CV Tore Selland Kleppe

Personal

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- Born March 30th 1981, married, two children (born 2012 and 2015).

Work experience

- 2016-: Professor of Statistics, Department of Mathematics and Physics, University of Stavanger.
- 2014-2016: Associate Professor, Department of Mathematics and Natural Sciences, University of Stavanger.
- 2012-2014: Associate Professor, Department of Mathematics, University of Bergen.
- 2010-2012: Post doctoral researcher under the grant "Likelihoodbasert inferens for kontinuelig tid stokastisk volatilitetsmodeller" from NFR-Finansmarkedsfondet.
- 2006-2010: PhD-student, Department of Mathematics, University of Bergen.
- Paternal leave totaling around 9 months (2013 and 2016).

Education

- PhD in statistics, Department of Mathematics, University of Bergen, 2006-2010 Thesis: "Integrating out the unknown: Four papers on likelihood estimation in non-Gaussian latent variable models". Supervisor: Professor Hans J. Skaug, Co-supervisor: Professor Dag Tjøstheim.
- Master in Technology (Industrial Mathematics), NTNU, 2006 Thesis: "Numerical path integration for Levy-driven stochastic differential equations". Supervisor: Professor Arvid Næss.

Scientific interests

- Estimation strategies for dynamic latent variable models.
- Monte Carlo methods including importance sampling, particle filters and Markov chain Monte Carlo (lately mainly Hamiltonian Monte Carlo).
- Applications in time series econometrics, in particular modeling of commodities markets.
- Application of advanced scientific computing techniques, including automatic differentiation, sparse numerical linear algebra, optimization and parallel computing.

Journal publications (level 2 journal in the Norwegian journal ranking system is marked with *)

1. *Building and fitting non-Gaussian latent variable models via the moment generating function (2008), (with Hans Skaug), *Scandinavian Journal of Statistics*, 35 (4) - 664-676.

2. Simulated Maximum Likelihood Estimation of Continuous Time Stochastic Volatility Models (2010), (with Jun Yu and Hans Skaug), *Advances in Econometrics*, 26 - 137-161.

3. Robustness of the hazard probability model (2010), (with Hans Skaug and Hiroshi Okamura), *Journal of Cetacean Research and Management, 11 (3)*

4. Fitting general stochastic volatility models using Laplace accelerated sequential importance sampling (2012), (with Hans Skaug), *Computational Statistics and Data Analysis*, 56 (11) - 2991-3808.

5. Efficient high-dimensional importance sampling in mixture frameworks (2014), (with Roman Liesenfeld). *Computational Statistics and Data Analysis,* 76, 449-463

6. Introducing localgauss, an R Package for Estimating and Visualizing Local Gaussian Correlation (2014) , (with Geir Berentsen and Dag Tjøstheim), *Journal of Statistical Software*, 56 (12).

7. *Maximum Likelihood Estimation of Partially Observed Diffusion Models (2014), (with Jun Yu and Hans Skaug), *Journal of Econometrics* 180 (1) - 73-80.

8. *Bandwidth selection for pre-smoothed particle filters (2016), (with Hans Skaug), *Statistics and Computing 26 (5) - 1009-1024.*

9. *Adaptive step size selection for Hessian-based manifold Langevin samplers (2016)*, Scandinavian Journal of Statistics, 43(3) - 788–805.*

10. How Regular are Directional Movements in Commodity and Asset Prices? A Wald Test (2016), (with Atle Øglend)*, Journal of Empirical Finance, 38A, - 290–306.*

11. Trade with Endogenous Transportation Costs: The Value of LNG Exports (2016), (with Atle Øglend and Petter Osmundsen), *Energy Economics, 59 - 138–148.*

12. On the behavior of commodity prices when speculative storage is bounded (2016), (with Atle Øglend), *Journal of Economic Dynamics and Control, 75, 52-69.*

13. On the application of improved symplectic integrators in Hamiltonian Monte Carlo (2017), (with Janne Mannseth and Hans Skaug), *Communications in Statistics, Simulation and computation 42 (2), 500-509.*

14. Estimating the competitive storage model; a simulated likelihood approach (2017), (with Atle Øglend), *Econometrics and Statistics, 4, 39-56.*

15. *Modified Cholesky Riemann Manifold Hamiltonian Monte Carlo: exploiting sparsity for fast sampling of high-dimensional targets (2017), *Statistics and Computing, 28 (4), 795-817.*

16. Price Dynamics in Biological Production Processes Exposed to Environmental Shocks (2017), (with Frank Asche and Atle Øglend), *American journal of agriculture economics, 99 (5), 1246-1264.*

17. The Gibbs sampler with particle efficient importance sampling for state-space models (2018), (with Oliver Grothe and Roman Liesenfeld), *Econometric reviews, forthcoming.*

18. MCMC for Markov-switching models—Gibbs sampling vs. marginalized likelihood (2019), (with Kjartan Kloster Osmundsen and Atle Øglend), *Communications in statistics, Simulation and computation, forthcoming*

19. *Dynamically Rescaled Hamiltonian Monte Carlo for Bayesian Hierarchical Models (2019), *Journal of Computational and Graphical statistics, forthcoming*

20. Can limits-to-arbitrage from bounded storage improve commodity term-structure modeling? (2019), (with Atle Øglend) *Journal of Futures Markets, forthcoming*

21. *Time commitments in LNG shipping and natural gas price convergence (2020) (with Atle Øglend, Petter Osmundsen), *Energy Journal*

22. *A Risk Model of Admitting Patients with Silent SARS-CoV-2 Infection to Surgery and Development of Severe Postoperative Outcomes and Death: Projections Over 24 Months for 5 Geographical Regions (2020) (with Kjetil Søreide, Sheraz Yaqub, Julie Hallet, Jan Terje Kvaløy), *Annals of Surgery*

23. Analyzing Commodity Futures Using Factor State-Space Models with Wishart Stochastic Volatility, (2021) (with Roman Liesenfeld, Guilherme Valle Moura, Atle Oglend) *Econometrics and Statistics,23, 105-127*

24. *Importance Sampling-based Transport Map Hamiltonian Monte Carlo for Bayesian Hierarchical Models (2021) (with Kjartan Kloster Osmundsen, Roman Liesenfeld) *Journal of Computational and Graphical Statistics Volume 30, 2021 - Issue 4*

25. Estimating the competitive storage model with stochastic trends in commodity prices (2021) (with Kjartan Kloster Osmundsen, Roman Liesenfeld, Atle Oglend) *Econometrics*

26. *Connecting the Dots: Numerical Randomized Hamiltonian Monte Carlo with State-Dependent Event Rates (2022), *Journal of Computational and Graphical Statistics*

27. *Log-density gradient covariance and automatic metric tensors for Riemann manifold Monte Carlo methods (2023), *Scandinavian Journal of Statistics*

Publications in reviewed conference proceedings

1. The Value of LNG Export when Transportation is Costly (with Atle Øglend and Petter Osmundsen) *IAEE International Conference 2015.*

Working papers (only most mature given here)

- arXiv:2311.14492
- arXiv:2310.07399
- arXiv:2008.05926

Software

- Author and maintainer of the R-package `pdmphmc` (https://torekleppe.github.io/pdmphmc.doc/)
- Author and maintainer of the R-package `localgauss` on CRAN, which implements high performance routines for estimating local Gaussian parameters (see publication 6). Has been used in several publications.

Prices and grants

1. Awarded the biennial "Sverdrup-price - young researcher" in 2015 by the Norwegian Statistical Association for publication 7.
2. Awarded "qualification grant" from the UiS (2016) of 200K NOK.
3. Awarded as Co-PI (with Atle Øglend) a UiS-Toppforsk grant (PhD student and 2-year post doc ++) for the project "Modeling and Empirical Evaluation of Commodities Markets" .
4. Awarded Forskningstermin ("sabbatical") at UiS, spring 19 and spring 20, and the calendar year 2023.
5. Awarded Grant from Finansmarkedsfonded funding one PhD student.

Selected presentations

- Invited research seminar at Singapore Management University, Department of Economics, February 2008.
- Invited conference presentation, 8th Annual Advances in Econometrics Conference at Louisiana State University, November 2009.
- Invited research seminar at Statistics Norway: "Mixture EIS", March 2011.

- Invited research seminar at University of Oslo, Department of Mathematics, November 2014.
- Invited conference presentation; The Sverdrup Lecture for young researchers, 18th meeting of the Norwegian Statistical Association. Os, June 2015.
- Invited conference presentation at Nordstat2016, Copenhagen, June 2016
- Invited seminar, Dept. Mathematics, University of Oslo, November 2018
- In addition a large number of contributed conference presentations and posters at national and international conferences.

Refereeing

I have been a referee (in many cases several times) for the following journals:

- Advances in Econometrics.
- Computational Statistics
- Computational Statistics and Data Analysis.
- Computers & Geosciences.
- Emerging Markets Finance and Trade.
- European Journal of Operational Research
- Inverse Problems in Science and Engineering.
- Journal of Business and Economic Statistics.
- Journal of Computational and Graphical Statistics.
- Journal of Econometrics.
- Journal of Economic dynamics and control.
- Journal of Financial Econometrics.
- Journal of Risk and Reliability
- Scandinavian Journal of Statistics.
- Statistics and Computing.
- TEST

Mobility

- Research visit to Professor Jun Yu (Singapore Management University, Singapore) 1 month in February 2008.
- Research visit to Professor Jun Yu (Singapore Management University, Singapore) 1 week in April 2010.
- Many (>10) research visits to and from Professor Roman Liesenfeld (University of Cologne, Germany)

Selected administrative roles

- 2013-2014, Member of "programstyret" (the committee overseeing the study portfolio of the institute), Dept. Mathematics, UiB
- 2014-2015, Leader of the program committee for the 18. meeting of the Norwegian Statistical Association, June 15-18 2015
- 2015 , Member of the national "karakterpanel for master i realfagene", a panel that oversees the grading in science master degree education.
- 2015-2018, Program sensor (external auditor) for master in statistics program, bachelor in statistics program and integrated master in finance and insurance program, Dept. of Mathematics, University of Bergen.
- 2016- , Member of Norsk Matematikkråd (independent national entity that supervises government agencies etc on subjects related to mathematics).
- 2016-2018 , Group leader - Mathematics group at the institute of Mathematics and Natural Sciences (various administrative tasks).
- 2018-2021 , Member of institute board.
- 2019- , Member of "Unix styringsgruppe" (a board overseeing the computing servers at the University).
- 2020-2021 , Member of: "evaluering av prøveordningen REALR2" for the Norwegian Ministry of Education.
- 2016-2020 , Co-Primary Investigator - "Modeling and Empirical Evaluation of Commodities Markets".
- Member of several committees hiring PhD students, post docs and associate professors at UiS.
- Member of expert committee for hiring of several Post docs and Associate Professors at different national universities.
- 2023-Member of the research committee of "Norsk Matematikkråd"

Teaching and supervision

- Completed basic university-pedagogical (uniped) training (2016).
- Completed course qualifying for supervising PhD students (2015).
- Fall 2012: STATRISK: Statistical risk management; UIB
- Spring 2013: STAT111: Statistical methods; UIB
- Fall 2013: STAT201: Generalized Linear Models; UIB
- Spring 2014: MAT292: Projects in Mathematics; UIB and organizing a seminar in insurance and finance.
- Fall 2014: STA510 course administrator; UiS
- Spring 2015: STA600: Generalized Linear Models; UiS
- Fall 2015: STA500: Introduction to probability and statistics 2; UiS
- (Spring 2016: Paternal Leave)
- Fall 2016: STA500: Introduction to probability and statistics 2; UiS (partially taught by substitute teacher covered by grant 2)
- Spring 2017: STA600.
- Fall 2017: STA500.
- Spring 2018: STA600.
- Fall 2018: STA500.

- Spring 2019: Sabbatical
- Fall 2019: STA500
- Spring 2019: Sabbatical
- Fall 2020: STA510, STA903
- Spring 2021: STA600
- Fall 2021: STA510
- Spring 2022: STA100
- Fall 2022: STA510
- Spring and fall 2023: Sabbatical
- Spring 2024: STA100
- Supervised master students: at UiB: Are Viken (2013, first job: Actuary at Gjensidige Forsikring, Oslo), Janne Mannseth (2014, first job: PhD student at UiB). At UiS: Anders Holen (2019), Bharat Ghimire (2020).
- Supervised 10 ECTS master project at UiS: Theo Michelot (2015, first job: PhD student University of Manchester).
- Supervised PhD Students: Knut Anders Johansen (UiS, Defended June 2018, co-supervisor), Janne Mannseth (UiB, defended April 2019, co-supervisor), Kjartan Osmundsen (UiS, defended June 2020, main supervisor), Berent Lunde (UiS, defended December 2020)
- Currently supervising one PhD student (Jimmy Tran, IMF, UiS) and co-supervising one PhD-student (Ragne Lade, IØRP, UiS).
- Member of PhD committee for Daniel Kinn (BI Oslo, Defended November 2018), Reinaldo Antonio Gomes Marques (University of Oslo, Defended November 2018), Alise Danielle Midtfjord (University of Oslo, Defended May 2023).
- Teaching duty as PhD student at UiB (2006-2010), including as a seminar leader, administrative duties and as a substitute lecturer.
- Teacher assistant; various courses at NTNU (2002-2005)