

CURRICULUM VITAE OF FREDRIK LINDSTEN

PERSONAL DETAILS

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Work address

Div of Statistics and Machine Learning

Dept of Computer and Information Science

Linköping University

581 83 Linköping, Sweden

ACADEMIC DEGREES

- 2018** **Docent in Electrical Engineering with Specialization in Signal Processing**, Uppsala University, Uppsala, Sweden, May 2018.
- 2013** **Doctor of Philosophy (PhD) in Automatic Control**, Linköping University, Linköping, Sweden, October 2013.
- 2011** **Licentiate of Engineering in Automatic Control**, Linköping University, Linköping, Sweden, June 2011.
- 2008** **Master of Science in Applied Physics and Electrical Engineering**, Linköping University, Linköping, Sweden, December 2008.

PROFESSIONAL EXPERIENCE

- 2019–present** Associate Professor at the Div of Statistics and Machine Learning, Dept of Computer and Information Science, Linköping University, Sweden.
- 2016–2019** Senior Lecturer at the Div of Systems and Control, Dept of Information Technology, Uppsala University, Sweden.
- Spring 2015** Visiting Researcher at the Dept of Statistics (invited by Prof Arnaud Doucet), The University of Oxford, UK.
- 2014–2015** Postdoctoral Research Associate at the Signal Processing and Communications Laboratory, Dept of Engineering, The University of Cambridge, UK.
- Spring 2012** Visiting Student Researcher at the Statistical Artificial Intelligence Lab (invited by Prof Michael I. Jordan), Dept of EECS, University of California, Berkeley, CA, USA.
- 2009–2013** PhD student at the Div of Automatic Control, Dept of Electrical Engineering, Linköping University, Linköping, Sweden.
- Fall 2008** Master's thesis work, Saab Aerosystems, Linköping, Sweden.
- 2006–2007** Teaching assistant at the Div of Automatic Control, Dept of Electrical Engineering, Linköping University, Linköping, Sweden.

AWARDS

- 2017** Ingvar Carlsson Award, granted by the Swedish Foundation for Strategic Research (part of the research grant with the same name)
- 2017** Benzelius Award, granted by the Royal Society of Sciences in Uppsala, for: *“fundamental achievements in the intersection between signal processing, machine learning and computational statistics.”*
- 2014** ISIF Best Paper Award at the IET Conference on Data Fusion and Target Tracking, Liverpool, UK (Particle Filtering for Network-Based Positioning Terrestrial Radio Networks).
- 2012** CRiSM Young Academic Award, in connection with the workshop Recent Advances in Sequential Monte Carlo, University of Warwick, September 19–21.
- 2010** Swedish Radio Navigation Society Award for best Master’s Thesis (Angle-only based collision risk assessment for unmanned aerial vehicles).

GRANTS

Research grants: Main applicant

- 2019–2023** Wallenberg AI, Autonomous Systems and Software Program (WASP) – Collaboration project with Prof Lennart Svensson, Chalmers University of Technology
Project: Probabilistic models and deep learning – bridging the gap
- 2017–2020** Swedish Foundation for Strategic Research – Ingvar Carlsson Award
Project: Probabilistic Modeling and Inference for Machine Learning
- 2017–2020** Swedish Research Council – Starting Grant
Project: Learning of Large-Scale Probabilistic Dynamical Models
- 2014–2015** Swedish Research Council – International Postdoc Grant
Project: Learning of complex dynamical systems
Host institution: Dept of Engineering, The University of Cambridge, UK

Research grants: Co-applicant

- 2017–2018** Vinnova (Beslutsstöd för hälsa vård och omsorg med hjälp av artificiell intelligens)
Main applicant: Sectra AB
Project: ALFA - Autonomous Large-scale Findings Analysis
- 2017–2022** Swedish Research Council – Research Environment
Main applicant: Prof Håkan Hjalmarsson, The Royal Institute of Technology
Project: NewLEADS - New Directions in Learning Dynamical Systems

Other grants

- 2017** Swedish Research Council – Conference grant
Sequential Monte Carlo workshop, Uppsala 2017
- 2017** Centre for Interdisciplinary Mathematics, Uppsala University
Thematic semester on Sequential Monte Carlo methods
Main applicant: Prof Thomas Schön, Uppsala University

SUPERVISED PHD STUDENTS AND POSTDOCS

Graduated PhD students

- ▶ Christian A. Naesseth, Div of Automatic Control, Linköping University, December 2018. *Machine learning using approximate inference: Variational and sequential Monte Carlo methods*. Co-supervisor (de facto main).
- ▶ Andreas Svensson, Div of Systems and Control, Uppsala University, October 2018. *Machine learning with state-space models, Gaussian processes and Monte Carlo methods*. Co-supervisor.
- ▶ Johan Dahlin, Div of Automatic Control, Linköping University, May 2016. *Accelerating Monte Carlo methods for Bayesian inference in dynamical models*. Co-supervisor (de facto main).

PhD students in progress

- ▶ Amirhossein Ahmadian, Div of Statistics and Machine Learning, Linköping University. Main supervisor.
- ▶ Amanda Olmin, Div of Statistics and Machine Learning, Linköping University. Main supervisor.
- ▶ Jacob Lindqvist, Dept of Electrical Engineering, Chalmers University of Technology. Co-supervisor.
- ▶ David Widmann, Div of Systems and Control, Uppsala University. Main supervisor.
- ▶ Anna Wigren, Div of Systems and Control, Uppsala University. Main supervisor.
- ▶ Johan Wågberg, Div of Systems and Control, Uppsala University. Co-supervisor.

Supervised postdocs

- ▶ Christian A. Naesseth, PhD degree from Linköping University. Postdoc at Linköping University, January–August 2019.
- ▶ Johan Westerborn Alenlöv, PhD degree from the Royal Institute of Technology, Stockholm, Sweden. Postdoc at Uppsala University since April 2018.

PUBLICATIONS

Journal papers

- [J16] C. A. Naesseth, **F. Lindsten**, and T. B. Schön. Elements of Sequential Monte Carlo. *Foundations and Trends in Machine Learning*, 2019. *[Forthcoming]*
- [J15] C. A. Naesseth, **F. Lindsten**, and T. B. Schön. High-dimensional Filtering using Nested Sequential Monte Carlo. *IEEE Transactions on Signal Processing*, 2019. *[Forthcoming]*
- [J14] R. S. Risuleo, **F. Lindsten**, and H. Hjalmarsson. Bayesian nonparametric identification of Wiener systems. *Automatica*, 2019. *[Forthcoming]*
- [J13] P. E. Jacob, **F. Lindsten**, and T. B. Schön. Smoothing with Couplings of Conditional Particle Filters. *Journal of the American Statistical Association*, 2019. *[Forthcoming]*
- [J12] F. M. Calafat, T. Wahl, **F. Lindsten**, J. Williams, E. Frajka-Williams. Coherent modulation of the sea-level annual cycle in the United States by Atlantic Rossby waves. *Nature Communications*, 9(2571) 2018.

- [J11] T. B. Schön, A. Svensson, L. Murray, and **F. Lindsten**. Probabilistic learning of nonlinear dynamical systems using sequential Monte Carlo. *Mechanical Systems and Signal Processing*, 104:866–883, 2018.
- [J10] A. Svensson, T. B. Schön, and **F. Lindsten**. Learning of state-space models with highly informative observations: a tempered Sequential Monte Carlo solution. *Mechanical Systems and Signal Processing*, 104:915–928, 2018.
- [J9] S. S. Singh, **F. Lindsten**, and E. Moulines. Blocking Strategies and Stability of Particle Gibbs Samplers. *Biometrika*, 104(4):953–969, 2017.
- [J8] **F. Lindsten**, A. M. Johansen, C. A. Naeseth, B. Kirkpatrick, T. B. Schön, J. Aston, and A. Bouchard-Côté. Divide-and-Conquer with Sequential Monte Carlo. *Journal of Computational and Graphical Statistics*, 26(2):445–458, 2017.
- [J7] **F. Lindsten**, P. Bunch, S. Särkkä, T. B. Schön, and S. J. Godsill. Rao-Blackwellized particle smoothers for conditionally linear Gaussian models. *IEEE Journal of Selected Topics in Signal Processing*, 10(2):353–365, 2016.
- [J6] **F. Lindsten**, R. Douc, and E. Moulines. Uniform ergodicity of the Particle Gibbs sampler. *Scandinavian Journal of Statistics*, 42(3):775–797, 2015.
- [J5] E. Özkan, **F. Lindsten**, C. Fritsche, and F. Gustafsson. Recursive maximum likelihood identification of jump Markov nonlinear systems. *IEEE Transactions on Signal Processing*, 63(3):754–765, 2015.
- [J4] J. Dahlin, **F. Lindsten**, and T. B. Schön. Particle Metropolis-Hastings using gradient and Hessian information. *Statistics and Computing*, 25(1):81–92, 2015.
- [J3] **F. Lindsten**, M. I. Jordan, and T. B. Schön. Particle Gibbs with Ancestor Sampling. *Journal of Machine Learning Research*, 15:2145–2184, 2014.
- [J2] **F. Lindsten** and T. B. Schön. Backward simulation methods for Monte Carlo statistical inference. *Foundations and Trends in Machine Learning*, 6(1):1–143, 2013.
- [J1] **F. Lindsten**, T. B. Schön and M. I. Jordan. Bayesian semiparametric Wiener system identification. *Automatica*, 49(7):2053–2063, July 2013.

Discussion contributions

- [D2] S. Lacoste-Julien and **F. Lindsten**. Discussion on “Sequential Quasi-Monte-Carlo Sampling” by Gerber and Chopin. *Journal of the Royal Statistical Society: Series B*, 77(3):564–565, 2015.
- [D1] **F. Lindsten** and S. S. Singh. Discussion on “Sequential Quasi-Monte-Carlo Sampling” by Gerber and Chopin. *Journal of the Royal Statistical Society: Series B*, 77(3):566–567, 2015.

Peer reviewed conference publications

- [C40] A. Wigren, R. S. Risuleo, L. Murray, and **F. Lindsten**. Parameter elimination in particle Gibbs sampling. *Advances in Neural Information Processing Systems (NeurIPS) 32*, Vancouver, Canada, December 2019. [Oral presentation, forthcoming]
- [C39] D. Widmann, D. Zachariah, and **F. Lindsten**. Calibration tests in multi-class classification: A unifying framework. *Advances in Neural Information Processing Systems (NeurIPS) 32*, Vancouver, Canada, December 2019. [Spotlight presentation, forthcoming]
- [C38] C. Nemeth, **F. Lindsten**, M. Filippone, and J. Hensman. Pseudo-Extended Markov chain Monte Carlo. *Advances in Neural Information Processing Systems (NeurIPS) 32*, Vancouver, Canada, December 2019. [Forthcoming]

- [C37] J. Umenberger, T. B. Schön, and **F. Lindsten**. Bayesian identification of state-space models via adaptive thermostats. *Proceedings of the 58th IEEE Conference on Decision and Control (CDC)*, Nice, France, December 2019. [Forthcoming]
- [C36] J. Vaicenavicius, D. Widmann, C. Andersson, **F. Lindsten**, J. Roll, and T. B. Schön. Evaluating model calibration in classification. *Proceedings of the 22nd International Conference on Artificial Intelligence and Statistics (AISTATS)*, Naha, Okinawa, Japan, April 2019.
- [C35] **F. Lindsten**, J. Helske, and M. Vihola. Graphical model inference: Sequential Monte Carlo meets deterministic approximations. *Advances in Neural Information Processing Systems (NeurIPS) 31*, 8190–8200, 2018. [Spotlight presentation]
- [C34] R. S. Risuleo, **F. Lindsten**, and H. Hjalmarsson. Semi-parametric kernel-based identification of Wiener systems. *Proceedings of the 57th IEEE Conference on Decision and Control*, Miami Beach, USA, 2018.
- [C33] A. Wigren, L. Murray, and **F. Lindsten**. Improving the particle filter for high-dimensional problems using artificial process noise. *Proceedings of the 18th IFAC Symposium on System Identification*, Stockholm, Sweden, 2018.
- [C32] A. Svensson, **F. Lindsten**, and T. B. Schön. Learning Nonlinear State-Space Models Using Smooth Particle-Filter-Based Likelihood Approximations. *Proceedings of the 18th IFAC Symposium on System Identification*, Stockholm, Sweden, 2018.
- [C31] T. Rainforth, C. A. Naesseth, **F. Lindsten**, B. Paige, J.-W. van de Meent, A. Doucet, and F. Wood. Interacting Particle Markov Chain Monte Carlo. *Proceedings of the 33rd International Conference on Machine Learning (ICML)*, New York, USA, 2016.
- [C30] J. Wågberg, **F. Lindsten** and T. B. Schön. Bayesian nonparametric identification of piecewise affine ARX systems. *Proceedings of the 17th IFAC Symposium on System Identification*, Beijing, China, 2015.
- [C29] J. Dahlin, **F. Lindsten** and T. B. Schön. Quasi-Newton particle Metropolis-Hastings applied to intractable likelihood models. *Proceedings of the 17th IFAC Symposium on System Identification*, Beijing, China, 2015.
- [C28] M. Riabiz, **F. Lindsten**, and S. J. Godsill. Pseudo-marginal MCMC for parameter estimation in alpha-stable distributions. *Proceedings of the 17th IFAC Symposium on System Identification*, Beijing, China, 2015.
- [C27] 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*, Beijing, China, 2015.
- [C26] C. A. Naesseth, **F. Lindsten**, and T. B. Schön. Nested sequential Monte Carlo methods. *Proceedings of the 32nd International Conference on Machine Learning (ICML)*, Lille, France, 2015.
- [C25] S. Lacoste-Julien, **F. Lindsten**, and F. Bach. Sequential kernel herding: Frank-Wolfe optimization for particle filtering. *Proceedings of the 18th International Conference on Artificial Intelligence and Statistics (AISTATS)*, San Diego, USA, 2015.
- [C24] P. Bunch, **F. Lindsten**, and S. S. Singh. Particle Gibbs with refreshed backward simulation. *Proceeding of the 40th IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Brisbane, Australia, 2015.
- [C23] C. A. Naesseth, **F. Lindsten**, and T. B. Schön. Sequential Monte Carlo for graphical models. *Advances in Neural Information Processing Systems (NeurIPS) 27*, 1862–1870, 2014.
- [C22] C. A. Naesseth, **F. Lindsten**, and T. B. Schön. Capacity estimation of two-dimensional channels using Sequential Monte Carlo. *Proceedings of the 2014 IEEE Information Theory Workshop (ITW)*, Hobart, Tasmania, 2014.

- [C21] A. Svensson, T. B. Schön, and **F. Lindsten**. Identification of jump Markov linear models using particle filters. *Proceedings of the 53rd IEEE Conference on Decision and Control (CDC)*, Los Angeles, USA, 2014.
- [C20] R. Frigola, **F. Lindsten**, T. B. Schön, and C. E. Rasmussen. Identification of Gaussian process state-space models with particle stochastic approximation EM. *Proceedings of the 19th IFAC World Congress*, Cape Town, South Africa, 2014.
- [C19] J. Dahlin and **F. Lindsten**. Particle filter-based Gaussian process optimisation for parameter inference. *Proceedings of the 19th IFAC World Congress*, Cape Town, South Africa, 2014.
- [C18] J. Dahlin, **F. Lindsten**, and T. B. Schön. Second-order particle MCMC for Bayesian parameter inference. *Proceedings of the 19th IFAC World Congress*, Cape Town, South Africa, 2014.
- [C17] F. Gunnarsson, **F. Lindsten**, and N. Carlsson. Particle filtering for network-based positioning terrestrial radio networks. *IET Conference on Data Fusion and Target Tracking*, Liverpool, UK, 2014. [**Best paper award**].
- [C16] R. Frigola, **F. Lindsten**, T. B. Schön, and C. E. Rasmussen. Bayesian inference and learning in Gaussian process state-space models with particle MCMC. *Advances in Neural Information Processing Systems (NeurIPS) 26*, 3156–3164, 2013.
- [C15] **F. Lindsten**. An efficient stochastic approximation EM algorithm using conditional particle filters. *Proceedings of the 38th International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Vancouver, Canada, 2013.
- [C14] 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, 2013.
- [C13] **F. Lindsten**, P. Bunch, S. J. Godsill, and T. B. Schön. Rao-Blackwellized particle smoothers for mixed linear/nonlinear state-space models. *Proceedings of the 38th International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Vancouver, Canada, 2013.
- [C12] E. Taghavi, **F. Lindsten**, L. Svensson, and T. B. Schön. Adaptive stopping for fast particle smoothing. *Proceedings of the 38th International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Vancouver, Canada, 2013.
- [C11] **F. Lindsten**, M. I. Jordan, and T. B. Schön. Ancestor sampling for particle Gibbs. *Advances in Neural Information Processing Systems (NeurIPS) 25*, 2600–2608, 2012.
- [C10] **F. Lindsten**, T. B. Schön, and M. I. Jordan. A semiparametric Bayesian approach to Wiener system identification. *Proceedings of the 16th IFAC Symposium on System Identification*, Brussels, Belgium, 2012.
- [C9] **F. Lindsten**, T. B. Schön, and L. Svensson. A non-degenerate Rao-Blackwellised particle filter for estimating static parameters in dynamical models. *Proceedings of the 16th IFAC Symposium on System Identification*, Brussels, Belgium, 2012.
- [C8] 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*, Brussels, Belgium, 2012.
- [C7] A. Wills, T. B. Schön, **F. Lindsten**, and B. Ninness. Estimation of linear systems using a Gibbs sampler. *Proceedings of the 16th IFAC Symposium on System Identification*, Brussels, Belgium, 2012.
- [C6] **F. Lindsten** and T. B. Schön. On the use of backward simulation in the particle Gibbs sampler. *Proceedings the 37th IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Kyoto, Japan, 2012.

- [C5] **F. Lindsten**, H. Ohlsson, and L. Ljung. Clustering using sum-of-norms regularization; with application to particle filter output computation. *Proceedings of the 2011 IEEE Workshop on Statistical Signal Processing (SSP)*, Nice, France, 2011.
- [C4] **F. Lindsten**, T. B. Schön, and J. Olsson. An explicit variance reduction expression for the Rao-Blackwellised particle filter. *Proceedings of the 18th World Congress of the International Federation of Automatic Control (IFAC)*, Milan, Italy, 2011.
- [C3] **F. Lindsten** and T. B. Schön. Identification of mixed linear/nonlinear state-space models. *Proceedings of the 49th IEEE Conference on Decision and Control (CDC)*, Atlanta, USA, 2010.
- [C2] **F. Lindsten**, J. Callmer, H. Ohlsson, D. Törnqvist, T. B. Schön, and F. Gustafsson. Georeferencing for UAV navigation using environmental classification. *Proceedings of the 2010 IEEE International Conference on Robotics and Automation (ICRA)*, Anchorage, USA, 2010.
- [C1] **F. Lindsten**, P. J. Nordlund, and F. Gustafsson. Conflict detection metrics for aircraft sense and avoid systems. *Proceedings of the 7th IFAC Symposium on Fault Detection, Supervision and Safety of Technical Processes*, Barcelona, Spain, 2009.

Other publications

- [WS1] C. A. Naesseth, **F. Lindsten**, and T. B. Schön. Towards automated sequential Monte Carlo for probabilistic graphical models. In *NeurIPS Workshop on Black Box Inference and Learning*, 2015.

Theses

- [PhD] **F. Lindsten**. Particle Filters and Markov Chains for Learning of Dynamical Systems. PhD thesis, Linköping Studies in Science and Technology. Dissertations, No. 1530, 2013.
- [Lic] **F. Lindsten**. Rao-Blackwellised particle methods for inference and identification. LiU-TEK-LIC-2011:19, 2011.

REVIEWED PHD THESES

- ▶ 26/04/19: Martin Karlsson, *Human-Robot Interaction Based on Motion and Force Control*, Dept of Automatic Control, Lund University, Sweden. Member of the Examination Board.
- ▶ 26/02/19: Thi Tuyet Trang Chau, *Non-parametric methodologies for reconstruction and estimation in nonlinear state-space models*, UFR Mathématiques, Université de Rennes 1, France. Referee.

EDITORIAL AND ORGANIZATIONAL WORK

- ▶ Local Chair for the International Workshop on Sequential Monte Carlo methods, Uppsala, Sweden 2017. <http://www.it.uu.se/conferences/smc2017>
- ▶ Area Chair for the International Conference on Machine Learning (ICML), 2017.
- ▶ Co-organizer of double invited session on *Nonlinear System Identification and State Estimation Using Sequential Monte Carlo Methods* at the 17th IFAC Symposium on System Identification, Beijing, China, 2015
- ▶ Reviewer for several international journals, including: the Journal of the Royal Statistical Society: Series B (Statistical Methodology), the Annals of Statistics, Biometrika, Bernoulli Journal, Automatica, Statistics and Computing, the IEEE Transactions on Automation Science and Engineering, the IEEE Transactions on Aerospace and Electronic Systems, and the IEEE Transactions on Signal Processing.

- ▶ Reviewer for several international conferences, including: the Conference on Neural Information Processing Systems (NeurIPS), the International Conference on Machine Learning (ICML), the Artificial Intelligence and Statistics Conference (AISTATS), the IFAC Symposium on System Identification, the IEEE Conference on Decision and Control (CDC), and the American Control Conference (ACC).

INVITED RESEARCH TALKS

- ▶ 17/10/19: Does my classifier provide reliable uncertainty estimation?, *Automatic Control Seminar*, Linköping, Sweden.
- ▶ 11/04/19: Learning dynamical systems with particle stochastic approximation EM, *Workshop on Nonlinear System Identification Benchmarks*, Eindhoven, The Netherlands. [**Keynote**]
- ▶ 29/01/19: Does my classifier provide reliable uncertainty quantification?, *Analytic Imaging Diagnostics Arena (AIDA) Workshop: AI Applications Today and Future Challenges*, Linköping, Sweden.
- ▶ 03/07/17: Divide-and-Conquer with Sequential Monte Carlo, *Invited session on quasi Monte-Carlo, sequential Monte-Carlo and applications in machine learning at MCM*, Montréal, Canada.
- ▶ 02/03/16: Gibbs sampling for state space models: Blocking, stability, and particle MCMC, *IDA Machine Learning Seminar*, Linköping University, Linköping, Sweden.
- ▶ 10/02/16: Blocking Strategies and Stability of Particle Gibbs Samplers, *Alan Turing Institute Workshop: High-Dimensional Statistical Models & Big Data*, Alan Turing Institute, London, UK.
- ▶ 18/11/16: Particle Gibbs algorithms: methodology and analysis, *Statistics Seminar*, Lancaster University, Lancaster, UK.
- ▶ 16/10/15: Filtering in high-dimensional models using Nested Particle Filters, *Systems and Control Seminar*, Uppsala University, Uppsala, Sweden.
- ▶ 05/06/15: Nested Sequential Monte Carlo, *Computational Statistics and Machine Learning Reading Group*, The University of Oxford, Oxford, UK.
- ▶ 11/03/15: Particle Gibbs with Ancestor Sampling, *OxWaSP module*, The University of Oxford, Oxford, UK.
- ▶ 26/02/15: Nested Sequential Monte Carlo, *Automatic Control Seminar*, Linköping University, Linköping, Sweden.
- ▶ 07/11/14: Sequential Monte Carlo for graphical models: Graph decompositions and Divide-and-Conquer SMC, *Probability and Statistics Seminars*, University of Bristol, Bristol, UK.
- ▶ 31/10/14: Sequential Monte Carlo for graphical models: Graph decompositions and Divide-and-Conquer SMC, *Statistics Seminars*, Imperial College London, London, UK.
- ▶ 23/10/14: Sequential Monte Carlo for graphical models: Graph decompositions and Divide-and-Conquer SMC, *Signal Processing Seminars*, The University of Cambridge, Cambridge, UK.
- ▶ 06/01/14: Particle Gibbs with Ancestor Sampling, *MCMSki IV*, Chamonix, France.
- ▶ 29/11/13: Inference in nonlinear state-space models using Particle Gibbs with Ancestor Sampling, *Statistics Seminar*, Lund University, Lund, Sweden.
- ▶ 01/11/13: Conditional particle filters for system identification, *Automatic Control Seminar*, Linköping University, Linköping, Sweden.

- ▶ 08/10/12: Ancestor Sampling for Particle Gibbs, *INRIA*, Paris, France.
- ▶ 24/09/12: Particle Markov Chain Monte Carlo, *ERNSI Workshop*, Maastricht, the Netherlands.
- ▶ 16/06/11: Rao-Blackwellised particle methods for inference and identification, *Signal Processing Seminar*, Chalmers University of Technology, Gothenburg, Sweden.

TEACHING EXPERIENCE

- ▶ Course developer, lecturer and course director in Statistical Machine Learning for Sociotechnical Systems Engineering and Engineering Physics (4th year, 150 students), Uppsala University, 2018. (Graded 4.6/5.0 in student course evaluation.)
- ▶ Lecturer and course director in Automatic Control for Sociotechnical Systems Engineering (3rd year, 86 students), Uppsala University 2017. (Graded 4.2/5.0 in student course evaluation.)
- ▶ Lecturer in Sequential Monte Carlo methods (intensive PhD course, 90 students from 13 different countries), Uppsala University, 2017. (Graded 4.5/5.0 in student course evaluation.)
- ▶ Lecturer and course director in Statistical Machine Learning for Sociotechnical Systems Engineering and Engineering Physics (4th year, 70 students), Uppsala University, 2017. (Graded 4.3/5.0 in student course evaluation.)
- ▶ Lecturer and course director in Automatic Control for Engineering Biology (3rd year, 70 students), Linköping University, 2015. (Received an overall grade of 4.36/5.0 in an anonymous student course evaluation, and an average grade on teaching merits of 4.76/5.0)
- ▶ Guest lecturer at EPSRC Centre for Doctoral Training “OxWaSP” module, The University of Oxford, Oxford, UK, 2015.
- ▶ Supervisor in Vector Calculus (2nd year), Churchill College, The University of Cambridge, 2014.
- ▶ Teaching assistant for Data Analysis Project (3rd year), Dept of Engineering, The University of Cambridge, 2014.
- ▶ Guest lecturer in Machine Learning (PhD course, 2 occasions), Uppsala University, 2016, and Linköping University, 2013 (main lecturer: Prof Thomas B. Schön).
- ▶ Teaching assistant in the following courses at Linköping University (2005–2013): Sensor Fusion (4th year, 1 occasion); Digital Signal Processing (4th year, 3 occasions); Project course in Automatic Control, CDIO (4th year, 2 occasions); Automatic Control, advanced course (4th year, 2 occasions); Automatic Control (3rd year, 3 occasions); Project course in Systems Biology, CDIO (3rd year, 1 occasion); Engineering Mechanics (2nd year, 2 occasions); Foundation course in Mathematics (1st year, 2 occasions).

PEDAGOGICAL EDUCATION

- ▶ Student-active and student-centered teaching and learning, TUR (Council for Educational Development), Uppsala, 2017.
- ▶ Supervising PhD students (7.5hp), Uppsala University, 2016.
- ▶ Supervising Undergraduates, Personal and Professional Development course, The University of Cambridge, 2014.
- ▶ Teaching in Higher Education, Part I – Learning and Knowledge (6hp), Linköping University, 2011.

LANGUAGES

- ▶ Swedish (mother tongue)
- ▶ English (fluent)
- ▶ German (basic skills)