# Simo SÃ¤rkkÃ¤

## List of Publications by Year
## in descending order

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|---|---|---|---|
| 101 papers | 4,170 citations | 304743 22 h-index | 189892 50 g-index |
| 108 all docs | 108 docs citations | 108 times ranked | 3131 citing authors |

| # | Article | IF | Citations |
|---|---------|-----|-----------|
| 1 | Recursive Noise Adaptive Kalman Filtering by Variational Bayesian Approximations. IEEE Transactions on Automatic Control, 2009, 54, 596-600. | 5.7 | 488 |
| 2 | On Unscented Kalman Filtering for State Estimation of Continuous-Time Nonlinear Systems. IEEE Transactions on Automatic Control, 2007, 52, 1631-1641. | 5.7 | 437 |
| 3 | Unscented Rauch--Tung--Striebel Smoother. IEEE Transactions on Automatic Control, 2008, 53, 845-849. | 5.7 | 223 |
| 4 | 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. | 5.6 | 168 |
| 5 | Dynamic retrospective filtering of physiological noise in BOLD fMRI: DRIFTER. NeuroImage, 2012, 60, 1517-1527. | 4.2 | 127 |
| 6 | Kalman filtering and smoothing solutions to temporal Gaussian process regression models. , 2010, , . | | 112 |
| 7 | Posterior Linearization Filter: Principles and Implementation Using Sigma Points. IEEE Transactions on Signal Processing, 2015, 63, 5561-5573. | 5.3 | 109 |
| 8 | Gaussian filtering and smoothing for continuous-discrete dynamic systems. Signal Processing, 2013, 93, 500-510. | 3.7 | 103 |
| 9 | Recursive outlier-robust filtering and smoothing for nonlinear systems using the multivariate student-t distribution. , 2012, , . | | 93 |
| 10 | On Gaussian Optimal Smoothing of Non-Linear State Space Models. IEEE Transactions on Automatic Control, 2010, 55, 1938-1941. | 5.7 | 73 |
| 11 | Hilbert space methods for reduced-rank Gaussian process regression. Statistics and Computing, 2020, 30, 419-446. | 1.5 | 72 |
| 12 | Sensors and AI Techniques for Situational Awareness in Autonomous Ships: A Review. IEEE Transactions on Intelligent Transportation Systems, 2022, 23, 64-83. | 8.0 | 69 |
| 13 | Modeling and Interpolation of the Ambient Magnetic Field by Gaussian Processes. IEEE Transactions on Robotics, 2018, 34, 1112-1127. | 10.3 | 68 |
| 14 | Batch Continuous-Time Trajectory Estimation as Exactly Sparse Gaussian Process Regression. , 0, , . | | 64 |
| 15 | Parameter estimation in stochastic differential equations with Markov chain Monte Carlo and non-linear Kalman filtering. Computational Statistics, 2013, 28, 1195-1223. | 1.5 | 59 |
| 16 | Batch nonlinear continuous-time trajectory estimation as exactly sparse Gaussian process regression. Autonomous Robots, 2015, 39, 221-238. | 4.8 | 56 |
| 17 | Iterative Filtering and Smoothing in Nonlinear and Non-Gaussian Systems Using Conditional Moments. IEEE Signal Processing Letters, 2018, 25, 408-412. | 3.6 | 46 |
| 18 | Iterated Posterior Linearization Smoother. IEEE Transactions on Automatic Control, 2017, 62, 2056-2063. | 5.7 | 45 |

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|---|---------|-----|-----------|
| 19 | Statistical analysis of differential equations: introducing probability measures on numerical solutions. Statistics and Computing, 2017, 27, 1065-1082. | 1.5 | 43 |
| 20 | Cooperative Localization Using Posterior Linearization Belief Propagation. IEEE Transactions on Vehicular Technology, 2018, 67, 832-836. | 6.3 | 39 |
| 21 | Machine Learning Methods for Neonatal Mortality and Morbidity Classification. IEEE Access, 2020, 8, 123347-123358. | 4.2 | 30 |
| 22 | Gaussian Process Latent Force Models for Learning and Stochastic Control of Physical Systems. IEEE Transactions on Automatic Control, 2019, 64, 2953-2960. | 5.7 | 29 |
| 23 | Terrain navigation in the magnetic landscape: Particle filtering for indoor positioning. , 2016, , . | | 28 |
| 24 | A probabilistic model for the numerical solution of initial value problems. Statistics and Computing, 2019, 29, 99-122. | 1.5 | 25 |
| 25 | Rao-Blackwellized Particle Smoothers for Conditionally Linear Gaussian Models. IEEE Journal on Selected Topics in Signal Processing, 2016, 10, 353-365. | 10.8 | 24 |
| 26 | Series Expansion Approximations of Brownian Motion for Non-Linear Kalman Filtering of Diffusion Processes. IEEE Transactions on Signal Processing, 2014, 62, 1514-1524. | 5.3 | 22 |
| 27 | Probabilistic solutions to ordinary differential equations as nonlinear Bayesian filtering: a new perspective. Statistics and Computing, 2019, 29, 1297-1315. | 1.5 | 21 |
| 28 | Kalman-based Spectro-Temporal ECG Analysis using Deep Convolutional Networks for Atrial Fibrillation Detection. Journal of Signal Processing Systems, 2020, 92, 621-636. | 2.1 | 17 |
| 29 | On convergence and accuracy of state-space approximations of squared exponential covariance functions. , 2014, , . | | 14 |
| 30 | On Stability of a Class of Filters for Nonlinear Stochastic Systems. SIAM Journal on Control and Optimization, 2020, 58, 2023-2049. | 2.1 | 13 |
| 31 | IMU and magnetometer modeling for smartphone-based PDR. , 2016, , . | | 12 |
| 32 | SPECTRO-TEMPORAL ECG ANALYSIS FOR ATRIAL FIBRILLATION DETECTION. , 2018, , . | | 12 |
| 33 | Probabilistic approach to limited-data computed tomography reconstruction. Inverse Problems, 2019, 35, 105004. | 2.0 | 12 |
| 34 | Gaussian Target Tracking With Direction-of-Arrival von Mises–Fisher Measurements. IEEE Transactions on Signal Processing, 2019, 67, 2960-2972. | 5.3 | 12 |
| 35 | Student's &lt;inline-formula&gt; &lt;tex-math notation="LaTeX"&gt;$t$&lt;/tex-math&gt; &lt;/inline-formula&gt;-Filters for Noise Scale Estimation. IEEE Signal Processing Letters, 2019, 26, 352-356. | 3.6 | 12 |
| 36 | RSS Models for Respiration Rate Monitoring. IEEE Transactions on Mobile Computing, 2020, 19, 680-696. | 5.8 | 12 |

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|---|---------|-----|-----------|
| 37 | Infinite-dimensional Bayesian filtering for detection of quasiperiodic phenomena in spatiotemporal data. Physical Review E, 2013, 88, 052909. | 2.1 | 11 |
| 38 | Iterated Extended Kalman Smoother-Based Variable Splitting for $L_1$-Regularized State Estimation. IEEE Transactions on Signal Processing, 2019, 67, 5078-5092. | 5.3 | 11 |
| 39 | Bayesian ODE solvers: the maximum a posteriori estimate. Statistics and Computing, 2021, 31, 1. | 1.5 | 11 |
| 40 | Rao–Blackwellized Gaussian Smoothing. IEEE Transactions on Automatic Control, 2019, 64, 305-312. | 5.7 | 10 |
| 41 | Temporal Parallelization of Bayesian Smoothers. IEEE Transactions on Automatic Control, 2021, 66, 299-306. | 5.7 | 10 |
| 42 | 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. | 2.8 | 10 |
| 43 | Parallelizable sparse inverse formulation Gaussian processes (SpInGP). , 2017, , . | | 9 |
| 44 | Levenberg-Marquardt and Line-Search Extended Kalman Smoothers. , 2020, , . | | 8 |
| 45 | Taylor Moment Expansion for Continuous-Discrete Gaussian Filtering. IEEE Transactions on Automatic Control, 2021, 66, 4460-4467. | 5.7 | 8 |
| 46 | Gaussian quadratures for state space approximation of scale mixtures of squared exponential covariance functions. , 2014, , . | | 7 |
| 47 | Classical quadrature rules via Gaussian processes. , 2017, , . | | 7 |
| 48 | Gaussian kernel quadrature at scaled Gauss–Hermite nodes. BIT Numerical Mathematics, 2019, 59, 877-902. | 2.0 | 7 |
| 49 | On the positivity and magnitudes of Bayesian quadrature weights. Statistics and Computing, 2019, 29, 1317-1333. | 1.5 | 7 |
| 50 | Rao-Blackwellized Posterior Linearization Backward SLAM. IEEE Transactions on Vehicular Technology, 2019, 68, 4734-4747. | 6.3 | 7 |
| 51 | Deep state-space Gaussian processes. Statistics and Computing, 2021, 31, 1. | 1.5 | 7 |
| 52 | Pedestrian localization in moving platforms using dead reckoning, particle filtering and map matching. , 2015, , . | | 6 |
| 53 | Motion Artifact Reduction in Ambulatory Electrocardiography Using Inertial Measurement Units and Kalman Filtering. , 2018, , . | | 6 |
| 54 | Sparse Approximations of Fractional Matérn Fields. Scandinavian Journal of Statistics, 2018, 45, 194-216. | 1.4 | 5 |

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|---|---------|-----|-----------|
| 55 | Gaussian Process Classification Using Posterior Linearization. IEEE Signal Processing Letters, 2019, 26, 735-739. | 3.6 | 5 |
| 56 | Enhancing industrial X-ray tomography by data-centric statistical methods. Data-Centric Engineering, 2020, 1, . | 2.3 | 5 |
| 57 | Importance Densities for Particle Filtering Using Iterated Conditional Expectations. IEEE Signal Processing Letters, 2020, 27, 211-215. | 3.6 | 5 |
| 58 | The 10th annual MLSP competition: First place. , 2014, , . | | 4 |
| 59 | Student-t process quadratures for filtering of non-linear systems with heavy-tailed noise. , 2017, , . | | 4 |
| 60 | Combined Analysis-L1 and Total Variation ADMM with Applications to MEG Brain Imaging and Signal Reconstruction. , 2018, , . | | 4 |
| 61 | Iterative statistical linear regression for Gaussian smoothing in continuous-time non-linear stochastic dynamic systems. Signal Processing, 2019, 159, 1-12. | 3.7 | 4 |
| 62 | Worst-case optimal approximation with increasingly flat Gaussian kernels. Advances in Computational Mathematics, 2020, 46, 1. | 1.6 | 4 |
| 63 | Temporal Parallelization of Inference in Hidden Markov Models. IEEE Transactions on Signal Processing, 2021, 69, 4875-4887. | 5.3 | 4 |
| 64 | Autonomous Tracking and State Estimation With Generalized Group Lasso. IEEE Transactions on Cybernetics, 2022, 52, 12056-12070. | 9.5 | 4 |
| 65 | Non-stationary multi-layered Gaussian priors for Bayesian inversion. Inverse Problems, 2021, 37, 015002. | 2.0 | 4 |
| 66 | Symmetry exploits for Bayesian cubature methods. Statistics and Computing, 2019, 29, 1231-1248. | 1.5 | 3 |
| 67 | Hilbert-Space Reduced-Rank Methods For Deep Gaussian Processes. , 2019, , . | | 3 |
| 68 | State-Space Gaussian Process for Drift Estimation in Stochastic Differential Equations. , 2020, , . | | 3 |
| 69 | Improved Calibration of Numerical Integration Error in Sigma-Point Filters. IEEE Transactions on Automatic Control, 2021, 66, 1286-1292. | 5.7 | 3 |
| 70 | The Use of Gaussian Processes in System Identification. , 2019, , 1-10. | | 3 |
| 71 | Rao-Blackwellized particle mcmc for parameter estimation in spatio-temporal Gaussian processes. , 2017, , . | | 2 |
| 72 | MIXTURE REPRESENTATION OF THE MATÉRN CLASS WITH APPLICATIONS IN STATE SPACE APPROXIMATIONS AND BAYESIAN QUADRATURE. , 2018, , . | | 2 |

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| 73 | Updates in Bayesian Filtering by Continuous Projections on a Manifold of Densities. , 2019, , . | | 2 |
| 74 | Numerical integration as a finite matrix approximation to multiplication operator. Journal of Computational and Applied Mathematics, 2019, 353, 283-291. | 2.0 | 2 |
| 75 | Asymptotics of Maximum Likelihood Parameter Estimates For Gaussian Processes: The Ornstein–Uhlenbeck Prior. , 2019, , . | | 2 |
| 76 | Variable Splitting Methods for Constrained State Estimation in Partially Observed Markov Processes. IEEE Signal Processing Letters, 2020, 27, 1305-1309. | 3.6 | 2 |
| 77 | Kalman filtering with empirical noise models. , 2021, , . | | 2 |
| 78 | Parallel Iterated Extended and Sigma-Point Kalman Smoothers. , 2021, , . | | 2 |
| 79 | Sigma point methods in optimal smoothing of non-linear stochastic state space models. , 2010, , . | | 1 |
| 80 | On the L&lt;inf&gt;P&lt;/inf&gt;-convergence of a Girsanov theorem based particle filter. , 2016, , . | | 1 |
| 81 | Detecting malignant ventricular arrhythmias in electrocardiograms by Gaussian process classification. , 2017, , . | | 1 |
| 82 | Prediction of major complications affecting very low birth weight infants. , 2017, , . | | 1 |
| 83 | A linear stochastic state space model for electrocardiograms. , 2017, , . | | 1 |
| 84 | Kernel-based interpolation at approximate Fekete points. Numerical Algorithms, 2021, 87, 445-468. | 1.9 | 1 |
| 85 | Use of Gaussian Processes in System Identification. , 2021, , 2393-2402. | | 1 |
| 86 | Augmented Sigma-Point Lagrangian Splitting Method for Sparse Nonlinear State Estimation. , 2021, , . | | 1 |
| 87 | Non-Linear Continuous-Discrete Smoothing by Basis Function Expansions of Brownian Motion. , 2018, , . | | 0 |
| 88 | Some Background on Ordinary Differential Equations. , 2019, , 4-22. | | 0 |
| 89 | Pragmatic Introduction to Stochastic Differential Equations. , 2019, , 23-41. | | 0 |
| 90 | Itô Calculus and Stochastic Differential Equations. , 2019, , 42-58. | | 0 |

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|---|---------|----|-----------|
| 91 | Probability Distributions and Statistics of SDEs. , 2019, , 59-76. | | 0 |
| 92 | Statistics of Linear Stochastic Differential Equations. , 2019, , 77-97. | | 0 |
| 93 | Useful Theorems and Formulas for SDEs. , 2019, , 98-125. | | 0 |
| 94 | Numerical Simulation of SDEs. , 2019, , 126-164. | | 0 |
| 95 | Approximation of Nonlinear SDEs. , 2019, , 165-196. | | 0 |
| 96 | Filtering and Smoothing Theory. , 2019, , 197-233. | | 0 |
| 97 | Parameter Estimation in SDE Models. , 2019, , 234-250. | | 0 |
| 98 | Stochastic Differential Equations in Machine Learning. , 2019, , 251-276. | | 0 |
| 99 | Rejection-Sampling-Based Ancestor Sampling for Particle Gibbs. , 2019, , . | | 0 |
| 100 | Non-Linear Gaussian Smoothing With Taylor Moment Expansion. IEEE Signal Processing Letters, 2022, 29, 80-84. | 3.6 | 0 |
| 101 | Guest Editorial: MLSP 2020 Special Issue. Journal of Signal Processing Systems, 2022, 94, 1-2. | 2.1 | 0 |