Curriculum Vitae: Samuel Wiqvist

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Personal Information

Born: July 31, 1991
Gender: Male
Nationality: Swedish

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Current Position

Ph.D. student at the Div. of Mathematical Statistics, Centre for Mathematical Sciences, Lund University, Sweden. My main advisor is Dr. Umberto Picchini. I will defend my thesis *Simulation-based Inference – From Approximate Bayesian Computation and Particle Methods to Neural Density Estimation* on September 24ht, 2021.

Umberto Picchini's adress: mailing address:
Mathematical Sciences - Chalmers University of Technology and University of Gothenburg
SE-412 96 Gothenburg, Sweden
Email: picchini@chalmers.se

Research Interests

Bayesian statistics, intractable likelihood problems, generative models (normalizing flows), and Monte Carlo methods.

Education

2021 (expected)   PH.D. in Mathematical Statistics, Faculty of Science, Lund University, Sweden.
PhD thesis: *Simulation-based Inference – From Approximate Bayesian Computation and Particle Methods to Neural Density Estimation*. The thesis is a compilation thesis containing four first-author papers of which two are peer-reviewed publications. The public defence will take place on September 24ht, 2021 in Lund, Sweden.

2016   MSc in Engineering Mathematics, Faculty of Engineering, Lund University, Sweden.
Master's thesis: *An Adaptive Iterated Filtering Algorithm*, defended on the 10th of June 2016. The thesis treated maximum likelihood-based parameter estimations of partially observed Markov process models, and a new version of the iterated filtering algorithm was introduced.

Publications

PRE-PRINTS

[1]   Persson, S., Welkenhuysen, N., Shashkova, S., **Wiqvist, S.**, Reith, P., W Schmidt, G., Picchini, U., & Cvijovic, M. (2021). PEPSDI: Scalable and flexible inference framework for stochastic dynamic single-cell models. bioRxiv preprint bioRxiv:2021.07.01.450748.

[2]   **Wiqvist, S.**, Frellsen, J., & Picchini, U. (2021). Sequential Neural Posterior and Likelihood Approximation. arXiv preprint arXiv:2102.06522.

[3]   **Wiqvist, S.**, Picchini, U., Forman, J. L., Lindorff-Larsen, K., & Boomsma, W. (2018). Accelerating delayed-acceptance Markov chain Monte Carlo algorithms. arXiv preprint arXiv:1806.05982.

PEER-REVIEWED PUBLICATIONS

[1]   **Wiqvist, S.**Golightly, A., McLean, A. T., & Picchini, U. (2021). Efficient Efficient inference for stochastic differential mixed-effects models using correlated particle pseudo-marginal algorithms. Computational Statistics & Data Analysis, 157, 107151.

[2]   **Wiqvist, S.**, Mattei, P. A., Picchini, U., & Frellsen, J. (2019). Partially Exchangeable Networks and Architectures for Learning Summary Statistics in Approximate Bayesian Computation. In International Conference on Machine Learning (pp. 6798-6807). PMLR.

Talks

2021   ISBA World Meeting 2021 *Efficient inference for stochastic differential equation mixed-effects models using correlated particle pseudo-marginal algorithms*

2021   Nordstat 2021 *Sequential Neural Likelihood and Posterior Approximation:Inference for Intractable Probabilistic Models via DirectDensity Estimation*

2019   MC 20: Workshop on Numerical Methods for Stochastic Differential Equations *Efficient inference for stochastic differential equation mixed-effects models using correlated particle pseudo-marginal algorithms*

2019   Pioneers of Probabilistic Programming (Meet-up group, Copenhagen) *An Introduction to Bayesian Statistics and Approximate Bayesian Computing*

2019   Bayes@Lund. *Automatic learning of summary statistics for Approximate Bayesian Computation using Partially Exchangeable Networks.*

2019   Statistics and Biomathematics Seminar, Dept. Mathematical Sciences, Chalmers University of Technology and University of Gothenburg. *Automatic Learning of Summary Statistics for Approximate Bayesian Computation Using Deep Learning.*

Journal Refereeing

Wellcome Open Research.

Grants and Awards

Teaching

Spring 2021   Computer laboratory assistant, *MASM11/FMSN50 Monte Carlo and Empirical Methods for Stochastic Inference*, Lund University.

Fall 2020   Computer laboratory assistant, *FMSN60/MASM18 Financial Statistics*, Lund University.

Spring 2020   Computer laboratory assistant, *MASM11/FMSN50 Monte Carlo and Empirical Methods for Stochastic Inference*, Lund University.

Fall 2019   Computer laboratory assistant, *FMSN60/MASM18 Financial Statistics*, Lund University.

Fall 2019   Teaching assistant and computer laboratory assistant, *FMSF15/MASC03 Markov processes*, Lund University.

Spring 2019   Computer laboratory assistant, *MASM11/FMSN50 Monte Carlo and Empirical Methods for Stochastic Inference*, Lund University.

Fall 2018   Computer laboratory assistant, *FMSN60/MASM18 Financial Statistics*, Lund University.

Fall 2018   Teaching assistant and computer laboratory assistant, *FMSF15/MASC03 Markov processes*, Lund University.

Spring 2018   Computer laboratory assistant, *MASM11/FMSN50 Monte Carlo and Empirical Methods for Stochastic Inference*, Lund University.

Fall 2017   Computer laboratory assistant, *FMSN60/MASM18 Financial Statistics*, Lund University.

Fall 2017   Teaching assistant and computer laboratory assistant, *FMSF15/MASC03 Markov processes*, Lund University.

Spring 2017   Teaching assistant and computer laboratory assistant, *FMS035 Mathematical Statistics, Basic Course*, Faculty of Engineering, Lund University.

Fall 2016   Teaching assistant and computer laboratory assistant, *FMS032 Mathematical Statistics, Basic Courses*, Faculty of Engineering, Lund University.

Spring 2016   Computer laboratory assistant, *FMS035 Mathematical Statistics, Basic Course*, Lund University.

Fall 2015   Teaching assistant and computer laboratory assistant, *FMS086 Mathematical Statistics, Faculty of Engineering*, Lund University.

Professional Experience

2015-2015   Intern, Ellevio AB, Stockholm, Sweden.
Econometrical investigation of the Swedish power-grid market.

Positions of Trust

2013-2014   Head of Student Council of the Engineering Mathematics program.

2013-2014   Student representative in the the Program Management Group of the Engineering Mathematics program.

2012-2013   Head of fair and logistics FARAD 2013, (FARAD is a career fair organized by students).