Proceedings of the 6th Symposium of the Norwegian AI Society (NAIS 2025)

Robert Jenssen[1,2,3], Kerstin Bach[4,*]

[1]Machine Learning Group, Department of Physics and Technology, UiT The Arctic University of Norway, Tromsø, Norway
[2]Pioneer Centre for AI, Department of Computer Science, University of Copenhagen, Copenhagen, Denmark
[3]Norwegian Computing Center, Oslo, Norway
[4]Data and Artificial Intelligence Group, Department of Computer Science, Norwegian University of Science and Technology

Preface

This volume contains full and short papers presented during the 6th Symposium of the Norwegian AI Society (NAIS 2025) held on June 18-19th at UiT The Arctic University of Norway in Tromsø, Norway. We are excited to be back in Tromsø for the symposium. The NAIS symposium is returning to Tromsø as one of the early meetings – then in collaboration with the Swedish AI Society – took place in Tromsø in 1988.

The symposium is a lunch-to-lunch meeting with keynote talks, technical talks, posters, and networking sessions. We invited researchers and practitioners to join and talk about their AI successes and challenges. We explicitly reached out to Master's and PhD students in Norway to join the symposium and connect with Norway's AI community.

We received 8 full papers, 12 position papers, and 3 previously published submissions. Each paper was reviewed by at least two members of the program committee. Out of these submissions, we decided to accept 5 full and 4 position papers to be presented and included in the proceedings. Additionally, we accepted the three resubmissions and seven position papers for a short oral and poster presentation. All contributions were presented in two full papers and two short paper sessions taking place on Wednesday, June 18th, and Thursday, June 19th.

The position papers presented during the symposium, but not included in the volume, were:

- **Visualizing Multimodality in Combinatorial Search Landscapes**
  Xavier Sánchez-Díaz and Ole Jakob Mengshoel
  This paper explores visualization techniques for combinatorial search landscapes, emphasizing multimodality and offering practical recommendations based on the Grammar of Graphics.
- **XAI-Guided Transformer Fine-Tuning for Audio Classification: Automated Explanation-Driven Training with IFI on ViT-Based AudioMAE**
  Sebastian August Berg and Özlem Özgöbek
  The authors investigate the adaptation of an XAI-based training method (IFI) to guide fine-tuning of ViT-based audio transformers and assess its generalizability across architectures.
- **Detecting Illegal Fishing with Variational Autoencoders**
  Rafael Nozal and Helge Frediksen
  This work proposes a deep learning pipeline using a variational autoencoder and random forest classifier to detect anomalous vessel behavior indicative of illegal fishing.
- **Challenges when Calculating Reference Limits for Nerve Conduction Studies using Indirect Methods**
  Tomasz S. Szczepanski, Petter Moe Omland, Anis Yazidi, John Anker Zwart, Kerstin Bach and Kristian Bernhard Nilsen

NAIS 2025: Symposium of the Norwegian AI Society, June 17–18, 2025, Tromsø, Norway
*Corresponding author.
0000-0002-7496-8474 (R. Jenssen); 0000-0002-4256-7676 (K. Bach)

The paper outlines methodological challenges in using indirect statistical methods to derive reference limits for nerve conduction studies in Norwegian neurophysiology labs.

The resubmission papers presented during the symposium, but not included in the volume, were:

- **A Layerwise Analysis of Concept Emergence in ViTs**
  Teresa Dorszewski, Lenka Tetková, Robert Jenssen, Lars Kai Hansen and Kristoffer Wickstrøm
  This paper presents a novel neuron labeling analysis showing that Vision Transformers progressively encode increasingly complex concepts, from basic features in early layers to specific objects in later ones.
- **Learning and predicting fishing activities from AIS data**
  Klaus Johannsen, Xue-Cheng Tai, Junyong You and Gro Fonnes
  The authors use AIS data and Norwegian Catch Reports to accurately classify fishing activity through machine learning, demonstrating high performance in automated marine monitoring.
- **AdaptCMVC: Robust Adaption to Incremental Views in Continual Multi-view Clustering**
  Jing Wang, Songhe Feng, Kristoffer Wickstrøm and Michael C. Kampffmeyer
  This study introduces AdaptCMVC, a continual multi-view clustering framework that incrementally integrates new views using self-training and structure alignment to handle noise and avoid forgetting.

Keynote Speakers & Public Lecture

The program of NAIS 2025 included the following two keynotes:

- Elisabeth Wetzer (UiT The Arctic University of Norway): Representation Learning for Multimodal Image Registration and Retrieval
- Steve Marron (University of North Carolina): Data Integration Via Analysis of Subspaces (DIVAS)

Additionally, the symposium concluded with a public lecture:

- Keith Downing (Norwegian University of Science and Technology): Prediction at the core of both natural and artificial intelligence

2024 NAIS PhD Thesis Award

Since 2024, the Norwegian AI Society invites submissions for the annual PhD thesis award. This year, we invited doctoral theses that were defended after December 1, 2023, and until December 31, 2024, in the general area of Artificial Intelligence. We received five submissions this year and the NAIS board awarded the 2024 PhD thesis award to Mina Young Pedersen for her work on *Malicious Agents and the Power of Few: On the Logic of Abnormality in Social Networks.*

Acknowledgements

We would like to thank Inger Solheim, Karolina Storesund, and Petter Bjørklund for their help before and during the symposium. Organizing such events would not be possible without support from sponsors. We would like to thank the Norwegian Research Council, the Digital Innovation Hub Nemonoor, and the Norwegian Open AI Lab for their support. Additionally, we would like to thank the SFI Visual Intelligence and UiT The Arctic University of Norway for hosting the symposium as well as the SFI NorwAI for supporting the organization of the event.

Tromsø, Norway
June 2025

Robert Jenssen
Kerstin Bach

Program Committee

- Marius Aasan, University of Oslo
- Rwiddhi Chakraborty, UiT The Arctic University of Norway
- Changkyu Choi, UiT The Arctic University of Norway
- Laurence Dierickx, University of Bergen
- Fred Godtliebsen, UiT The Arctic University of Norway
- Odd Erik Gundersen, Norwegian University of Science and Technology
- Nektaria Kaloudi, SINTEF Digital
- Michael Kampffmeyer, UiT The Arctic University of Norway
- Benjamin Kille, Norwegian University of Science and Technology
- Helge Langseth, Norwegian University of Science and Technology
- Bjørn Magnus Mathisen, SINTEF Digital
- Ole Jakob Mengshoel, Norwegian University of Science and Technology
- Andreas Lothe Opdahl, University of Bergen
- Adín Ramírez Rivera, University of Oslo
- Signe Riemer-Sørensen, SINTEF Digital
- Arnt Salberg, Norwegian Computing Center
- Xavier Sánchez-Díaz, Norwegian University of Science and Technology
- Bjørnar Tessem, University of Bergen
- Samia Touileb, University of Bergen
- Elisabeth Wetzer, UiT The Arctic University of Norway
- Kristoffer Wickstrøm, UiT The Arctic University of Norway
- Zhirong Yang, Norwegian University of Science and Technology