





Curriculum Vitae

Kasper Bågmark

Research: Scientific machine learning, Bayesian statistics, Stochastics, Numerical analysis.

 bagmark.github.io
 Google Scholar
 ORCID
 github.com/bagmark

Education

- 2020–2026 PhD in Mathematics at Chalmers University of Technology.
”Learning to estimate: Bayesian filtering with deep density methods”, under supervision of Annika Lang, Adam Andersson, Stig Larsson and Moritz Schauer
- 2018–2020 MSc in Engineering Mathematics and Computational Science at Chalmers.
- 2015–2018 BSc in Mathematics at University of Gothenburg.

Employment History

- 2026–(ongoing) Postdoctoral fellowship, WASP and Knut and Alice Wallenberg Foundation, Vrije Universiteit Amsterdam, Dept. of Mathematics
Two year fellowship working on uncertainty quantification for mathematical neuroscience with scientific machine learning
- 2020–2026 Doctoral studentship, Chalmers, Dept. of Mathematical Sciences
Parental leave for a total of 10 months during this employment
- 2020–2026 WASP - PhD Fellow (Wallenberg AI, Autonomous Systems and Software Program), Chalmers, Dept. of Mathematical Sciences
- 2019 Intern at Quantitative Strategies, Andra AP-Fonden (AP2)

Publications

Preprints

- [1] Kasper Bågmark, Adam Andersson and Stig Larsson. “Nonlinear filtering based on density approximation and deep BSDE prediction”. In: *arXiv:2508.10630* (2025).
- [2] Kasper Bågmark and Filip Rydin. “High-dimensional Bayesian filtering through deep density approximation”. In: *arXiv:2511.07261* (2025).

Revisions

- [3] Kasper Bågmark, Adam Andersson, Stig Larsson and Filip Rydin. “A convergent scheme for the Bayesian filtering problem based on the Fokker–Planck equation and deep splitting”. Major revision in: *IMA Journal of Numerical Analysis* (2025). Available at: *arXiv:2409.14585*.

Journal articles

- [4] Kasper Bågmark, Adam Andersson and Stig Larsson. “An energy-based deep splitting method for the nonlinear filtering problem”. In: *Partial Differential Equations and Applications* **4** (2023).

Conference proceedings

- [5] Kasper Bågmark and Filip Rydin. “Neural likelihood surrogates for parameter inference via log-density PDE”. In: *The 14th International Conference on Learning Representations Workshop AI&PDE*. 2026.

Software

[6] Kasper Bågmark and Filip Rydin. *deep-density-filtering*. 2025. DOI: 10.5281/zenodo.17594127.

Funding

Total amount ~152 kEUR of which as principal applicant ~138 kEUR

2026	Postdoctoral scholarship (WASP through Knut and Alice Wallenberg Foundation)	128 000 EUR
2026	Travel grant, Stiftelsen Långmanska kulturfonden	15 000 SEK
2026	Travel grant, Kungl. Vetenskaps- och Vitterhets-Samhället (KVVS)	12 000 SEK
2026	Travel grant, SVEFUM (Stiftelsen för Vetenskaplig Forskning och Utbildning i Matematik)	10 000 SEK
2025	For DYNSTOCH 2026, Wenner-Gren Foundations	100 000 SEK
2025	For DYNSTOCH 2026, Stiftelsen Theodor Nordströms testamentsfond (Royal Swedish Academy of Sciences)	40 000 SEK
2025	For DYNSTOCH 2026, Stiftelsen G S Magnusons fond (Royal Swedish Academy of Sciences)	40 000 SEK
2025	For DYNSTOCH 2026, Wilhelm och Martina Lundgrens Vetenskapsfond	50 000 SEK

Awards

2023 Best poster award at 29th Nordic Conference in Mathematical Statistics

Workshop and Conference Organization

- 2026 Main organizer, DYNSTOCH Statistical Methods for Dynamical Stochastic Models, Gothenburg
Website: <https://dynstoch2026.pages.dev>
- 2023 PhD volunteer, 29th Nordic Conference in Mathematical Statistics, Gothenburg

Supervision

- 2025 Melker Bild, Master thesis "Adapting the Deep Backward Stochastic Differential Equation Method to Stochastic Filtering"
- 2024 Filip Rydin, Master thesis "Energy-Based Deep Splitting for Fast and Accurate Estimation of Filtering Densities"
Now a PhD student in Systems and Control at Chalmers University of Technology

Teaching

Total duration of teaching, excluding preparations, assessment, and administration, approximately 400 hours.

Teaching assistant

- 2024 Computational methods for stochastic differential equations
- 2020/21/22/23 High-performance computing
- 2020/21 Linear Algebra

Scientific Talks and Posters

Talks

- 07/2026 *High-dimensional Bayesian filtering through deep density approximation*, (invited) Scientific Computing and Differential Equations (SciCADE), Edinburgh
- 06/2026 *High-dimensional Bayesian filtering through deep density approximation*, 30th Nordic Conference in Mathematical Statistics, Helsinki
- 03/2026 *High-dimensional Bayesian filtering through deep density approximation*, (invited) Department of Information Technology, Uppsala
- 10/2025 *Nonlinear filtering based on density approximation and deep BSDE prediction*, (invited) Amsterdam Center for Dynamics and Computation, Amsterdam
- 08/2025 *Nonlinear filtering based on density approximation and deep BSDE prediction*, Stochastic Numerics and Inverse Problems in Sweden, Växjö
- 06/2025 *Nonlinear filtering based on density approximation and deep BSDE prediction*, DYNSTOCH Statistical Methods for Dynamical Stochastic Models, Le Mans
- 04/2025 *A convergent scheme for the Bayesian filtering problem: Based on the Fokker–Planck equation and deep splitting*, (invited) seminar Fraunhofer Centre, Gothenburg
- 10/2024 *A convergent scheme for the Bayesian filtering problem: Based on the Fokker–Planck equation and deep splitting*, ”poster blitz”, 5th Workshop on Scientific Computing in Sweden, Stockholm
- 06/2024 *A convergent scheme for the Bayesian filtering problem: Based on the Fokker–Planck equation and deep splitting*, DYNSTOCH Statistical Methods for Dynamical Stochastic Models, Kiel
- 12/2023 *An energy-based deep splitting method for the nonlinear filtering problem*, IMS International Conference on Statistics and Data Science, Lisbon

Posters

- 01/2026 *Nonlinear filtering based on density approximation and deep BSDE prediction*, WASP Winter Conference, Örebro
- 10/2025 *Nonlinear filtering based on density approximation and deep BSDE prediction*, Chalmers AI Research Center Workshop for Structured Learning, Gothenburg
- 01/2025 *A convergent scheme for the Bayesian filtering problem: Based on the Fokker–Planck equation and deep splitting*, WASP Winter Conference, Norrköping
- 10/2024 *A convergent scheme for the Bayesian filtering problem: Based on the Fokker–Planck equation and deep splitting*, 5th Workshop on Scientific Computing in Sweden, Stockholm
- 10/2024 *A convergent scheme for the Bayesian filtering problem: Based on the Fokker–Planck equation and deep splitting*, Chalmers AI Research Center Workshop for Structured Learning, Gothenburg
- 01/2024 *A convergent scheme for the Bayesian filtering problem: Based on the Fokker–Planck equation and deep splitting*, WASP Winter Conference, Norrköping
- 10/2023 *An energy-based deep splitting method for the nonlinear filtering problem*, Chalmers AI Research Center Workshop for Structured Learning, Gothenburg
- 10/2023 *An energy-based deep splitting method for the nonlinear filtering problem*, Nordic AI Meet, Copenhagen
- 06/2023 *An energy-based deep splitting method for the nonlinear filtering problem*, 29th Nordic Conference in Mathematical Statistics, Gothenburg

01/2023 *An energy-based deep splitting method for the nonlinear filtering problem*, WASP Winter Conference, Norrköping

Department seminars

02/2026 *High-dimensional Bayesian filtering through deep density approximation*, Statistics seminar, Gothenburg
 01/2026 *A fractal paradox on how to measure: From coastlines to stochastic processes*, PhD seminar, Gothenburg
 05/2025 *Nonlinear filtering based on density approximation and deep BSDE prediction*, Computational Applied Mathematics seminar, Chalmers, Gothenburg
 11/2022 *An energy-based deep splitting method for the nonlinear filtering problem*, Computational Applied Mathematics seminar, Gothenburg

Popular science outreach

11/2025 *Bayesian filtering with deep learning*, poster, Faculty day University of Gothenburg, Gothenburg
 04/2024 *Why my guess is better than yours*, talk, International Science Festival, Gothenburg

Academic Service

2026 Co-organizer of the statistical seminar, Chalmers, Dept. of Mathematical Sciences
 2025-(ongoing) Member of Academic Jury, Unga forskare
 Evaluated high school thesis projects in mathematics and computer science, focusing on academic rigor, presentation, and originality.
 2022–2025 Committee member in the recruitment of new PhD students, Chalmers, Dept. of Mathematical Sciences
 2023–2025 Member of the PhD student council, Chalmers
 2021–2023 Cluster leader, Wallenberg AI, Autonomous Systems and Software Program (WASP)
 Lead a core technology cluster within WASP on Bayesian Statistics, SDE and Probabilistic Programming for two years. Organized meetings, physically and digitally, as well as schedule and content for the cluster.
 2022– Referee work for journals and conferences:
 Journal of Complexity, Workshop for International Conference on Learning Representations, International Conference on Probabilistic Numerics

Extracurricular Service

2018–2020 Volunteer Instructor – Programming for kids, Junis
 Leader of a coding group for youths in the ages 7-13. The focus of the group is teaching elementary programming and computer knowledge. The Junis program was originally created to provide a secure learning environment for young individuals.