Simon Daniel Eiriksson, M.Sc. machine learning

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Summary

Data Scientist / ML Engineer with a strong foundation in probabilistic machine learning and mathematical modelling, combined with 10+ years delivering analytics for Danish public health administration.

Recently completed an M.Sc. in Mathematical Modelling and Computation, with strong foundations in ML and probabilistic methods (Bayesian inference, uncertainty quantification, diffusion models). My M.Sc. thesis work focuses on diffusion/variational generative modelling and I have also worked extensively on uncertainty estimation in Bayesian neural networks.

I bring extensive experience working with large, complex real-world datasets from a prior career in quantitative public data analysis, where I designed data workflows, built analytical pipelines, and delivered data-driven insights at national and regional scale.

Skills

Coding stack

Expert	Python, SAS, Pytorch, T-SQL
Mastery	Scikit-learn, Numpy, Pyro, High Performance Computing, LaTeX, Git
Good	Pandas, R, Matplotlib, C/C++, Linux, Bash
Knowledge	MATLAB, BUGS, Docker, VBA, JAX, Docker

Other skills

ML and stats Theory	Generative modelling (VAE/diffusion/normalizing flows), Variational autoencoders, Probabilistic ML, Deep Learning, Uncertainty Quantification, Bayesian Inference, Probabilistic Graphical Models, MLOps, Computer Vision, Optimization, Time Series, SDEs, Recurrent Neural Networks.
Natural Languages	Danish (native), English (fluent/C2), Spanish (good/B2-C1).
Misc.	Academic research, Teaching, Consultation, Writing & Reporting, Data Warehousing, ETL and dashboarding.

Education

2023 – 2025 · **M.Sc. Engineering, Technical University of Denmark** Mathematical Modelling and Computation. GPA: 11.2.

Thesis title: *Iterative Variational and Time-consistent Diffusion Models*.

Courses: Advanced Machine Learning – Deep Learning – Dynamic Optimization – Bayesian Machine Learning – Model-Based Machine Learning – Advanced Deep Learning in Computer Vision – Machine Learning for Signal Processing – Machine Learning Operations – Intro to Reinforcement Learning and Control – Scientific Computing for ODEs and PDEs – Functional Analysis – Digital learning technology and entrepreneurship – Innovation in Engineering – Multivariate Statistics – Programming in C++

2009 – 2013 · **M.Sc. Anthropology, University of Copenhagen, Denmark**
Thesis title: *Policing the Margins of the State – Community Policing in Kibera, Nairobi*.

2005 – 2008 · **B.Sc. Anthropology, University of Copenhagen, Denmark**

Education (continued)

2007   **Exchange student, University of Havana, Cuba**
Fluency in Spanish.

2001 – 2005   **B.Sc. Mathematics, University of Copenhagen, Denmark**

Projects

2025   **Master's thesis** supervised by Professor Ole Winther: *Iterative Variational and Time-consistent Diffusion Models*. Explores two novel ideas for Variational Diffusion Models: (1) An iterative variational model that reinterprets diffusion processes as hierarchical VAEs that can be trained with a reverse-time variational process. (2) Time-consistent generative process with variable number of time steps. Implemented experiments in PyTorch; focused on evaluation design, ablation logic, and reproducibility of results.

Independent research-based project: *Riemannian Laplace Approximation via Subspaces and Bayesian Quadrature*. The project presents a method for uncertainty estimation in machine learning models, exploiting the curvature of the loss function and Bayesian Quadrature, to make efficient parameter samples from the posterior distribution.

2024   Independent research-based project: *Improving Uncertainty Quantification via Bayesian Neural Networks*, which explores the use of subspace projection of the Laplace approximation of the posterior distribution in Bayesian neural networks.

Employment History

2024   **Teaching Assistant, Technical University of Denmark**
Course: Deep Learning.

2016 – 2023   **Independent Analyst & Consultant in Public Health Data** With ten years' experience with health data from public administration in Denmark, I chose to start as independent data analyst in 2016. In my role as consultant, I have worked with a wide range of projects. My clients come from the public health administration in Denmark.

- Designed and maintained BI/ETL workflows and data warehousing; performed data quality work and wrangled very large datasets.
- Delivered statistical analyses and ML modeling for public health administration stakeholders; produced decision-ready reporting.
- Implemented national/regional health KPIs and contributed to regional health survey publications (Region Zealand) and other reports.
- Toolbox: SAS, T-SQL, Python, VBA.

2016   **Part-time lecturer at IT University of Denmark**
Course: Digital Management, Governance and Accountability

2013 – 2015   **Administrative officer at the Department for Health Data, National Institute for Health Data and Disease Control**

- SQL/SAS programming; extraction and wrangling across Danish national health registries for research projects.
- Supervised researchers and delivered health statistics to international organizations (OECD, NOMESCO, EUROSTAT), media, and parliament.
- Contributed to development of the new National Patients Registry; led international relations / chaired NOMESCO.

2008 – 2013   **Student assistant at the National Board of Health, Department of Health Documentation under the Ministry of Health in Denmark.**

Employment History (continued)

2011-2012   🔖 **Teaching Assistant, Department of Anthropology, University of Copenhagen**
Courses: Philosophy of Science in Anthropology – Quantitative methods.

2004-2012   🔖 **Instructor, Department of Mathematics, University of Copenhagen**
Courses: Introduction to mathematics (mathematical analysis) – Linear Algebra I – Mathematical models in biology – Introduction to microeconomics – Mathematics and Data Processing for Bioscience.

2010   🔖 **Intern at The Royal Danish Embassy, Nairobi, Kenya**

Publications

1   **S. D. Eiriksson**, "Iterative variational and time-consistent diffusion models," MSc thesis, Department of Applied Mathematics and Computer Science, Technical University of Denmark, Lyngby, Denmark, 2025. 🔗 URL: https://findit.dtu.dk/en/catalog/69055dd7953b5a1aae2c0c2f.

2   H. S. Poulsen, **S. D. Eiriksson**, A. S. J. Christiansen, and A. Wingstrand, *Sundhedsprofil 2021 for Region Sjælland og kommuner – »Hvordan har du det?«* Sorø, Denmark: Region Sjælland, Data og udviklingsstøtte, 2022, ISBN: 978-87-93639-17-1. 🔗 URL: https://bit.ly/3Ye2uxr.

3   A. L. Blaakilde, **S. D. Eiriksson**, B. H. Hansen, L. S. Olesen, and A. Wingstrand, *Sundhedsprofil 2017 for Region Sjælland og kommuner – »Hvordan har du det?«* Sorø, Denmark: Region Sjælland, Produktion, Forskning og Innovation, 2018, ISBN: 978-87-92026-98-9. 🔗 URL: https://bit.ly/478kbCy.

Miscellaneous Experience

Awards and Achievements

2015   🔖 **Danish Data Science Academy, Travel Grant**
Travel grant to participate at the Cambridge Ellis Unit Summer School on Probabilistic Machine Learning

   🔖 **Presentation at the American Anthropologist Annual Meeting, Denver**
Presentation of paper draft: Privatizing policing - contesting government in the panel Beyond Neoliberal Communities at the Annual Meeting in Denver, Colorado.

2012   🔖 **Study Scholarship**, Nordic Africa Institute, Uppsala.
The Nordic Africa Institute Study Scholarship for stay in thesis writing retreat in the inspiring environment of the Nordic Africa Institute in Uppsala, Sweden.

2007   🔖 **Travel scholarship**, Department of Anthropology, University of Copenhagen.

Independent courses

2025   🔖 **Cambridge Ellis Unit Summer School on Probabilistic Machine Learning**

2024   🔖 **Nordic Probabilistic AI School (Nordic ProbAI), Copenhagen**

2022   🔖 **European Summer School of Logic Language and Computation, NUI, Galway**

2018 – 2020   🔖 **Independent courses at Technical University of Denmark**
Courses: Time Series Analysis – Computer Architecture and Engineering – Introduction to Machine Learning and data modelling

2019   🔖 **Visiting graduate student at University of St. Andrews, Scotland** in Mathematics.
Courses: Mathematical Statistics – Markov Chains and Processes – Bayesian Inference.