2019, 4, 1892-1899.	5.1	20
41	Input torque balancing using a cam-based centrifugal pendulum: design procedure and example. Journal of Sound and Vibration, 2005, 283, 1-20.	3.9	19
42	Online Statistical Model Recognition and State Estimation for Autonomous Compliant Motion. IEEE Transactions on Systems, Man and Cybernetics, Part C: Applications and Reviews, 2005, 35, 16-29.	2.9	19
43	Optimal Path Following for Differentially Flat Robotic Systems Through a Geometric Problem Formulation. IEEE Transactions on Robotics, 2014, 30, 980-985.	10.3	19
44	Optimal excitation and identification of the dynamic model of robotic systems with compliant actuators. , 2015, , .		19
45	Predicting Seat-Off and Detecting Start-of-Assistance Events for Assisting Sit-to-Stand With an Exoskeleton. IEEE Robotics and Automation Letters, 2016, 1, 792-799.	5.1	19
46	Effect of the soft tissue artifact on marker measurements and on the calculation of the helical axis of the knee during a gait cycle: A study on the CAMS-Knee data set. Human Movement Science, 2021, 80, 102866.	1.4	19
47	Optimal Performance Tradeoffs in Repetitive Control: Experimental Validation on an Active Air Bearing Setup. IEEE Transactions on Control Systems Technology, 2009, 17, 970-979.	5.2	18
48	ExoTen-Glove: A Force-Feedback Haptic Glove Based on Twisted String Actuation System. , 2018, , .		18
49	Integration of planning and execution in force controlled compliant motion. Robotics and Autonomous Systems, 2008, 56, 437-450.	5.1	17
50	Reusable hybrid force-velocity controlled motion specifications with executable Domain Specific Languages. , 2011, , .		17
51	Learning a Predictive Model of Human Gait for the Control of a Lower-limb Exoskeleton. , 2014, , .		17
52	Ultimate Limits for Counterweight Balancing of Crank-Rocker Four-Bar Linkages. Journal of Mechanical Design, Transactions of the ASME, 2006, 128, 1272-1284.	2.9	16
53	Dynamic simulation of human motion: numerically efficient inclusion of muscle physiology by"convex"optimization. Optimization and Engineering, 2008, 9, 213-238.	2.4	16
54	Identification of Contact Parameters from Stiff Multi-point Contact Robotic Operations. International Journal of Robotics Research, 2010, 29, 367-385.	8.5	15

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55	Comparison of rigid body motion trajectory descriptors for motion representation and recognition. , 2015, , .		15
56	Model-Based Planar Contour Following in the Presence of Pose and Model Errors. International Journal of Robotics Research, 1997, 16, 840-858.	8.5	14
57	Extending the iTaSC Constraint-based Robot Task Specification Framework to Time-Independent Trajectories and User-Configurable Task Horizons. , 2013, , .		14
58	Probabilistic approach to recognize local navigation plans by fusing past driving information with a personalized user model. , 2013, , .		14
59	Rigorously Bayesian range finder sensor model for dynamic environments. , 2008, , .		13
60	On-line identification of contact dynamics in the presence of geometric uncertainties. , 2008, , .		13
61	Rapid application development of constrained-based task modelling and execution using domain specific languages. , 2013, , .		13
62	Estimating and Localizing External Forces Applied on Flexible Instruments by Shape Sensing. , 2019, , .		13
63	A Smoothed GMS friction model for Moving Horizon friction state and parameter estimation. , 2012, , .		12
64	Time-optimal path following for robots with trajectory jerk constraints using sequential convex programming. , 2013, , .		12
65	Highly Efficient Attitude-Estimation Algorithm for Star Trackers Using Optimal Image Matching. Journal of Guidance, Control, and Dynamics, 2013, 36, 1672-1680.	2.8	12
66	Constraint-Based Interaction Control of Robots Featuring Large Compliance and Deformation. IEEE Transactions on Robotics, 2015, 31, 1252-1260.	10.3	12
67	Experimental maneuverability and agility quantification for rotary unmanned aerial vehicle. International Journal of Micro Air Vehicles, 2018, 10, 3-11.	1.3	12
68	Constraint-based specification of hybrid position-impedance-force tasks. , 2014, , .		11
69	Generalizing demonstrated motion trajectories using coordinate-free shape descriptors. Robotics and Autonomous Systems, 2019, 122, 103291.	5.1	11
70	Forward flight tests of a quadcopter unmanned aerial vehicle with various spherical body diameters. International Journal of Micro Air Vehicles, 2020, 12, 175682932092356.	1.3	11
71	Recursive log-barrier method for on-line time-optimal robot path tracking. , 2009, , .		10
72	Recognition of 6 DOF rigid body motion trajectories using a coordinate-free representation. , 2011, , .		10

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73	Optimal Feedforward Prefilter With Frequency Domain Specification for Nonminimum Phase Systems. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 1996, 118, 791-795.	1.6	9
74	Experimental Validation of Input Torque Balancing Applied to Weaving Machinery. Journal of Mechanical Design, Transactions of the ASME, 2008, 130, .	2.9	9
75	Convex time-optimal robot path following with Cartesian acceleration and inertial force and torque constraints. Proceedings of the Institution of Mechanical Engineers Part I: Journal of Systems and Control Engineering, 2013, 227, 724-732.	1.0	9
76	Estimating Contact Forces and Moments for Walking Robots and Exoskeletons Using Complementary Energy Methods. IEEE Robotics and Automation Letters, 2018, 3, 3410-3417.	5.1	9
77	Estimating the Instantaneous Screw Axis and the Screw Axis Invariant Descriptor of Motion by Means of Inertial Sensors: An Experimental Study with a Mechanical Hinge Joint and Comparison to the Optoelectronic System. Sensors, 2020, 20, 49.	3.8	9
78	A constraint-based programming approach to physical human-robot interaction. , 2012, , .		8
79	Realtime Delayless Estimation of Derivatives of Noisy Sensor Signals for Quasi-Cyclic Motions With Application to Joint Acceleration Estimation on an Exoskeleton. IEEE Robotics and Automation Letters, 2018, 3, 1647-1654.	5.1	8
80	A Smoothed GMS friction model suited for gradient-based friction state estimation. , 2012, , .		7
81	Multi RGB-D camera setup for generating large 3D point clouds. , 2013, , .		7
82	Control of a hybrid robotic system for computer-assisted interventions in dynamic environments. International Journal of Computer Assisted Radiology and Surgery, 2016, 11, 1371-1383.	2.8	7
83	Robot force control with an actively damped flexible end effector. Robotics and Autonomous Systems, 1996, 19, 205-214.	5.1	6
84	Efficient kinematics of a spherical 4R wrist by means of an equivalent 3R wrist. Mechanism and Machine Theory, 1998, 33, 649-659.	4.5	6
85	Geometric Relations Between Rigid Bodies (Part 2): From Semantics to Software. IEEE Robotics and Automation Magazine, 2013, 20, 91-102.	2.0	6
86	Time-optimal parking and flying: Solving path following problems efficiently. , 2013, , .		6
87	A Novel Haptic Glove (ExoTen-Glove) Based on Twisted String Actuation (TSA) System for Virtual Reality. Lecture Notes in Computer Science, 2018, , 612-622.	1.3	6
88	Representing actions with Kernels. , 2011, , .		6
89	Towards Dynamic Visual Servoing for Interaction Control and Moving Targets. , 2022, , .		6
90	Particle Filters for Hybrid Event Sensor Fusion with 3D Vision and Force. , 2006, , .		5

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91	Optimal Design of Spline-Based Feedforward for Trajectory Tracking. Proceedings of the American Control Conference, 2007, , .	0.0	5
92	Dynamically Compensated and Robust Motion System Inputs Based on Splines: A Linear Programming Approach. Proceedings of the American Control Conference, 2007, , .	0.0	5
93	Robust high-order repetitive control. , 2008, , .		5
94	Generalizing demonstrated motions and adaptive motion generation using an invariant rigid body trajectory representation. , 2016, , .		5
95	Incorporating Artificial Skin Signals in the Constraint-based Reactive Control of Human-Robot Collaborative Manipulation Tasks. , 2018, , .		5
96	A probabilistic method to estimate gait kinetics in the absence of ground reaction force measurements. Journal of Biomechanics, 2019, 96, 109327.	2.1	5
97	Autonomous Runtime Composition of Sensor-Based Skills Using Concurrent Task Planning. IEEE Robotics and Automation Letters, 2021, 6, 6481-6488.	5.1	5
98	Adaptive Control of Electrically Driven Space Robots Based on Virtual Decomposition. Journal of Guidance, Control, and Dynamics, 1999, 22, 329-339.	2.8	4
99	Incremental Building of a Polyhedral Feature Model for Programming by Human Demonstration of Force-Controlled Tasks. , 2007, 23, 20-33.		4
100	Force-Sensorless and Bimanual Human-Robot Comanipulation Implementation using iTaSC. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 759-766.	0.4	4
101	Robustness and Efficiency Improvements for Star Tracker Attitude Estimation. Journal of Guidance, Control, and Dynamics, 2015, 38, 2108-2121.	2.8	4
102	Robust Optimization-Based Calculation of Invariant Trajectory Representations for Point and Rigid-body Motion. , 2018, , .		4
103	Haptic Perception of Virtual Spring Stiffness Using ExoTen-Glove. , 2018, , .		4
104	Shape-Preserving and Reactive Adaptation of Robot End-Effector Trajectories. IEEE Robotics and Automation Letters, 2021, 6, 667-674.	5.1	4
105	Contact State Segmentation Using Particle Filters for Programming by Human Demonstration in Compliant Motion Tasks. Springer Tracts in Advanced Robotics, 2008, , 3-12.	0.4	4
106	Design of Robust Optimal Feedforward Controllers for Periodic Disturbances. Proceedings of the American Control Conference, 2007, , .	0.0	3
107	Generalized repetitive control: Better performance with less memory. , 2008, , .		3
108	Design of dynamically optimal spline motion inputs: Experimental results. , 2008, , .		3

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109	A split-horizon scheme for on-line friction parameter estimation. , 2011, , .		3
110	Backwards Maneuvering Powered Wheelchairs with Haptic Guidance. Lecture Notes in Computer Science, 2012, , 419-431.	1.3	3
111	Time-optimal path following for robots with object collision avoidance using lagrangian duality. , 2013, , .		3
112	Integral Modeling of a Twin-Screw Compressor. Journal of Mechanical Design, Transactions of the ASME, 2016, 138, .	2.9	3
113	Incorporating artificial skin signals in the constraint-based reactive control of humanâ€“robot collaborative manipulation tasks. Industrial Robot, 2019, 46, 360-368.	2.1	3
114	Skill-based Programming Framework for Composable Reactive Robot Behaviors. , 2020, , .		3
115	Application of a Generic Constraint-Based Programming Approach to an Industrially Relevant Robot Task with Geometric Uncertainties. , 2007, , .		2
116	Haptic coupling with augmented feedback between two KUKA Light-Weight Robots and the PR2 robot arms. , 2011, , .		2
117	Invariant representations to reduce the variability in recognition of rigid body motion trajectories. , 2012, , .		2
118	Classical and subsequence dynamic time warping for recognition of rigid body motion trajectories. , 2013, , .		2
119	Constraint- and synergy-based specification of manipulation tasks. , 2014, , .		2
120	Reconfigurable Constraint-Based Reactive Framework for Assistive Robotics With Adaptable Levels of Autonomy. IEEE Robotics and Automation Letters, 2021, 6, 7397-7405.	5.1	2
121	Construction of a geometric 3-D model from sensor measurements collected during compliant motion. Springer Tracts in Advanced Robotics, 2006, , 571-580.	0.4	2
122	Image-Based Visual Servoing with Extra Task Related Constraints in a General Framework for Sensor-Based Robot Systems. Lecture Notes in Electrical Engineering, 2008, , 187-204.	0.4	2
123	Learning robust manipulation tasks involving contact using trajectory parameterized probabilistic principal component analysis. , 2020, , .		2
124	Polynomial spline input design for LPV motion systems. , 2008, , .		1
125	Pushing motion control systems to their limits using convex optimization techniques. , 2010, , .		1
126	Teleoperation in Presence of Uncertainties: a Constraint-Based Approach. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 385-392.	0.4	1

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127	Analysis of Optimal Control Problem Formulations in Skeletal Movement Predictions. Biosystems and Biorobotics, 2017, , 1269-1273.	0.3	1
128	An Optimization-Based Estimation and Adaptive Control Approach for Human-Robot Cooperation. Springer Tracts in Advanced Robotics, 2014, , 1-15.	0.4	1
129	Generating Reactive Approach Motions Towards Allowable Manifolds using Generalized Trajectories from Demonstrations. , 2020, , .		1
130	Special Issue on Integration Among Planning, Sensing, and Control. International Journal of Robotics Research, 1995, 14, 405-406.	8.5	0
131	Surface shape recovery with a force-controlled robot. Advanced Robotics, 1996, 11, 413-427.	1.8	0
132	Virtual Decomposition Based Adaptive Control for Robot Manipulators: Theory and Experiments. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 1997, 30, 227-233.	0.4	0
133	Optimal Selection Procedure for Induction Motor Based Servo Drives. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 1998, 31, 327-333.	0.4	0
134	Random execution of a set of contacts to solve the grasping and contact uncertainties in robotic tasks. Robotica, 2001, 19, 199-207.	1.9	0
135	An application of constraint-based task specification and estimation for sensor-based robot systems. , 2007, , .		0
136	Dynamically optimal polynomial splines for flexible servo-systems: Experimental results. , 2008, , .		0
137	Optimal performance trade-offs in repetitive control: Experimental validation on an active air bearing setup. , 2009, , .		0
138	Constraint-Based Task Specification and Control for Visual Servoing Application Scenarios. Automatisierungstechnik, 2012, 60, 260-269.	0.8	0
139	Optimal robot path following for minimal time versus energy loss trade-off using sequential convex programming. , 2013, , .		0
140	Rigid body pose and twist scene graph founded on geometric relations semantics for robotic applications. , 2013, , .		0
141	A good attitude towards improved space telescope observations. Proceedings of SPIE, 2014, , .	0.8	0
142	Virtual Motor Torque Sensing for Multirotor Propulsion Systems. IEEE Robotics and Automation Letters, 2021, 6, 4149-4155.	5.1	0
143	Modelling of Second Order Polynomial Surface Contacts for Programming by Human Demonstration. Lecture Notes in Control and Information Sciences, 2007, , 269-282.	1.0	0
144	Adaptive Full Scan Model for Range Finders in Dynamic Environments. Springer Tracts in Advanced Robotics, 2009, , 441-450.	0.4	0

#	ARTICLE	IF	CITATIONS
145	A Model of Human Non-stepping Postural Responses as the Basis for a Biomimetic Control Strategy for Robot-Assisted Balance. Biosystems and Biorobotics, 2017, , 621-625.	0.3	0