

# Didrik Nielsen | Curriculum Vitae

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PhD in *Machine Learning*; MSc in *Applied Physics and Mathematics*. Passionate about machine learning and deep learning, from simpler statistical models to deep generative models and self-supervised learning.

## Education

- **Technical University of Denmark (DTU)** **Copenhagen, Denmark**  
*PhD Student*  
January 2019–December 2021  
Researching Deep Generative Models with Prof. Ole Winther.
- **University of Amsterdam (UvA)** **Amsterdam, Netherlands**  
*Visiting PhD Student*  
January 2020–June 2020  
Visiting AMLAB, working with Prof. Max Welling.
- **Norwegian University of Science and Technology (NTNU)** **Trondheim, Norway**  
*MSc Applied Physics and Mathematics, Average Grade: A*  
August 2011–December 2016  
Main profile: Industrial Mathematics. Specialization: Statistics.
- **National University of Singapore (NUS)** **Singapore, Singapore**  
*Exchange Student, Average Grade: A-*  
January 2015–May 2015

## Employment

- **twig.energy** **Copenhagen, Denmark (Remote)**  
*Staff Machine Learning Engineer*  
May 2023–  
- Developing machine learning models for trading in power markets.
- **Norwegian Computing Center** **Oslo, Norway**  
*Researcher*  
January 2022–May 2023  
- Developing machine learning methodology to solve problems for industrial partners.
- **raffle.ai** **Copenhagen, Denmark**  
*Research Assistant*  
September 2018–December 2018  
- Developing enterprise search using *natural language processing* and *deep learning*.
- **Center for Advanced Intelligence Project (AIP), RIKEN** **Tokyo, Japan**  
*Research Assistant*  
March 2017–August 2018  
- Working with Mohammad Emtiyaz Khan in the Approximate Bayesian Inference (ABI) team.  
- Conducting research with a focus on *variational inference* and *Bayesian neural networks*.
- **Norwegian Computing Center** **Oslo, Norway**  
*Summer Intern*  
June 2016–July 2016  
- Working on a research project on fraud detection in the insurance industry.
- **Norsk Hydro** **Oslo, Norway**  
*Summer Intern*  
June 2015–August 2015  
- Developing trading strategies for energy markets using machine learning.
- **If P&C Insurance** **Oslo, Norway**  
*Summer Intern*  
June 2014–August 2014  
- Analysis of trends in insurance claims and the effects of a marketing campaign.

## Teaching & Invited Talks

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- **Probabilistic AI Summer School** Helsinki, Finland  
*Invited Lecture on Normalizing Flows* June 2022
- **Visual Intelligence Seminar Series** Oslo, Norway  
*Invited Talk on Normalizing Flows and Diffusion Models* October 2021
- **Probabilistic AI Summer School** Trondheim, Norway  
*Invited Lecture on Normalizing Flows* June 2021
- **MLLS Seminar** Copenhagen, Denmark  
*Invited Talk on Normalizing Flows* April 2021
- **AMLAB Seminar** Amsterdam, Netherlands  
*Invited Talk on SurVAE Flows* September 2020
- **Technical University of Denmark** Copenhagen, Denmark  
*Teaching Assistant in the Deep Learning course 2019 & 2020* 2019–2020
- **Data Science Summer School** Paris, France  
*Teaching Assistant in two-day tutorial on Approximate Bayesian Inference* June 2018
- **Works Applications** Tokyo, Japan  
*Invited Talk on Bayesian Deep Learning* May 2018
- **Norwegian University of Science and Technology** Trondheim, Norway  
*Teaching Assistant in 7 courses on statistics, calculus, finance and fluid mechanics* 2013–2016

## Service

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- **Machine Learning Conferences** Online  
*Reviewer* June 2019–  
I served as a reviewer for *JMLR*; *IEEE*; *NeurIPS* (2019, 2020, 2021); *ICML* (2020, 2021); *AISTATS* (2021).
- **Hans Majestet Kongens Garde** Oslo, Norway  
*Guard Soldier* July 2010–July 2011  
Compulsory military service. I served one year as a guard soldier in the Royal Guard.

## Selected Publications

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- *Argmax Flows and Multinomial Diffusion: Learning Categorical Distributions.* E. Hoogeboom\*, D. Nielsen\*, P. Jaini, P. Forré, M. Welling (NeurIPS, 2021)
- *SurVAE Flows: Surjections to Bridge the Gap between VAEs and Flows.* D. Nielsen, P. Jaini, E. Hoogeboom, O. Winther, M. Welling (NeurIPS, 2020) [**Oral presentation**].
- *Closing the Dequantization Gap: PixelCNN as a Single-Layer Flow.* D. Nielsen, O. Winther (NeurIPS, 2020).
- *Fast and Scalable Bayesian Deep Learning by Weight-Perturbation in Adam.* M.E. Khan\*, D. Nielsen\*, V. Tangkaratt\*, W. Lin, Y. Gal, A. Srivastava (ICML, 2018).

## Skills

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- **Languages:** Norwegian, English.
- **Programming Languages:** Python, R, MATLAB, C++.
- **Frameworks & Libraries:** PyTorch, TensorFlow.
- **Tools:** LaTeX, Git.