Simo SÃ¤rkkÃ¤

List of Publications by Year
in descending order

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101	4,170	346980 22	214428 50
papers	citations	h-index	g-index

108	108	108	3511
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Sensors and AI Techniques for Situational Awareness in Autonomous Ships: A Review. IEEE Transactions on Intelligent Transportation Systems, 2022, 23, 64-83.	4.7	69
2	Autonomous Tracking and State Estimation With Generalized Group Lasso. IEEE Transactions on Cybernetics, 2022, 52, 12056-12070.	6.2	4
3	Non-Linear Gaussian Smoothing With Taylor Moment Expansion. IEEE Signal Processing Letters, 2022, 29, 80-84.	2.1	0
4	Guest Editorial: MLSP 2020 Special Issue. Journal of Signal Processing Systems, 2022, 94, 1-2.	1.4	0
5	Temporal Parallelization of Bayesian Smoothers. IEEE Transactions on Automatic Control, 2021, 66, 299-306.	3.6	10
6	Improved Calibration of Numerical Integration Error in Sigma-Point Filters. IEEE Transactions on Automatic Control, 2021, 66, 1286-1292.	3.6	3
7	Kernel-based interpolation at approximate Fekete points. Numerical Algorithms, 2021, 87, 445-468.	1.1	1
8	Use of Gaussian Processes in System Identification. , 2021, , 2393-2402.		1
9	Temporal Parallelization of Inference in Hidden Markov Models. IEEE Transactions on Signal Processing, 2021, 69, 4875-4887.	3.2	4
10	Bayesian ODE solvers: the maximum a posteriori estimate. Statistics and Computing, 2021, 31, 1.	0.8	11
11	Kalman filtering with empirical noise models. , 2021, , .		2
12	Parallel Iterated Extended and Sigma-Point Kalman Smoothers. , 2021, , .		2
13	Nationwide infection control strategy lowered seasonal respiratory infection rate: occupational health care perspective during the COVID-19 epidemic in Finland. Infectious Diseases, 2021, 53, 839-846.	1.4	10
14	Deep state-space Gaussian processes. Statistics and Computing, 2021, 31, 1.	0.8	7
15	Taylor Moment Expansion for Continuous-Discrete Gaussian Filtering. IEEE Transactions on Automatic Control, 2021, 66, 4460-4467.	3.6	8
16	Augmented Sigma-Point Lagrangian Splitting Method for Sparse Nonlinear State Estimation. , 2021, , .		1
17	Non-stationary multi-layered Gaussian priors for Bayesian inversion. Inverse Problems, 2021, 37, 015002.	1.0	4
18	RSS Models for Respiration Rate Monitoring. IEEE Transactions on Mobile Computing, 2020, 19, 680-696.	3.9	12

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19	Hilbert space methods for reduced-rank Gaussian process regression. Statistics and Computing, 2020, 30, 419-446.	0.8	72
20	Enhancing industrial X-ray tomography by data-centric statistical methods. Data-Centric Engineering, 2020, 1, .	1.2	5
21	On Stability of a Class of Filters for Nonlinear Stochastic Systems. SIAM Journal on Control and Optimization, 2020, 58, 2023-2049.	1.1	13
22	Variable Splitting Methods for Constrained State Estimation in Partially Observed Markov Processes. IEEE Signal Processing Letters, 2020, 27, 1305-1309.	2.1	2
23	Kalman-based Spectro-Temporal ECG Analysis using Deep Convolutional Networks for Atrial Fibrillation Detection. Journal of Signal Processing Systems, 2020, 92, 621-636.	1.4	17
24	State-Space Gaussian Process for Drift Estimation in Stochastic Differential Equations. , 2020, , .		3
25	Worst-case optimal approximation with increasingly flat Gaussian kernels. Advances in Computational Mathematics, 2020, 46, 1.	0.8	4
26	Machine Learning Methods for Neonatal Mortality and Morbidity Classification. IEEE Access, 2020, 8, 123347-123358.	2.6	30
27	Levenberg-Marquardt and Line-Search Extended Kalman Smoothers. , 2020, , .		8
28	Importance Densities for Particle Filtering Using Iterated Conditional Expectations. IEEE Signal Processing Letters, 2020, 27, 211-215.	2.1	5
29	Gaussian kernel quadrature at scaled Gaussâ€“Hermite nodes. BIT Numerical Mathematics, 2019, 59, 877-902.	1.0	7
30	Probabilistic approach to limited-data computed tomography reconstruction. Inverse Problems, 2019, 35, 105004.	1.0	12
31	On the positivity and magnitudes of Bayesian quadrature weights. Statistics and Computing, 2019, 29, 1317-1333.	0.8	7
32	Probabilistic solutions to ordinary differential equations as nonlinear Bayesian filtering: a new perspective. Statistics and Computing, 2019, 29, 1297-1315.	0.8	21
33	Updates in Bayesian Filtering by Continuous Projections on a Manifold of Densities. , 2019, , .		2
34	Iterated Extended Kalman Smoother-Based Variable Splitting for L_1-Regularized State Estimation. IEEE Transactions on Signal Processing, 2019, 67, 5078-5092.	3.2	11
35	Symmetry exploits for Bayesian cubature methods. Statistics and Computing, 2019, 29, 1231-1248.	0.8	3
36	Iterative statistical linear regression for Gaussian smoothing in continuous-time non-linear stochastic dynamic systems. Signal Processing, 2019, 159, 1-12.	2.1	4

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37	Some Background on Ordinary Differential Equations. , 2019, , 4-22.		0
38	Pragmatic Introduction to Stochastic Differential Equations. , 2019, , 23-41.		0
39	ItÃ´ Calculus and Stochastic Differential Equations. , 2019, , 42-58.		0
40	Probability Distributions and Statistics of SDEs. , 2019, , 59-76.		0
41	Statistics of Linear Stochastic Differential Equations. , 2019, , 77-97.		0
42	Useful Theorems and Formulas for SDEs. , 2019, , 98-125.		0
43	Numerical Simulation of SDEs. , 2019, , 126-164.		0
44	Approximation of Nonlinear SDEs. , 2019, , 165-196.		0
45	Filtering and Smoothing Theory. , 2019, , 197-233.		0
46	Parameter Estimation in SDE Models. , 2019, , 234-250.		0
47	Stochastic Differential Equations in Machine Learning. , 2019, , 251-276.		0
48	Gaussian Process Classification Using Posterior Linearization. IEEE Signal Processing Letters, 2019, 26, 735-739.	2.1	5
49	Gaussian Target Tracking With Direction-of-Arrival von Misesâ€“Fisher Measurements. IEEE Transactions on Signal Processing, 2019, 67, 2960-2972.	3.2	12
50	Rao-Blackwellized Posterior Linearization Backward SLAM. IEEE Transactions on Vehicular Technology, 2019, 68, 4734-4747.	3.9	7
51	Numerical integration as a finite matrix approximation to multiplication operator. Journal of Computational and Applied Mathematics, 2019, 353, 283-291.	1.1	2
52	Student's <inline-formula> <tex-math notation="LaTeX">t</tex-math> </inline-formula>-Filters for Noise Scale Estimation. IEEE Signal Processing Letters, 2019, 26, 352-356.	2.1	12
53	Hilbert-Space Reduced-Rank Methods For Deep Gaussian Processes. , 2019, , .		3
54	Asymptotics of Maximum Likelihood Parameter Estimates For Gaussian Processes: The Ornsteinâ€“Uhlenbeck Prior. , 2019, , .		2

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55	Rejection-Sampling-Based Ancestor Sampling for Particle Gibbs. , 2019, , .		0
56	Gaussian Process Latent Force Models for Learning and Stochastic Control of Physical Systems. IEEE Transactions on Automatic Control, 2019, 64, 2953-2960.	3.6	29
57	Raoâ€“Blackwellized Gaussian Smoothing. IEEE Transactions on Automatic Control, 2019, 64, 305-312.	3.6	10
58	A probabilistic model for the numerical solution of initial value problems. Statistics and Computing, 2019, 29, 99-122.	0.8	25
59	The Use of Gaussian Processes in System Identification. , 2019, , 1-10.		3
60	Iterative Filtering and Smoothing in Nonlinear and Non-Gaussian Systems Using Conditional Moments. IEEE Signal Processing Letters, 2018, 25, 408-412.	2.1	46
61	Sparse Approximations of Fractional MatÃ©rn Fields. Scandinavian Journal of Statistics, 2018, 45, 194-216.	0.9	5
62	Cooperative Localization Using Posterior Linearization Belief Propagation. IEEE Transactions on Vehicular Technology, 2018, 67, 832-836.	3.9	39
63	Combined Analysis-L1 and Total Variation ADMM with Applications to MEG Brain Imaging and Signal Reconstruction. , 2018, , .		4
64	Motion Artifact Reduction in Ambulatory Electrocardiography Using Inertial Measurement Units and Kalman Filtering. , 2018, , .		6
65	MIXTURE REPRESENTATION OF THE MATÃ‰RN CLASS WITH APPLICATIONS IN STATE SPACE APPROXIMATIONS AND BAYESIAN QUADRATURE. , 2018, , .		2
66	SPECTRO-TEMPORAL ECG ANALYSIS FOR ATRIAL FIBRILLATION DETECTION. , 2018, , .		12
67	Non-Linear Continuous-Discrete Smoothing by Basis Function Expansions of Brownian Motion. , 2018, , .		0
68	Modeling and Interpolation of the Ambient Magnetic Field by Gaussian Processes. IEEE Transactions on Robotics, 2018, 34, 1112-1127.	7.3	68
69	Student-t process quadratures for filtering of non-linear systems with heavy-tailed noise. , 2017, , .		4
70	Statistical analysis of differential equations: introducing probability measures on numerical solutions. Statistics and Computing, 2017, 27, 1065-1082.	0.8	43
71	Iterated Posterior Linearization Smoother. IEEE Transactions on Automatic Control, 2017, 62, 2056-2063.	3.6	45
72	Detecting malignant ventricular arrhythmias in electrocardiograms by Gaussian process classification. , 2017, , .		1

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73	Prediction of major complications affecting very low birth weight infants. , 2017, , .		1
74	A linear stochastic state space model for electrocardiograms. , 2017, , .		1
75	Parallelizable sparse inverse formulation Gaussian processes (SpInGP). , 2017, , .		9
76	Rao-Blackwellized particle mcmc for parameter estimation in spatio-temporal Gaussian processes. , 2017, , .		2
77	Classical quadrature rules via Gaussian processes. , 2017, , .		7
78	Terrain navigation in the magnetic landscape: Particle filtering for indoor positioning. , 2016, , .		28
79	IMU and magnetometer modeling for smartphone-based PDR. , 2016, , .		12
80	On the L<inf>P</inf>-convergence of a Girsanov theorem based particle filter. , 2016, , .		1
81	Rao-Blackwellized Particle Smoothers for Conditionally Linear Gaussian Models. IEEE Journal on Selected Topics in Signal Processing, 2016, 10, 353-365.	7.3	24
82	Batch nonlinear continuous-time trajectory estimation as exactly sparse Gaussian process regression. Autonomous Robots, 2015, 39, 221-238.	3.2	56
83	Pedestrian localization in moving platforms using dead reckoning, particle filtering and map matching. , 2015, , .		6
84	Posterior Linearization Filter: Principles and Implementation Using Sigma Points. IEEE Transactions on Signal Processing, 2015, 63, 5561-5573.	3.2	109
85	The 10th annual MLSP competition: First place. , 2014, , .		4
86	On convergence and accuracy of state-space approximations of squared exponential covariance functions. , 2014, , .		14
87	Gaussian quadratures for state space approximation of scale mixtures of squared exponential covariance functions. , 2014, , .		7
88	Series Expansion Approximations of Brownian Motion for Non-Linear Kalman Filtering of Diffusion Processes. IEEE Transactions on Signal Processing, 2014, 62, 1514-1524.	3.2	22
89	Parameter estimation in stochastic differential equations with Markov chain Monte Carlo and non-linear Kalman filtering. Computational Statistics, 2013, 28, 1195-1223.	0.8	59
90	Spatiotemporal Learning via Infinite-Dimensional Bayesian Filtering and Smoothing: A Look at Gaussian Process Regression Through Kalman Filtering. IEEE Signal Processing Magazine, 2013, 30, 51-61.	4.6	168

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91	Gaussian filtering and smoothing for continuous-discrete dynamic systems. Signal Processing, 2013, 93, 500-510.	2.1	103
92	Infinite-dimensional Bayesian filtering for detection of quasiperiodic phenomena in spatiotemporal data. Physical Review E, 2013, 88, 052909.	0.8	11
93	Recursive outlier-robust filtering and smoothing for nonlinear systems using the multivariate student-t distribution. , 2012, , .		93
94	Dynamic retrospective filtering of physiological noise in BOLD fMRI: DRIFTER. NeuroImage, 2012, 60, 1517-1527.	2.1	127
95	Kalman filtering and smoothing solutions to temporal Gaussian process regression models. , 2010, , .		112
96	Sigma point methods in optimal smoothing of non-linear stochastic state space models. , 2010, , .		1
97	On Gaussian Optimal Smoothing of Non-Linear State Space Models. IEEE Transactions on Automatic Control, 2010, 55, 1938-1941.	3.6	73
98	Recursive Noise Adaptive Kalman Filtering by Variational Bayesian Approximations. IEEE Transactions on Automatic Control, 2009, 54, 596-600.	3.6	488
99	Unscented Rauch–Tung–Striebel Smoother. IEEE Transactions on Automatic Control, 2008, 53, 845-849.	3.6	223
100	On Unscented Kalman Filtering for State Estimation of Continuous-Time Nonlinear Systems. IEEE Transactions on Automatic Control, 2007, 52, 1631-1641.	3.6	437
101	Batch Continuous-Time Trajectory Estimation as Exactly Sparse Gaussian Process Regression. , 0, , .		64