

Thomas B Schön

List of Publications by Year in descending order

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148
papers

4,779
citations

218381

26
h-index

128067

60
g-index

154
all docs

154
docs citations

154
times ranked

3927
citing authors

#	ARTICLE	IF	CITATIONS
1	Data to Controller for Nonlinear Systems: An Approximate Solution. , 2022, 6, 1196-1201.		3
2	Nonlinear System Identification: Learning While Respecting Physical Models Using a Sequential Monte Carlo Method. IEEE Control Systems, 2022, 42, 75-102.	1.0	6
3	Efficient Learning of the Parameters of Non-Linear Models Using Differentiable Resampling in Particle Filters. IEEE Transactions on Signal Processing, 2022, 70, 3676-3692.	3.2	5
4	Deep State Space Models for Nonlinear System Identification. IFAC-PapersOnLine, 2021, 54, 481-486.	0.5	25
5	Nonlinear System Identification Using Particle Filters. , 2021, , 1483-1492.		0
6	Deep Energy-Based NARX Models. IFAC-PapersOnLine, 2021, 54, 505-510.	0.5	5
7	Learning a Deformable Registration Pyramid. Lecture Notes in Computer Science, 2021, , 80-86.	1.0	6
8	Universal probabilistic programming offers a powerful approach to statistical phylogenetics. Communications Biology, 2021, 4, 244.	2.0	11
9	Stochastic quasi-Newton with line-search regularisation. Automatica, 2021, 127, 109503.	3.0	9
10	Deep neural network-estimated electrocardiographic age as a mortality predictor. Nature Communications, 2021, 12, 5117.	5.8	77
11	Quantifying the Uncertainty of the Relative Geometry in Inertial Sensors Arrays. IEEE Sensors Journal, 2021, 21, 19362-19373.	2.4	0
12	Beyond Occam's Razor in System Identification: Double-Descent when Modeling Dynamics. IFAC-PapersOnLine, 2021, 54, 97-102.	0.5	5
13	Variational State and Parameter Estimation. IFAC-PapersOnLine, 2021, 54, 732-737.	0.5	5
14	Gaussian Variational State Estimation for Nonlinear State-Space Models. IEEE Transactions on Signal Processing, 2021, 69, 5979-5993.	3.2	3
15	First Steps Towards Self-Supervised Pretraining of the 12-Lead ECG. , 2021, , .		5
16	Smoothing With Couplings of Conditional Particle Filters. Journal of the American Statistical Association, 2020, 115, 721-729.	1.8	20
17	Learning Robust LQ-Controllers Using Application Oriented Exploration. , 2020, 4, 19-24.		19
18	Nonlinear Input Design as Optimal Control of a Hamiltonian System. , 2020, 4, 85-90.		4

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19	On the smoothness of nonlinear system identification. Automatica, 2020, 121, 109158.	3.0	21
20	Particle Filter with Rejection Control and Unbiased Estimator of the Marginal Likelihood. , 2020, , .		0
21	The effect of interventions on COVID-19. Nature, 2020, 588, E26-E28.	13.7	97
22	Automatic diagnosis of the 12-lead ECG using a deep neural network. Nature Communications, 2020, 11, 1760.	5.8	351
23	Deep Learning and System Identification. IFAC-PapersOnLine, 2020, 53, 1175-1181.	0.5	82
24	Direct Transmittance Estimation in Heterogeneous Participating Media Using Approximated Taylor Expansions. IEEE Transactions on Visualization and Computer Graphics, 2020, PP, 1-1.	2.9	2
25	Nonlinear System Identification Using Particle Filters. , 2020, , 1-10.		1
26	A fast quasi-Newton-type method for large-scale stochastic optimisation. IFAC-PapersOnLine, 2020, 53, 1249-1254.	0.5	4
27	High-Dimensional Filtering Using Nested Sequential Monte Carlo. IEEE Transactions on Signal Processing, 2019, 67, 4177-4188.	3.2	13
28	Data Consistency Approach to Model Validation. IEEE Access, 2019, 7, 59788-59796.	2.6	4
29	Deep Convolutional Networks in System Identification. , 2019, , .		29
30	A Fast and Robust Algorithm for Orientation Estimation Using Inertial Sensors. IEEE Signal Processing Letters, 2019, 26, 1673-1677.	2.1	25
31	Elements of Sequential Monte Carlo. Foundations and Trends in Machine Learning, 2019, 12, 187-306.	46.6	16
32	Optimal controller/observer gains of discounted-cost LQG systems. Automatica, 2019, 101, 471-474.	3.0	5
33	On model order priors for Bayesian identification of SISO linear systems. International Journal of Control, 2019, 92, 1645-1661.	1.2	0
34	Getting Started with Particle Metropolis-Hastings for Inference in Nonlinear Dynamical Models. Journal of Statistical Software, 2019, 88, .	1.8	9
35	Learning of state-space models with highly informative observations: A tempered sequential Monte Carlo solution. Mechanical Systems and Signal Processing, 2018, 104, 915-928.	4.4	8
36	Probabilistic learning of nonlinear dynamical systems using sequential Monte Carlo. Mechanical Systems and Signal Processing, 2018, 104, 866-883.	4.4	22

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37	Data-Driven Impulse Response Regularization via Deep Learning. IFAC-PapersOnLine, 2018, 51, 1-6.	0.5	3
38	How consistent is my model with the data? Information-Theoretic Model Check. IFAC-PapersOnLine, 2018, 51, 407-412.	0.5	0
39	Learning Nonlinear State-Space Models Using Smooth Particle-Filter-Based Likelihood Approximations. IFAC-PapersOnLine, 2018, 51, 652-657.	0.5	2
40	Automated learning with a probabilistic programming language: Birch. Annual Reviews in Control, 2018, 46, 29-43.	4.4	27
41	Probabilistic modelling and reconstruction of strain. Nuclear Instruments & Methods in Physics Research B, 2018, 436, 141-155.	0.6	26
42	Regularized parametric system identification: a decision-theoretic formulation. , 2018, , .		1
43	Maximum likelihood identification of stable linear dynamical systems. Automatica, 2018, 96, 280-292.	3.0	25
44	Modeling and Interpolation of the Ambient Magnetic Field by Gaussian Processes. IEEE Transactions on Robotics, 2018, 34, 1112-1127.	7.3	68
45	Auxiliary-Particle-Filter-Based Two-Filter Smoothing for Wiener State-Space Models. , 2018, , .		2
46	On robust input design for nonlinear dynamical models. Automatica, 2017, 77, 268-278.	3.0	4
47	A flexible state-space model for learning nonlinear dynamical systems. Automatica, 2017, 80, 189-199.	3.0	70
48	System identification through online sparse Gaussian process regression with input noise. IFAC Journal of Systems and Control, 2017, 2, 1-11.	1.1	23
49	Divide-and-Conquer With Sequential Monte Carlo. Journal of Computational and Graphical Statistics, 2017, 26, 445-458.	0.9	17
50	Smoothed State Estimation via Efficient Solution of Linear Equations. IFAC-PapersOnLine, 2017, 50, 1613-1618.	0.5	0
51	Using Inertial Sensors for Position and Orientation Estimation. Foundations and Trends in Signal Processing, 2017, 11, 1-153.	12.0	226
52	On the construction of probabilistic Newton-type algorithms. , 2017, , .		5
53	Particle-based Gaussian process optimization for input design in nonlinear dynamical models. , 2016, , .		0
54	Mean and variance of the LQG cost function. Automatica, 2016, 67, 216-223.	3.0	4

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55	Accelerometer calibration using sensor fusion with a gyroscope. , 2016, , .		13
56	Magnetometer Calibration Using Inertial Sensors. IEEE Sensors Journal, 2016, 16, 5679-5689.	2.4	121
57	Using Convolution to Estimate the Score Function for Intractable State-Transition Models. IEEE Signal Processing Letters, 2016, 23, 498-501.	2.1	1
58	Rao-Blackwellized Particle Smoothers for Conditionally Linear Gaussian Models. IEEE Journal on Selected Topics in Signal Processing, 2016, 10, 353-365.	7.3	24
59	Particle filtering based identification for autonomous nonlinear ODE models**This work was supported by the project Probabilistic modeling of dynamical systems (Contract number: 621-2013-5524) funded by the Swedish Research Council. (*) are members of the LCCC Linnaeus Center and the ELLIIT Excellence Center at Lund University. IFAC-PapersOnLine, 2015, 48, 415-420.	0.5	3
60	Newton-based maximum likelihood estimation in nonlinear state space models**E-mail address to corresponding author: manon.kok@liu.se. This work is supported by CADICS, a Linnaeus Center, and by the project Probabilistic modeling of dynamical systems (Contract number: 621-2013-5524), both funded by the Swedish Research Council (VR).. IFAC-PapersOnLine, 2015, 48, 398-403.	0.5	6
61	On Identification via EM with Latent Disturbances and Lagrangian Relaxation**This work was supported by the Australian Research Council (DP130100551), and the Swedish Research Council (VR) as part of the project: Probabilistic modeling of dynamical systems (Contract number: 621-2013-5524).. IFAC-PapersOnLine, 2015, 48, 69-74.	0.5	3
62	Marginalizing Gaussian process hyperparameters using sequential Monte Carlo. , 2015, , .		9
63	Online sparse Gaussian process regression using FITC and PITC approximations**This research is supported by the Dutch Technology Foundation STW, which is part of the Netherlands Organisation for Scientific Research (NWO), and which is partly funded by the Ministry of Economic Affairs. The work was also supported by the Swedish research Council (VR) via the project Probabilistic modeling of dynamical systems (Contract number: 621-2013-5524). IFAC-PapersOnLine, 2015, 48, 703-708.	0.5	19
64	Bayesian nonparametric identification of piecewise affine ARX systems**This work was supported by the projects: Learning of complex dynamical systems (Contract number: 637-2014-466) and Probabilistic modeling of dynamical systems (Contract number: 621-2013-5524), both funded by the Swedish Research Council.. IFAC-PapersOnLine, 2015, 48, 709-714.	0.5	4
65	Quasi-Newton particle Metropolis-Hastings**E-mail address to corresponding author: johan.dahlin@liu.se. This work was supported by: Learning of complex dynamical systems (Contract) Tj ETQq1 1 0.784314 rgBT /Overl CADICS, a Linnaeus Center, all funded by the Swedish Research Council.. IFAC-PapersOnLine, 2015, 48, 681-686.	0.5	6
66	Sequential Monte Carlo Methods for System Identification**This work was supported by the projects Learning of complex dynamical systems (Contract number: 637-2014-466) and Probabilistic modeling of dynamical systems (Contract number: 621-2013-5524), both funded by the Swedish Research Council.. IFAC-PapersOnLine, 2015, 48, 775-786.	0.5	28
67	Nonlinear State Space Smoothing Using the Conditional Particle Filter**This work was supported by the project Probabilistic modelling of dynamical systems (Contract number: 621-2013-5524) and CADICS, a Linnaeus Center, both funded by the Swedish Research Council (VR).. IFAC-PapersOnLine, 2015, 48, 975-980.	0.5	5
68	Nonlinear state space model identification using a regularized basis function expansion. , 2015, , .		5
69	Indoor Positioning Using Ultrawideband and Inertial Measurements. IEEE Transactions on Vehicular Technology, 2015, 64, 1293-1303.	3.9	149
70	On the Exponential Convergence of the Kaczmarz Algorithm. IEEE Signal Processing Letters, 2015, 22, 1571-1574.	2.1	8
71	Learning deep dynamical models from image pixels. IFAC-PapersOnLine, 2015, 48, 1059-1064.	0.5	30
72	Pseudo-marginal metropolis light transport. , 2015, , .		2

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73	Particle Metropolisâ€“Hastings using gradient and Hessian information. <i>Statistics and Computing</i> , 2015, 25, 81-92.	0.8	22
74	A New Structure Exploiting Derivation of Recursive Direct Weight Optimization. <i>IEEE Transactions on Automatic Control</i> , 2015, 60, 1683-1685.	3.6	0
75	Capacity estimation of two-dimensional channels using Sequential Monte Carlo. , 2014, , .		1
76	Robust auxiliary particle filters using multiple importance sampling. , 2014, , .		9
77	Detecting and positioning overtaking vehicles using 1D optical flow. , 2014, , .		13
78	Backward sequential Monte Carlo for marginal smoothing. , 2014, , .		3
79	Maximum likelihood calibration of a magnetometer using inertial sensors. <i>IFAC Postprint Volumes IPPV / International Federation of Automatic Control</i> , 2014, 47, 92-97.	0.4	27
80	Identification of Gaussian Process State-Space Models with Particle Stochastic Approximation EM. <i>IFAC Postprint Volumes IPPV / International Federation of Automatic Control</i> , 2014, 47, 4097-4102.	0.4	13
81	Second-order particle MCMC for Bayesian parameter inference. <i>IFAC Postprint Volumes IPPV / International Federation of Automatic Control</i> , 2014, 47, 8656-8661.	0.4	6
82	A graph/particle-based method for experiment design in nonlinear systems. <i>IFAC Postprint Volumes IPPV / International Federation of Automatic Control</i> , 2014, 47, 1404-1409.	0.4	6
83	An optimization-based approach to human body motion capture using inertial sensors. <i>IFAC Postprint Volumes IPPV / International Federation of Automatic Control</i> , 2014, 47, 79-85.	0.4	92
84	Identification of jump Markov linear models using particle filters. , 2014, , .		14
85	Adaptive stopping for fast particle smoothing. , 2013, , .		18
86	Identification of Hammersteinâ€“Wiener models. <i>Automatica</i> , 2013, 49, 70-81.	3.0	232
87	Bayesian semiparametric Wiener system identification. <i>Automatica</i> , 2013, 49, 2053-2063.	3.0	55
88	MEMS-based inertial navigation based on a magnetic field map. , 2013, , .		11
89	Rao-Blackwellized particle smoothers for mixed linear/nonlinear state-space models. , 2013, , .		12
90	Particle metropolis hastings using Langevin dynamics. , 2013, , .		10

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91	Modeling magnetic fields using Gaussian processes. , 2013, , .		31
92	Backward Simulation Methods for Monte Carlo Statistical Inference. Foundations and Trends in Machine Learning, 2013, 6, 1-143.	46.6	86
93	On the use of backward simulation in the particle Gibbs sampler. , 2012, , .		22
94	A non-degenerate Rao-Blackwellised particle filter for estimating static parameters in dynamical models. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 1149-1154.	0.4	7
95	A semiparametric Bayesian approach to Wiener system identification*. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 1137-1142.	0.4	8
96	Parallel Implementation of Particle MCMC Methods on a GPU. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 1143-1148.	0.4	15
97	Estimation of Linear Systems using a Gibbs Sampler*. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 203-208.	0.4	20
98	Hierarchical Bayesian ARX models for robust inference. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 131-136.	0.4	9
99	Situational Awareness and Road Prediction for Trajectory Control Applications. , 2012, , 365-396.		4
100	Navigation and Tracking of Road-Bound Vehicles Using Map Support. , 2012, , 397-434.		9
101	A General Convergence Result for Particle Filtering. IEEE Transactions on Signal Processing, 2011, 59, 3424-3429.	3.2	45
102	Decentralized Particle Filter With Arbitrary State Decomposition. IEEE Transactions on Signal Processing, 2011, 59, 465-478.	3.2	32
103	Blind Identification of Wiener Models*. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2011, 44, 5597-5602.	0.4	13
104	Input Design for Nonlinear Stochastic Dynamic Systems – A Particle Filter Approach. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2011, 44, 13191-13196.	0.4	11
105	Vehicle Motion Estimation Using an Infrared Camera. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2011, 44, 12952-12957.	0.4	6
106	An explicit variance reduction expression for the Rao-Blackwellised particle filter. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2011, 44, 11979-11984.	0.4	12
107	A Nonlinear Least-Squares Approach to the SLAM Problem*. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2011, 44, 4759-4764.	0.4	5
108	Joint ego-motion and road geometry estimation. Information Fusion, 2011, 12, 253-263.	11.7	23

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109	System identification of nonlinear state-space models. Automatica, 2011, 47, 39-49.	3.0	432
110	Learning to close loops from range data. International Journal of Robotics Research, 2011, 30, 1728-1754.	5.8	57
111	Decentralization of particle filters using arbitrary state decomposition. , 2010, , .		1
112	Identification of mixed linear/nonlinear state-space models. , 2010, , .		5
113	Estimation of general nonlinear state-space systems. , 2010, , .		9
114	Estimating state-space models in innovations form using the expectation maximisation algorithm. , 2010, , .		9
115	Geo-referencing for UAV navigation using environmental classification. , 2010, , .		18
116	Modeling and Calibration of Inertial and Vision Sensors. International Journal of Robotics Research, 2010, 29, 231-244.	5.8	64
117	Learning to close the loop from 3D point clouds. , 2010, , .		15
118	Ultra-wideband calibration for indoor positioning. , 2010, , .		17
119	Torchlight Navigation. , 2010, , .		2
120	Experimental comparison of observers for tool position estimation of industrial robots. , 2009, , .		18
121	Particle Filter SLAM with High Dimensional Vehicle Model. Journal of Intelligent and Robotic Systems: Theory and Applications, 2009, 55, 249-266.	2.0	34
122	Ego-motion and indirect road geometry estimation using night vision. , 2009, , .		5
123	Tightly coupled UWB/IMU pose estimation. , 2009, , .		98
124	Tracking stationary extended objects for road mapping using radar measurements. , 2009, , .		16
125	Improved target tracking with road network information. , 2009, , .		11
126	The marginalized auxiliary particle filter. , 2009, , .		6

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127	Recursive Identification of Cornering Stiffness Parameters for an Enhanced Single Track Model. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2009, 42, 1726-1731.	0.4	25
128	A Basic Convergence Result for Particle Filtering. IEEE Transactions on Signal Processing, 2008, 56, 1337-1348.	3.2	108
129	Utilizing Model Structure for Efficient Simultaneous Localization and Mapping for a UAV Application. Aerospace Conference Proceedings IEEE, 2008, , .	0.0	16
130	Detecting spurious features using parity space. , 2008, , .		1
131	Relative pose calibration of a spherical camera and an IMU. , 2008, , .		13
132	Road geometry estimation and vehicle tracking using a single track model. , 2008, , .		11
133	A new algorithm for calibrating a combined camera and IMU sensor unit. , 2008, , .		8
134	Sensor Fusion for Augmented Reality. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2008, 41, 14100.	0.4	0
135	Parameter Estimation for Discrete-Time Nonlinear Systems Using EM. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2008, 41, 4012-4017.	0.4	21
136	A framework for simultaneous localization and mapping utilizing model structure. , 2007, , .		9
137	A robust particle filter for state estimation — with convergence results. , 2007, , .		2
138	Realtime Camera Tracking in the MATRIS Project. Smpte Motion Imaging Journal, 2007, 116, 266-271.	0.2	5
139	On parameter and state estimation for linear differentialâ€“algebraic equations. Automatica, 2007, 43, 416-425.	3.0	23
140	Robust real-time tracking by fusing measurements from inertial and vision sensors. Journal of Real-Time Image Processing, 2007, 2, 149-160.	2.2	46
141	State-of-the-Art for the Marginalized Particle Filter. , 2006, , .		1
142	On Resampling Algorithms for Particle Filters. , 2006, , .		236
143	MAXIMUM LIKELIHOOD NONLINEAR SYSTEM ESTIMATION. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2006, 39, 1003-1008.	0.4	21
144	INTEGRATED NAVIGATION OF CAMERAS FOR AUGMENTED REALITY. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2005, 38, 1119-1124.	0.4	6

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145	Marginalized particle filters for mixed linear/nonlinear state-space models. IEEE Transactions on Signal Processing, 2005, 53, 2279-2289.	3.2	476
146	Complexity analysis of the marginalized particle filter. IEEE Transactions on Signal Processing, 2005, 53, 4408-4411.	3.2	133
147	The marginalized particle filter for automotive tracking applications. , 2005, , .		13
148	Estimation of the Free Space in Front of a Moving Vehicle. , 0, , .		11