

Publications, talks and grants

Johan Dahlin

Business-minded PhD passionate about data, algorithms and improving the world.

Publications

This section lists my peer-reviewed journal and conference contributions. Technical reports, working papers and theses are not listed and can be found at <http://papers.johandahlin.com/> together with pre-prints and code.

Journal contributions (peer-reviewed)

- [J3] **J. Dahlin** and T. B. Schön, *Getting started with particle Metropolis-Hastings for inference in nonlinear dynamical models*. arXiv:1511.01707, June 2017. (Accepted for Journal of Statistical Software)
- [J2] P. E. Valenzuela, **J. Dahlin**, C. R. Rojas and T. B. Schön, *On robust input design for nonlinear dynamical models*. *Automatica* 77:268-278, Elsevier, 2017.
- [J1] **J. Dahlin**, F. Lindsten and T. B. Schön, *Particle Metropolis-Hastings using gradient and Hessian information*. *Statistics and Computing* 25(1):81-92, Springer, 2015.

Conference contributions (peer-reviewed)

- [C18] M. Balenzuela, **J. Dahlin**, N. Bartlett, A. Wills, C. Renton and B. Ninness, *Accurate Gaussian mixture model smoothing using a two-filter approach*. Proceedings of the 57th IEEE Conference on Decision and Control, Miami Beach, FL, USA, December 2018.
- [C17] **J. Dahlin**, A. Wills and B. Ninness, *Constructing Metropolis-Hastings proposals using damped BFGS updates*. Proceedings of the 18th IFAC Symposium on System Identification (SYSID), Stockholm, Sweden, July 2018.
- [C16] **J. Dahlin**, A. Wills and B. Ninness, *Sparse Bayesian ARX models with flexible noise distributions*. Proceedings of the 18th IFAC Symposium on System Identification (SYSID), Stockholm, Sweden, July 2018.
- [C15] P. E. Valenzuela, **J. Dahlin**, C. R. Rojas and T. B. Schön, *Particle-based Gaussian process optimization for input design in nonlinear dynamical models*. Proceedings of the 55th Conference of Decision and Control (CDC), Las Vegas, USA, December 2016.
- [C14] A. Svensson, **J. Dahlin** and T. B. Schön, *Marginalizing Gaussian Process Hyperparameters using Sequential Monte Carlo*. Proceedings of the 6th IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP), Cancun, Mexico, December 2015.
- [C13] T. B. Schön, F. Lindsten, **J. Dahlin**, J. Wågberg, C. A. Naesseth, A. Svensson and L. Dai, *Sequential Monte Carlo Methods for System Identification*. Proceedings of the 17th IFAC Symposium on System Identification (SYSID), Beijing, China, October 2015.
- [C12] M. Kok, **J. Dahlin**, T. B. Schön and A. Wills, *Newton-based maximum likelihood estimation in nonlinear state space models*. Proceedings of the 17th IFAC Symposium on System Identification (SYSID), Beijing, China, October 2015.
- [C11] **J. Dahlin**, F. Lindsten and T. B. Schön, *Quasi-Newton particle Metropolis-Hastings*. Proceedings of the 17th IFAC Symposium on System Identification (SYSID), Beijing, China, October 2015.
- [C10] J. Kronander, **J. Dahlin**, D. Jönsson, M. Kok, T. B. Schön and J. Unger. *Real-time Video Based Lighting Using GPU Raytracing*. Proceedings of the 2014 European Signal Processing Conference (EUSIPCO), Lisbon, Portugal, September 2014.

- [C9] J. Kronander, T. B. Schön and **J. Dahlin**. *Backward sequential Monte Carlo for marginal smoothing*. Proceedings of the 2014 IEEE Statistical Signal Processing Workshop, Gold Coast, Australia, July 2014.
- [C8] D. Hultqvist, J. Roll, F. Svensson, **J. Dahlin** and T. B. Schön. *Detection and positioning of overtaking vehicles using 1D optical flow*. Proceedings of the IEEE Intelligent Vehicles (IV) Symposium, Dearborn, MI, USA, June 2014.
- [C7] **J. Dahlin**, F. Lindsten and T. B. Schön, *Second-order particle MCMC for Bayesian parameter inference*. Proceedings of the 19th World Congress of the International Federation of Automatic Control (IFAC), Cape Town, South Africa, August 2014.
- [C6] **J. Dahlin** and F. Lindsten, *Particle filter-based Gaussian process optimisation for parameter inference*. Proceedings of the 19th World Congress of the International Federation of Automatic Control (IFAC), Cape Town, South Africa, August 2014.
- [C5] P. E. Valenzuela, **J. Dahlin**, C. R. Rojas and T. B. Schön, *A graph/particle-based method for experiment design in nonlinear systems*. Proceedings of the 19th World Congress of the International Federation of Automatic Control (IFAC), Cape Town, South Africa, August 2014.
- [C4] **J. Dahlin**, F. Lindsten and T. B. Schön, *Particle Metropolis Hastings using Langevin Dynamics*. Proceedings of the 38th International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Vancouver, Canada, May 2013.
- [C3] **J. Dahlin**, F. Johansson, L. Kaati, C. Mårtensson and P. Svenson, *Combining Entity Matching Techniques for Detecting Extremist Behavior on Discussion Boards*. Proceedings of International Symposium on Foundation of Open Source Intelligence and Security Informatics 2012, Istanbul, Turkey, August 2012.
- [C2] **J. Dahlin**, F. Lindsten, T. B. Schön and A. Wills, *Hierarchical Bayesian approaches for robust inference in ARX models*. Proceedings of the 16th IFAC Symposium on System Identification (SYSID), Brussels, Belgium, July 2012.
- [C1] **J. Dahlin** and P. Svenson, *A Method for Community Detection in Uncertain Networks*. Proceedings of 2011 European Intelligence and Security Informatics Conference, Athens, Greece, August 2011.

Invited talks

This section summarises my invited talks at workshops, seminar series, etc. Presentations at conferences and internal seminars can be found at <http://talks.johandahlin.com/>.

- [P9] *An introduction to machine learning for dynamical models*. ABB Corporate Research, Västerås, Sweden, November 2018.
- [P8] *Machine learning - a software perspective*. Mechatronics seminar series at the University of Newcastle, Newcastle, Australia, August 2018.
- [P7] *Machine learning for medical applications*. Guest lecturer in Statistical Machine Learning, Uppsala University, Sweden, March 2017.
- [P6] *Particle Metropolis-Hastings for inference in non-linear state-space models*. Statistics seminar series at Örebro University School of Business, Örebro, Sweden, February 2017.
- [P5] *Particle Metropolis-Hastings for inference in non-linear state-space models*. European Research Network in System Identification (ERNSI) Workshop, Cison de Valmarino, Italy, September 2016.
- [P4] *Tutorial: Particle Metropolis-Hastings for Bayesian non-linear system identification*. Swedish National conference in Automatic Control (Reglermöte), Göteborg, Sweden, June 2016.
- [P3] *Gaussian process optimization for approximate Bayesian inference*. IDA Machine learning seminar series at Linköping University, Linköping, Sweden, April 2015.
- [P2] *Speeding up the particle Metropolis-Hastings algorithm for Bayesian parameter inference*. University of Newcastle, Newcastle, Australia, November 2014.
- [P1] *Detecting community structures in uncertain social networks*. Nordita Workshop – Applications of Network Theory: From Mechanisms to Large-Scale Structure, Stockholm, Sweden, March 2011.

Research grants

This section lists the research grants that I have applied for and been awarded.

- [G1] *Machine learning-based decision support system for radiology* (127,459 SEK), Vinnova (Sweden's innovation agency), September 2016.