

NORA.ai

NORA Annual
Report 2024



NORA – Norwegian Artificial
Intelligence Research Consortium

Excellence in AI research, education and innovation

NORA's vision

Disclaimer

The numbers and figures featured in this report are based on data collected from Jan–Dec 2024.
The data is correct and complete to the best of our knowledge.

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1

A Message from the CEO and Board Chair

1.1 Klas Pettersen, CEO of NORA

NORA was established six years ago as a research consortium, with a secretariat responsible for national coordination within AI research, innovation and education. We have gained invaluable experience throughout these years. NORA now consists of 18 universities and research institutes. Such a broad collaboration is exceptional, both nationally and internationally.

I'm proud to highlight the collaborative frameworks we've established both nationally and internationally. Our National Research School in AI exemplifies our commitment to education, whilst our partnerships with esteemed institutions such as the Alan Turing Institute in the UK, HIDA in Germany, U.S. Department of Energy National Laboratories, as well

as our strong ties to the other Nordic AI institutions, underscore our dedication to global collaboration.

Domestically, we've been collaborating with USIT (UiO), Sigma2 and other partners to establish, strengthen and utilise national computing infrastructure, especially through the Norwegian AI Cloud, where we are partners. Through NORA.startup, we actively engage in innovation, and we have established industry and public sector collaborations, and offered services to industry and public sector through the European Digital Innovation Hub - NEMONOOR. Our annual conference has become the premier event, fostering knowledge exchange and community building within the AI sector.

57

Research-based
AI Startups in Norway

4

CuttingEdgeAI seminars with
more than 600 attendees in total

AI

NORA is Norway's
leading research network in AI

18

NORA has a total
of 18 partners

2600⁺

More than 2600
newsletter subscribers

In 2024, many researchers have spent quite some time on applications for AI centres. These centres and Norway will strongly benefit from many of NORA's established structures. The long experience in national AI coordination makes the NORA secretariat well-prepared to support and enhance the initiatives of the new centres. We are eager to leverage our expertise and the networks we've cultivated to contribute to their success.

Our achievements are deeply rooted in our values. I strongly believe in collaboration and trust as a Norwegian asset. The vibrant and positive Norwegi-

an AI environment we've cultivated is a grounding principle. I extend my heartfelt gratitude to my colleagues in the secretariat, whose dedication and hard work have been instrumental in realising NORA's mission.

Looking ahead, I am confident that by building upon our established foundations and embracing collaboration, we will continue to strengthen Norwegian AI research, innovation and education. This will create Norwegian AI excellence and continue bringing Norwegian AI to the international stage.



Klas Pettersen, CEO NORA

1.2 Tom Ryen, NORA Board Chair

In 2024, the intensity of AI research has increased dramatically, both in Norway and internationally. Even two of this year's Nobel Prizes were AI-related, both in physics and chemistry. Almost all higher education institutions and research institutes in Norway have increased their focus on AI, resulting in researchers and scientific staff with high AI expertise becoming highly sought-after as research partners, teachers, and lecturers. This has resulted in many long days and nights for these researchers, applying for funding and achieving good research results. In times like these, it is important for the researchers and their institutions to be part of a larger community, like NORA.

In addition to the research itself, it is important to build strong AI-related research networks. NORA is the most important

national network for AI research in Norway. In addition, NORA is also involved in Nordic and European alliances. In this way, Norwegian researchers can reach out to international environments with high AI expertise much easier.

AI research is more than just technology. I believe we have never seen such disruptive technology introduced at such a rapid pace. This means that we must intensify research on how AI affects society. NORA already has a research school tailored for technologists. Now work is underway to establish an AI research school for social scientists. AI technology must be researched further, but it is also important to research what AI technology does to us. This is best done when researchers meet, as they do through the NORA network.



Tom Ryen, NORA Board Chair

"I'm proud to highlight the collaborative frameworks we've established both nationally and internationally. Our National Research School in AI exemplifies our commitment to education, whilst our partnerships with esteemed institutions such as the Alan Turing Institute in the UK, HIDA in Germany, U.S. Department of Energy National Laboratories, as well as our strong ties to the other Nordic AI institutions, underscore our dedication to global collaboration."

Klas Pettersen, CEO NORA

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Tom Ryen, Board Chair of NORA

Location of NORAs partners

The map shows locations
where NORA partners
have offices

18
Partners

2

About NORA

NORA – Norwegian Artificial Intelligence Research Consortium, was established on November 21, 2018, with the mission to enhance Norwegian research, education, and innovation in AI and related disciplines that advance AI applications. The NORA Secretariat has been operational since April 2019.

NORA contributes to the development of joint research projects among partners, collaborates closely with startup companies in the AI field, coordinates education, as well as strengthens the collaboration between the consortium partners' research communities and the business community.

NORA further contributes to positioning Norwegian research in AI in the international arena and has a special responsibility for developing activities aimed at Horizon Europe. In addition, the NORA secretariat creates opportunities for cross-disciplinary collaboration and hosts various events for researchers and students. NORA is also a member of CAIRNE – the Confederation of Laboratories for AI Research in Europe and serves as the CAIRNE office in Norway/the Nordics.

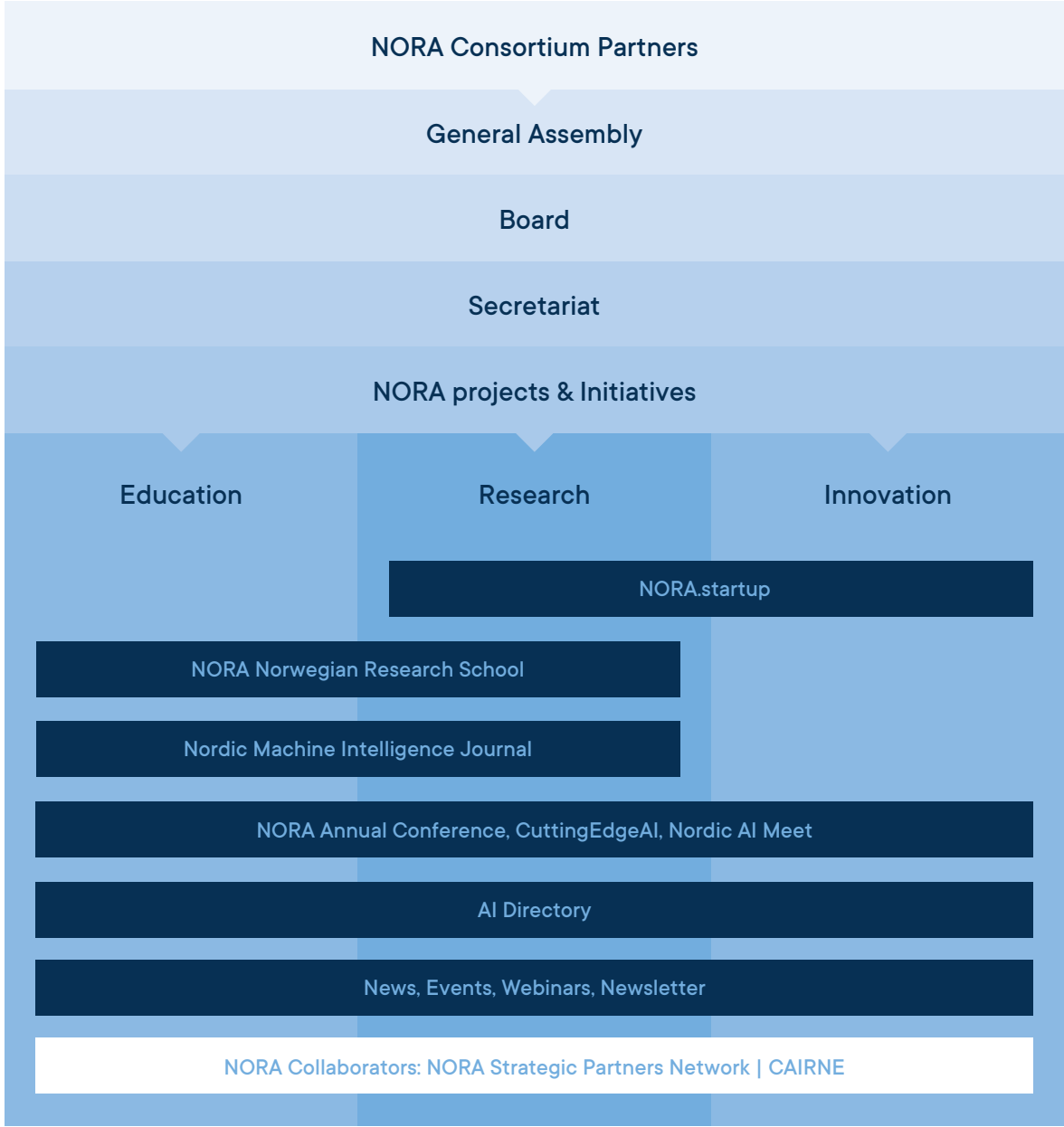
In 2024, NORA welcomed University of Inland Norway as a consortium partner, bringing the number of consortium partners to 18. The consortium partners of NORA are:

1. BI Norwegian Business School
2. Kristiania University College
3. NORCE Norwegian Research Centre AS
4. Norwegian University of Life Sciences
5. OsloMet – Oslo Metropolitan University
6. Simula Research Laboratory AS
7. SINTEF
8. UiT, The Arctic University of Norway
9. University of Agder
10. University of Bergen
11. University of Inland Norway
12. University of Oslo
13. University of South-Eastern Norway
14. University of Stavanger
15. Østfold University College
16. Norwegian Computing Center
17. Western Norway University of Applied Sciences
18. Western Norway Research Institute



NORA projects and initiatives

The figure below provides an overview of NORA’s organisational structure, as well as projects and initiatives executed by the NORA Secretariat. Several of the initiatives have their own governance structures through boards and committees. NORA Consortium Partners refers to the universities, university colleges, and research institutes who are members of NORA. NORA Strategic Partners Network consists of both public and private organisations.



The people at NORA

The NORA Consortium Board represents NORA Consortium Partners and is NORA's governing body. NORA had its first Annual General Assembly in April 2022, where a new board was elected. As of April 2024, the NORA Consortium board consists of seven members and two deputy members. The NORA Secretariat manages the day-to-day management of NORA and is located at the University of Oslo.

NORA Board of Directors



Tom Ryen,
Board Chair
University of Stavanger



Line Eikvil,
Deputy Board Chair
Norwegian Computer Center



Morten Goodwin,
Board Member
University of Agder



Marija Slavkovik
Board Member
University of Bergen



Ingrid Kristine Glad,
Board Member
University of Oslo



Trond Runar Hagen,
Board Member
SINTEF



Stefano Nichele,
Board Member
Østfold University College



Laurence Habib,
Deputy Board Member
OsloMet - Oslo Metropolitan
University



Solve Sæbø,
Deputy Board Member
Norwegian University of Life
Sciences

NORA Secretariat



Klas Pettersen
Chief Executive Officer



Anam Javaid
Communications



Snezhina Duevska
Innovation and International
Relations



Justine Dickhoff
Research & Education



Margrete Alva
Communications and Events



Kushtrim Visoka
Infrastructure and
Innovation



Michael Solvang
Chief Operating Officer



Geir Halmes
Research



Anne-Kat. Hærland
Communication & Outreach



Andrea Gasparini
AI Policy and Ethics



4

Strategy Overview

In 2024 the NORA Secretariat prioritised and structured its work to achieve the objectives set by the NORA Consortium Partners, guided by the NORA Strategy 2023-2026 (summarised on the next pages). The strategy outlines eight strategic goals that form the cornerstones of maintaining and achieving NORA's ambition, vision, and mission.

Key strategic priorities include strengthening NORA's position as a national access point for research, education and innovation in the field of AI, machine learning and robotics, whilst establishing a more prominent national role through large-scale AI initiatives of national importance. In 2024, NORA enhanced Norwegian participation in international cooperation through strategic partnerships with the Alan Turing Institute (UK), HIDA (Germany), and we strengthened the Nordic collaboration through co-organising Nordic AI Meet in Helsinki, Finland.

Throughout the year, NORA demonstrated its commitment to fostering collaboration across disciplines. Recognising

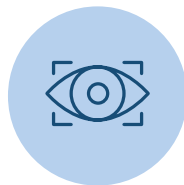
that AI advancement requires extensive interdisciplinary cooperation and substantial computing resources, NORA served as a crucial connector between AI stakeholders in Norway and essential resources. Furthermore, NORA actively contributed to strengthening Norway's research policy and AI strategy, advising policymakers on optimal organisational structures and requirements for achieving international recognition of Norwegian AI research, education and innovation.

Looking ahead to 2025, NORA will continue to expand its national leadership in AI, particularly given its representation of 18 universities, university colleges and research institutes across Norway. Through the NORA collaboration, the consortium partners are strategically positioned to undertake significant projects of national importance. These initiatives will embody the core values of openness, trust and Norwegian values, providing a distinct alternative to the approaches taken by major commercial entities in the field.



NORA's mission

- Advance national and international cooperation in AI
- Advance collaboration between academia and other sectors
- Promote ethical AI
- Serve as a national access point for AI



NORA's vision

Excellence in AI research, education and innovation



NORA's ambition

International recognition of Norwegian AI research, education and innovation

NORA's ambition

International recognition of Norwegian AI research, education and innovation





5

Research

Research stands as a foundational element in NORA – Norwegian Artificial Intelligence Research Consortium’s (NORA) strategy for 2023–2026. NORA has established itself as an internationally recognised network for research and education. Norway, with its democratic values and high level of trust, has great potential for excelling in AI research. To harness this potential, NORA is actively creating platforms for both fundamental and applied research, embracing the field’s natural complexity and cross-disciplinary character.

The NORA Annual Conference and the Nordic AI Meet (NAIM) represent two significant pillars of this endeavour. The NORA Annual Conference is a yearly event that brings together the Norwegian research community within the field of AI. The conference provides a forum where consortium partners, strategic partners, thought leaders in AI and other participants can share research, ideas, theories, models and new perspectives, whilst interacting with peers in the field.

The Nordic AI Meet, initiated by NORA, is an annual conference that convenes early-career researchers from across the Nordic region to present research and build networks. The event has evolved into a truly collaborative Nordic initiative, hosted by the Pioneer Centre for AI in Copenhagen (2023), Finnish Center for AI (FCAI) in Helsinki (2024), and planned for Sweden in 2025 in collaboration with the Wallenberg AI, Autonomous Systems and Software Program (WASP). The Nordic Machine Intelligence Journal supports

the conference by publishing selected submissions.

Beyond conferences, NORA has organised various research seminars, webinars, activities and events where researchers from NORA’s consortium partners have presented and showcased their research to policy makers and the broader AI community in Norway.

Furthermore, NORA has been proactive in promoting and endorsing calls for funding proposals, enabling numerous researchers from NORA’s consortium partners to apply for research funding.

NORA has facilitated connections between researchers to respond to and apply for calls, providing letters of support, making introductions for consortium building, and joining and coordinating proposals of national importance. This has fostered collaboration and consortium building among both consortium and strategic partners. In 2024 the NORA.EU project concluded. In 2025, the work will continue under the SINTEF-led AI Network for Europe, NAINE. NORA, with its extended consortium partners, received excellent grades on the NORA.LLM proposal. However, the project proposal was unfortunately still rejected. The consortium partners are still active, and are now considering how to proceed nationally with this project.

NORA has also taken steps to actively engage with and coordinate meetings among Norwegian Centres for Research-based Innovation (SFIs) that involve NORA consortium partners, such as Visual Intelligence (UiT).



NORA delegation at AIUK at the Alan Turing Institute

5.1

NORA.EU

In 2024 the NORA.EU project concluded, but the network and international events we have built will continue under NAIN (Norwegian AI Network for Europe), led

by SINTEF, where NORA remains a key partner.

As part of NORA.EU's activities on 18 March 2024, NORA and the Alan Turing Institute organised a funding workshop on Digital Twins, titled 'Turing-NORA Strategic Collaborative Funding Workshop'. The event featured speakers from funding bod-

ies (UK Research and Innovation (UKRI)), the private sector, academics representing the Alan Turing Institute and several Norwegian research organisations. The audience included over 40 senior researchers. This workshop served as a 'warm-up' for AI UK, Alan Turing Institute's main event and signature conference in London.

The NORA.LLM project – large language models as infrastructure

Last year, NORA, with its partners, submitted the NORA.LLM project proposal, aiming to establish Norwegian language models as infrastructure under The Research Council of Norway's Call 'Research Infrastructure of National Importance'. The proposal received excellent marks from the review panel, with maximum scores on all criteria, but was rejected administratively. The rejection letter, together with the proposal, can be found on the NORA website.

Although the infrastructure project was not funded, the important work on developing LLMs based on the Norwegian language is being carried forward by the

University of Oslo (UiO) in collaboration with Sigma2 and the National Library. The models, collectively named NORA.LLM, have been released under open-source licenses to benefit Norway. The NORA.LLM models are part of a broader national effort by NORA to create infrastructure for Norwegian language technology. Two of the models were trained entirely on Norwegian data, while the third builds on a pre-trained English model from Mistral AI. Each model has about seven billion parameters, trained on over 30 billion Norwegian words. This was made possible by computing time on Europe's most powerful supercomputer, LUMI, provided through Sigma2.

NORA maintains that foundation models (like ChatGPT) must be regarded as basic infrastructure of national importance, forming the basis for private and public sector services, and should therefore be managed in Norway. We argue that a national effort, as envisioned with the NORA.LLM project, is essential and that it is crucial to engage the research community where the expertise lies. It is positive for the field that the government is providing the National Library of Norway with NOK 20 million to develop large language models as infrastructure, and we hope for a good collaboration with the research community.

5.2

Nordic Machine Intelligence Journal

The Nordic Machine Intelligence (NMI) is a Diamond Open Access Level 1 journal, operating as a non-commercial, open-access, peer-reviewed publication with no publication fees. Since its establishment as a NORA initiative in 2021, NMI has garnered significant attention from AI and ML researchers, enhancing the journal's academic credibility.

Whilst NMI's primary objective is to disseminate high-quality research, welcoming contributions from researchers worldwide, it also serves as a central forum for Nordic research communities, emphasising themes of particular relevance to AI within the Nordic context.

Beyond research articles, NMI aims to feature a diverse array of discussion and opinion pieces that address Nordic opportunities and challenges in AI research. A strategic objective is to position the journal within the second-level Norwegian Scientific Index bibliographic database.

In 2024, NMI published two significant issues: (i) NMI Open Issue 2024, and (ii) a special issue on INF-8605 Interpretability in Deep Learning Summer School.

In December 2024, Professor Michael Riegler (Simula-Met) succeeded Professor Anne Håkansson (UiT) as NMI's Editor-in-Chief, whilst Bjørn-Jostein Singstad (Oslo University Hospital) and Geir Halmes (NORA) continue to manage the journal. The editorial team comprises twenty members, with Professor Morten Goodwin (UiA), Klas Pettersen (NORA) and Professor Anne Håkansson (UiT) serving as Senior Editors. From 2024, NMI strengthened its Nordic presence by expanding the editorial board to include distinguished editors from Finnish and Danish universities. Active recruitment is underway to include representation from Swedish and Icelandic institutions.



Michael Riegler, Professor OsloMet and NMI's Editor-in-Chief

"I believe a Nordic journal has the potential to become a strong voice in open science publishing. By focusing on strict and high-quality peer review and research that reflects Nordic perspectives on AI development, we can create something distinctive in the field."

– NMI's Editor-in-Chief Michael Riegler



NORA Annual Conference Poster Exhibition

Each year, the conference awards researchers for best poster and oral presentations.



Best poster presentation NORA Annual Conference 2024

"Exploring Fashion Recommendation System: A Multi-modal Clip Approach" by Nourin Mohammad, Mina Farmanbar and Aida Mehdipour Pirbazari from UiS



Best oral presentation NORA Annual Conference 2024

"What's a Machine? From In-Silico to In-Vitro AI" by Stefano Nichele from HiØ

5.3 Research Conferences

NORA Annual Conference 2024

The NORA Annual Conference is NORA's flagship event. It serves as a platform where we gather the Norwegian research community within the field of AI. Invited speakers and participants can share research, ideas, theories, models and new perspectives, whilst interacting with peers from the field. All researchers from NORA Consortium Partners and NORA Strategic Partners are invited to participate in the conference. Representatives from industry and the public sector are also welcome. In 2024, the NORA Annual Conference brought together the Norwegian AI community in Kristiansand for a two-day high-quality programme. Knowledge sharing and interaction are at the centre of the conference, and this year's conference high-

lighted AI's impact on several fields, from biomedicine and ethics to misinformation. The conference featured keynote presentations, thematic tracks for oral presentations, poster sessions, startup and industry presentations, and an AI-centre pitching session with The Research Council of Norway. The keynote speakers shared various perspectives on modern AI development: from insights on AI in healthcare and high-performance computing by Ravi Madduri (Computer Scientist, Argonne National Laboratory, USA), through combating misinformation and examination of ethical considerations in AI systems by Serge Belongie (Director, Danish Pioneer Centre for AI, University of Copenhagen) and Marija Slavkovik (Head of the Department of Information Science and



NORA Annual Conference Morten Goodwin, Klas Pettersen



NORA Annual Conference Dinner Entertainment

NORA Annual Conference Best Poster Presentation Nourin Mohammad (UiS)



NORA Annual Conference Best Oral Presentation Stefano Nichele (HiØ)





NORA Annual Conference keynote by Kjersti Aas



NORA Annual Conference Joseph Makokha



NORA Annual Awards Arnoldo Frigessi

Media Studies, University of Bergen), to making AI systems more interpretable and explainable by Kjersti Aas (Research Director, Department of Statistical Analysis and Machine Learning, Norwegian Computing Center). Collectively, they addressed both technical advancement and responsible implementation of AI technologies.

Beyond the keynotes, the conference featured seven diverse tracks that showcased research across the AI spectrum, from NeuroAI and Genetic Algorithms to Language Models. These sessions blended presentations from both emerging and established researchers with insights from startups and strategic partners in the public and private sectors. The tracks covered crucial areas including AI in Commerce and Industry, Ethics and Data Privacy,

Earth and Geospatial AI, Validation and Power Law Representations, and Transportation and Quantum Computing, offering a comprehensive view of current AI developments and applications.

The 2024 NORA Annual Conference dinner was hosted at the renowned Kristiansand Zoo and Amusement Park (Dyreparken), providing a unique and engaging venue for networking and celebration. The evening was hosted by Roy Bjerke at Dyreparken and set the mood for the prestigious NORA Annual Awards ceremony.

The NORA Annual Awards aim to acknowledge and celebrate excellent contributions towards AI in Norway, both on an individual level and on behalf of communities. The nominations for the 2024 awards

were collected from the Norwegian AI community and were reviewed by the Programme Committee of the NORA Conference 2024 and the NORA Board. Professor Stefano Nichele, Director of Østfold AI Hub, presided over the awards presentation, recognising outstanding contributions to AI research and development in Norway. Notable honours included the 'Lifetime Achievement' award presented to Professor Arnoldo Frigessi, 'Early Career Investigator' award to Michael Kampffmeyer, and several other distinguished recognitions across various categories. The dinner event successfully combined professional recognition with informal networking opportunities, strengthening bonds within Norway's AI research community.



NORA Annual Conference keynote by Serge Belongie from the Danish Pioneer Centre for Artificial Intelligence



NORA Annual Conference: Pål Gudmund Berven and Sunniva Reiten Bovim from Posten Bring AS

NORA Annual Awards 2024



NORA Award for Lifetime Achievement

Arnoldo Frigessi, Professor UiO and Director of Integreat – Norwegian Centre for Knowledge-driven Machine Learning



NORA Award for Diversity in AI

Leonora Onarheim Bergsjø, Associate Professor HiØ



NORA Award for AI Community Building and Education

Morten Irgens, Strategic Advisor to the Rector and CEO of Kristiania University College, former Board Member of NORA



NORA.startup Award

DoMore Diagnostics



NORA Award for Distinguished Early-Career Investigator

Michael Kampffmeyer, Professor UiT- The Arctic University of Norway



NORA Award for Outstanding Publication of the Decade 2013-2023

Louise Dennis, Michael Fisher, Marija Slavkovik and Matt Webster. "Formal verification of ethical choices in autonomous systems." Robotics and Autonomous Systems, Vol. 77 (2016)



Nordic AI Meet 2024 in Helsinki, Finland

Nordic AI Meet 2024

Nordic AI Meet, a NORA initiative supported by RCN, was hosted by FCAI in Helsinki, Finland, on 21–22 October 2024. It was coorganised with Finland's annual AI Day and had about 400 attendees. Nordic AI Meet alternates between the Nordic countries and has become the annual meeting point for young AI researchers in the region. The event brought together 400 of the brightest young minds in Machine Learning and AI for a joint programme of scientific presentations, posters, industry sessions and socialising. During the conference, researchers, companies, students and public sector representatives involved in the fast-developing field of AI came together, ensuring matchmaking, information sharing and collaboration across borders and sectors.

The event demonstrated strong engagement from both established AI leaders and emerging talent, with particular emphasis on supporting early-career researchers and students.

The scientific programme showcased exceptional Norwegian research contributions. In the Medical and Healthcare Applications track, Esten H. Leonardsen from UiO presented groundbreaking work on 'Enhancing Brain Age with Explainable Artificial Intelligence', conducted in collaboration with Thomas Wolfers, Lars T. Westlye and Yunpeng Wang. The

Scientific Computing and Engineering track featured significant Norwegian representation through the University of Bergen (UiB) and UiT, The Arctic University of Norway. Roman Khotyachuk (UiB) advanced the field with his presentation on 'Autoencoders-based Nonlinear Feature Extraction from Numerical Solutions of the Elder Problem', developed with Klaus Johannsen. Nirwan Banerjee (UiT) contributed valuable insights through his presentation 'Compact Image Representation by Detecting Distortion in Reflected Acoustic Waves', representing collaborative work with Samir Malakar, Dilip K. Prasad and Alexander Horsch. Demonstrating commitment to nurturing future talent, the NORA Norwegian AI Research School supported 22 PhD students' attendance at the event.

Participant feedback highlighted the particular value for young researchers to connect with experienced specialists in their fields, establishing foundations for future research collaborations. The keynote presentations delivered by Robindra Prabhu (NAV), Qian Janice Wang (University of Copenhagen), Felix Stollenwerk (AI Sweden) and Henri Tirri (Nokia Technologies) received exceptional acclaim from attendees.

Looking ahead, Nordic AI Meet 2025 will continue its regional rotation, taking place in Sweden in partnership with WASP



Nordic AI Meet Fireside chat with Silo AI CEO & Co-founder Peter Sarlin (right) and Professor Heikki Ailisto



Nordic AI Meet Panel Discussion: Qian Janice Wang, Felix Stollenwerk, Robindra Prabhu, Frédéric Pascal (DATAIA Institute) and Katja Mankinen (CSC) and Petri Myllymäki (left to right)

5.5

Special Interest Groups (SIGs)

NORA's Special Interest Groups (SIGs) on NeuroAI and AI Security have been active in 2024 with workshops, meetings and plans for AI centres and research projects. SIGs are formed on the initiative of the NORA partners. We encourage more SIGs to be formed. This is an excellent way of creating a national research environment within a sub-branch of AI.

NeuroAI

The NeuroAI Special Interest Group (SIG) serves as a collaborative platform uniting researchers at the intersection of neuroscience and artificial intelligence. Its primary objective is to foster interdisciplinary research, facilitate knowledge exchange and promote advancements in NeuroAI across Norway.

Established to bridge the gap between neuroscience and AI, the NeuroAI SIG focuses on encouraging partnerships among neuroscientists, AI researchers and industry professionals to address complex challenges in understanding and replicating intelligent behaviour. Additionally, it organises workshops, seminars and conferences to share the latest research findings, methodologies and technological advancements in NeuroAI. By creating a cohesive network of professionals and academics dedicated to the progression of NeuroAI, the SIG strengthens Norway's position in this emerging field.

In 2024, the NeuroAI SIG organised a larger workshop just after NORA's Annual Conference, on 5 June at the University of Agder, Campus Kristiansand. This was a full-day workshop from 09:00 to 16:00, featuring Keith Downing and Alessandro Treves as keynote speakers, in addition to many other talks and roundtable discussions about collaborative opportunities.

Looking ahead, the NeuroAI SIG remains dedicated to expanding its initiatives, and the SIG has led to the initiative of an AI centre application.

AI Security

We believe there is a need to bring together the Norwegian community on cyber security in order to discuss what the most relevant research challenges are within the topic of AI security and bring that into the discussion. The SIG is formed on the initiative from Lilian Røstad, CEO of Simula Research Laboratories, who is also the leader of the SIG.

On 9 April, the SIG organised a workshop hosted by Simula with more than 60 attendees. The objectives of the workshop were to discuss key research challenges related to AI security and to identify collaboration potential for an AI research centre on security.

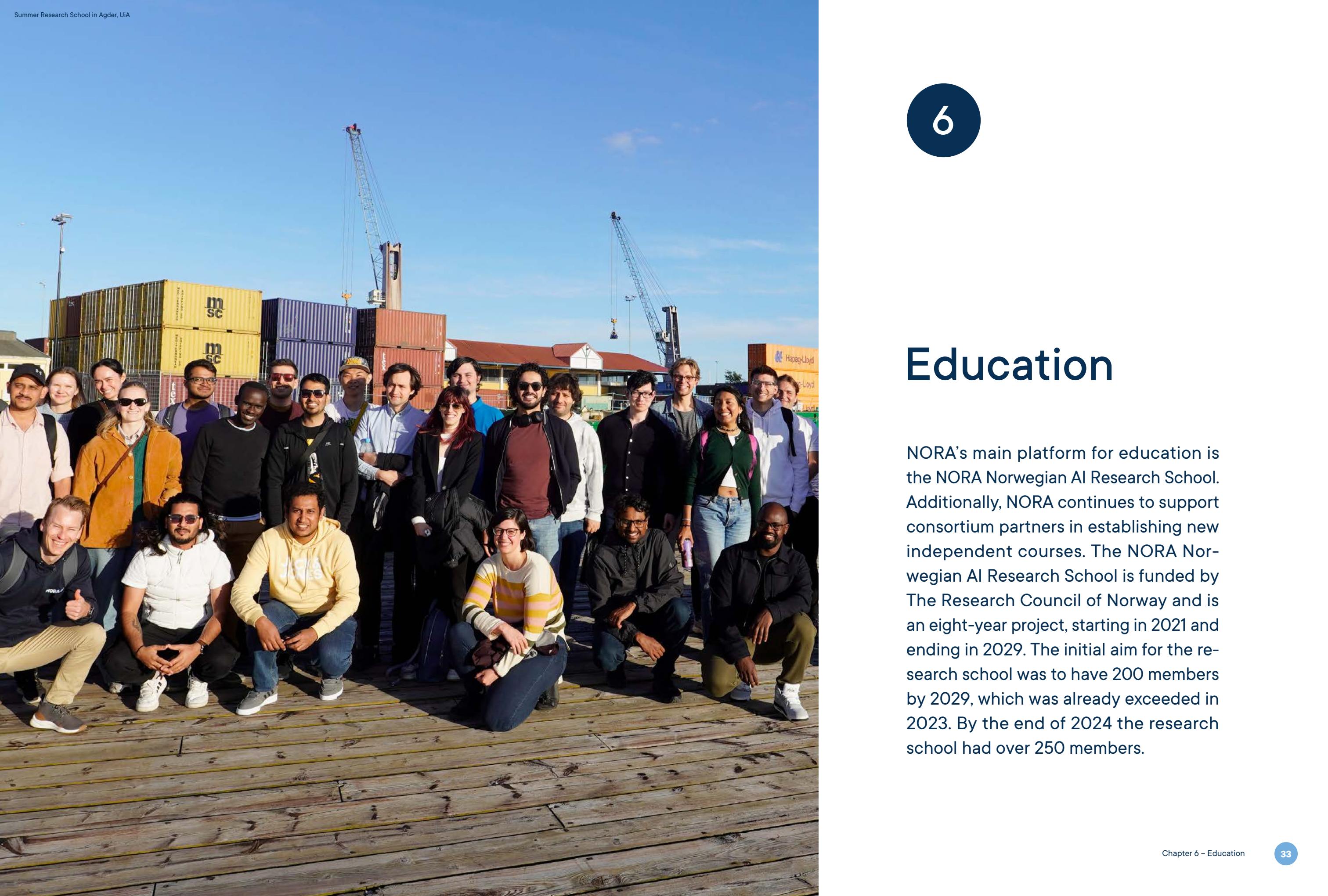
The workshop was organised as a roundtable with introductory short presentations and a group discussion.



NORA SIG NeuroAI Professor Keith Downing presenting his keynote at the NeuroAI workshop hosted by UiA



NORA SIG AI Security workshop hosted by Simula



6

Education

NORA's main platform for education is the NORA Norwegian AI Research School. Additionally, NORA continues to support consortium partners in establishing new independent courses. The NORA Norwegian AI Research School is funded by The Research Council of Norway and is an eight-year project, starting in 2021 and ending in 2029. The initial aim for the research school was to have 200 members by 2029, which was already exceeded in 2023. By the end of 2024 the research school had over 250 members.



Winter School 2024



Summer School 2024



PRESIMAL Autumn School

The NORA Norwegian AI Research School has significantly strengthened the education and training within the field of AI in Norway. The Research School was an active partner in the NORA Annual Conference 2024 and Nordic AI Meet 2024 in Helsinki, Finland.

The main objective of the NORA Norwegian Research School is to raise the quality of Norwegian PhD education in AI to a leading European level, with a high degree of relevance for the labour market. To fulfil this aim, the research school provides courses specifically through the winter school, hosted in collaboration with NLDL; the summer school, hosted next to the NORA Annual Conference; and the PRESIMAL Autumn School. Additionally, a number of webinars, international exchange programmes and dataset competitions are organised throughout the year. Some of the activities are organised by the NORA Secretariat, whilst others are student-led.

The student-led activities are primarily organised by the NORA Research School Student Council, which currently consists

of seven members, with Franziska Schoeb, third-year PhD student at the University of Oslo (UiO), as the council leader. The student council's goal is to foster stronger collaboration among PhD students across Norway in the field of AI, with a strong emphasis on creating an environment where researchers support each other.

Winter School

The Nordic Lights Deep Learning (NLDL) Conference took place in Tromsø, Norway, during the second week of January 2024. It became a melting pot of ideas, innovation and discussions, with its focus on advancements in the field of AI. The conference bridged the gap between academia and industry, presenting a unique meeting where ethics, interdisciplinary approaches and groundbreaking research in AI were discussed. The winter-school programme, co-hosted by NORA as part of the NORA Research School, offered a comprehensive and diverse set of expert-led tutorials for PhD students, with an additional learning session on "Accelerated Deep Learning via

High-performance Computing (HPC)" led by Norwegian AI Cloud (NAIC) experts as a standout feature within this wider educational offering. The winter school was organised over five days at UiT, The Arctic University of Norway, and PhD students who attended and completed the required course assessments were granted five ECTS by UiT. With over 80 attendees, the NORA Research School provided financial support for seven students to attend the winter school.

Summer School

In June 2024, the NORA Summer School was successfully hosted at the University of Agder (UiA) in Kristiansand as a key element of the NORA Annual Conference. The programme delivered three advanced courses in AI from 10–14 June, specifically designed for doctoral candidates. The curriculum featured Geometric Deep Learning (UiB-accredited, led by Associate Professor Nello Blaser), Generative Models (BI-accredited, led by Assistant Professor Rogelio Andrade Mancisidor) and Secure and Robust AI Model Develop-

ment (UiS-accredited, led by Associate Professor Ferhat Özgür Catak).

The initiative attracted over 38 participants representing a wide range of Norwegian academic institutions, including Kristiania, NMBU, NTNU, UiA, UiB, UiO, UiS and UiT. Additionally, researchers from Simula, SINTEF and professionals from NAV participated in the programme. Successful completion of coursework resulted in the award of five ECTS credits.

Participant feedback highlighted both the academic rigour and networking value of the programme. Kirabo Erismas Mugwanya, a doctoral candidate from the University of Bergen, noted: "My course was challengingly nice (a lot of maths), but overall, very interesting. It was also great connecting and interacting with PhDs from other universities and industry personnel."

The programme's structure included dedicated networking opportunities through informal sessions, collaborative discussions and shared meals. These interactions fostered meaningful dialogue and research collaboration among partici-

pants. The educational experience was enhanced by cultural engagement with Kristiansand, culminating in a maritime excursion aboard M/S Maarten through the city's archipelagos.

PRESIMAL Autumn School

The third PRESIMAL Autumn School, a part of the NORA Research School, was organised at the beautiful Ørland Kysthotell from 18 to 20 September. Over 50 young researchers (MSc, PhDs, post-docs), medical doctors and senior scientists met to discuss and learn about the latest developments in AI and medical imaging. There was broad representation from various institutions, including Ahus Hospital, Haukeland University Hospital, HVL, Kristiania, Nordlands-sykehuset, NTNU, SINTEF, Stavanger University Hospital, UiB, UiO, UiT and UNN.

The conference featured an exciting programme aimed at engaging students. The students took an active part in all activities, including a data competition, scientific talks, poster sessions and an Oxford-style debate. Several excellent talks and poster presentations were

delivered. The awards for the best oral presentation and best poster, along with a travel grant of NOK 5,000, went to Mathilde Gajda Faanes for her presentation on "Automatic Brain Tumour Segmentation in Intra-operative Ultrasound Images Using Deep Learning" and to Artem Chernyshov for his poster on "Automated Contouring and Quantification of the Right Ventricle in 2D Echocardiography".

In the Oxford-style debate, four teams with two brave debaters per team competed, arguing for and against the motions 'AI developers should legally be responsible for diagnostic errors' and 'AI-enhanced radiology will increase healthcare inequalities'. The teams arguing for the motions shifted the most votes in their favour, leading them to victory in their debates. There were several social events and networking opportunities, which were integral to the programme. The highlight was the scenic walk along the beautiful shores of Brekastad, combined with a fun historical quiz about Ørland.

Research School Structure

Overview of the NORA Norwegian AI Research School Structure





7

Innovation

One of the pillars of NORA's mission is to advance collaboration between academia, startups and the private and public sectors in Norway. To achieve this goal, NORA has developed and launched NORA.startup and NORA Strategic Partners Network, projects aimed at supporting and strengthening innovation within the field of AI in Norway. NORA.startup has also co-organised several events throughout the year focused on innovation as part of the NORA Norwegian AI Research School. In addition, NORA has played a key role in acquiring funding for and establishing new initiatives aimed at supporting both the public and private sectors, namely the European Digital Innovation Hub - Nemonoor, the Norwegian AI Cloud (NAIC) and ENACT (Ethical risk assessment of Artificial Intelligence in Practice).

In 2024, NORA created networking opportunities between academia and the private and public sectors through flagship events including the NORA Annual Conference, Nordic AI Meet, NLDL Industry Day and NORA.startup events. We also supported major industry gatherings such as Oslo Innovation Week and the first AI Mad Lab Summit at Oslo Science Park. Through NORA.startup, NORA has taken an active role in supporting startup companies in the field of AI, while establishing forums for collaboration and research.

7.1 NORA.startup

NORA.startup was created based on an initiative introduced by the Simula Garage with the aim of building a national network for startups driven by research-based innovation. Since its inception in September 2020, NORA.startup has been an active supporter of startups that come from or wish to connect with the research community across Norway and has since become known as NORA's innovation platform.

In 2024, NORA.startup's network grew and advanced national activities across partner institutions. Currently, NORA.startup consists of 57 startups and 80 researchers.

NORA.startup focuses on creating an arena for research-based innovation, where members can exchange experience, knowledge and disseminate results from innovation projects. The network facilitates opportunities for research collaboration in the field of AI, machine learning and robotics, and supports startups and aspiring entrepreneurial researchers by helping them navigate and connect to relevant actors and knowledge clusters in the Norwegian AI Innovation ecosystem.

In 2024, NORA.startup hosted numerous initiatives to ensure collaboration between startup members, facilitating matchmaking between startups and students, fostering a culture of innovation

NORA.startup members



across all levels of higher education and events exploring funding opportunities and networking.

Matchmaking between startups and students has been an integral part of the initiatives that NORA.startup facilitates, ensuring a direct process for value exchange between the AI startup community and academia. In 2024, we helped students from Kristiania University College and Østfold University College find internships with startups. Working for startups provides students with a unique opportunity to learn about entrepreneurship,

innovation and startup culture, giving them valuable work experience.

At Oslo Innovation Week 2024, Gründergarasjen and NORA.startup’s event illuminated the complex interplay between AI startups and academic research. The discussion highlighted the critical role of strategic funding, particularly through The Research Council and Innovation Norway initiatives. A compelling fireside chat featuring Data Scientist Alise Midtfjord and founders Jon Nordby (Soundsensing) and Lars Vågnes (Simli) offered valuable insights into fostering successful startup-

researcher collaborations. The experiences shared showcased how bridging the gap between innovation-driven startups and knowledge-focused academia can catalyse groundbreaking advancements in AI.

NORA.startup’s network of startups has also played an important role in the NORA Cutting Edge AI series, where they have showcased the application of AI research to solve various real-life problems. Through keynote speeches and panel debates, the founding teams of many startups share their perspective on the commercialisation of AI research.



Oslo Innovation Week NORA x Gründergarasjen Jon Nordby (CEO Soundsensing)



Oslo Innovation Week NORA x Gründergarasjen Freyja Jorgensen



CuttingEdgeAI Presentation by startup Noteless



Innovate Together event presentation by NORA.startup



Innovate Together event presentation by Brønnøysund Register Centre

7.2 NORA Strategic Partners

NORA Strategic Partners is a network for and of research-based innovation projects in the business and public sectors. Launched in January 2022, the network is a central accomplishment of NORA. In 2024, NORA welcomed Brønnøysund Register Centre (Norwegian government agency and registration authority) and TINE (one of Norway's largest food companies) as members in the network, joining existing partners NAV (the Norwegian Labor and Welfare Administration), Ruter (public transport authority for Oslo and Akershus), Posten AS (Norwegian Postal Service) and Norsk Helsenett (Norwegian Health Network).

In 2024, NORA continued the effort of working closely with the private and public sector and instituted an Innovation Council comprising strategic partners. This council serves as an advisory body to both the NORA Consortium Board and the NORA Norwegian AI Research School Board.

NORA Strategic Partners will benefit from the experience and research expertise present among the NORA Consortium Partners. The aim of the network is to facilitate strong knowledge and technology exchange, enhance education and training, and provide access to talent and student collaboration, with support from NORA.startup and the NORA Nor-

wegian AI Research School. A central goal is to increase the uptake of AI in Norway through open and shared knowledge and technology exchange amongst NORA Consortium Partners and NORA Strategic Partners.

NORA's objective is to support partners in conducting research-based innovation, exploring AI applications, and advancing AI adoption in Norway. The NORA Strategic Partners network actively seeks to intensify research collaboration and relationship-building among consortium partners, startups, private and public actors through various initiatives like NORA Annual Conference, NORA Norwegian AI Research School, Nordic AI Meet and the NLDL Industry Day.

Innovate Together: Academia Meets Industry

In its efforts to bring academia and industry together, the NORA Norwegian AI Research School is focused on developing doctoral candidates' capabilities to transform their research into practical applications and explore career opportunities in industry. A key element of this approach was the knowledge-sharing event "Innovate Together: Academia Meets Industry", hosted in Oslo Science Park, designed to strengthen connections between academic research and industrial implementation.

The event was attended by over 30 researchers and industry leaders and began with an intensive science communication workshop, helping PhD candidates develop advanced presentation skills vital for industry engagement. The programme continued with two focused sessions examining research commercialisation and academic entrepreneurship. Industry leaders from established organisations (DNB, RWE, Norsk Helsenett, Chronos AS and Brønnøysundregistrene) and emerging startups (Aizen and Novem) came together to network, while some presented case studies highlighting successful research-to-market transitions. The Research Council of Norway outlined funding mechanisms specifically created to support industry-academia collaborations.

The event concluded with a networking reception at Oslo Science Park, establishing foundations for research internships and collaborative projects in 2025. This initiative aims to create meaningful partnerships between researchers and organisations in both private and public sectors, reinforcing NORA's commitment to driving innovation across the Norwegian AI ecosystem.

NORA.startup Steering Group



Birte Hansen
External Engagement
Adviser at dScience and
Leader of the Steering Group



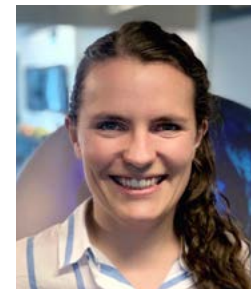
Jørgen Veiby
Head of Accelerator
Startuplab



Anita Schjøll Abildgaard
CEO & Co-founder of IRIS.ai



Lars Ailo Bongo
Professor at UiT, The Arctic
University of Norway



Freyja Jørgensen
Head of Incubator at
Grundergarasjen



Alvaro Fernandez-Quilez
Professor University
of Stavanger



Nils Jacob Berland
CEO of Haawk.ai



Synnøve Olset
CEO Mynder



Åsmund Brekke
Co-founder at Catchwise



Snezhina Duevska
Innovation and International
Relations (NORA)



NORA.startup event in UIS



NORA.startup event in UIS

Industry Day NLDL

NORA co-hosted the Industry Day at the Northern Lights Deep Learning Conference on 11 January 2024, in collaboration with SFI Visual Intelligence at UiT, The Arctic University of Norway. This strategic event brought together key players from the maritime, healthcare and technology sectors to explore practical applications of AI in industry.

The programme featured three distinguished keynote speakers who shared valuable insights from their respective fields. Jonas Juselius, CTO and Co-founder of Oceanbox, presented on “Ocean Intelligence”, while Frøydis Aakenes Etterlid, System Development Manager at KSAT, discussed AI applications in maritime situational awareness. Bjørn Fjukstad, Product Manager at DIPS, completed the keynote sessions with a presentation on AI implementation in Norwegian healthcare.

A highlight of the day was the panel discussion, where the keynote speakers were joined by Martine Dyring Hansen, PhD candidate from SINTEF, to examine the crucial relationship between aca-

demia and industry in developing safe and sustainable AI solutions. The discussion emphasised the importance of knowledge transfer and collaboration between research institutions and commercial enterprises.

The event also included a dedicated networking session, creating opportunities for students and researchers to connect with industry practitioners and startup founders. This facilitated discussions about potential collaborations, including part-time positions, academic project-based work and Innovation Norway funded projects. The session particularly highlighted opportunities for researchers to engage in industry PhDs and innovation projects within the commercial sector.

This successful integration of academic expertise with industrial application demonstrated NORA's commitment to strengthening the bonds between research institutions and industry partners, whilst promoting the practical implementation of AI technology across various sectors in Norway.

7.3 European Digital Innovation Hub – Nemonoor

Norway has joined the major European initiative, DIGITAL EUROPE, to contribute to the advancement of AI and other digital technologies, fostering the competitiveness of private and public enterprises. As part of this programme, the European Digital Innovation Hubs (EDIHs) serve as one-stop shops supporting companies and public sector organisations in addressing digital challenges and enhancing competitiveness.

EDIH Nemonoor, Norway's national hub for AI, is designed to help small and medium-sized enterprises (SMEs) and public service organisations (PSOs) understand and harness AI to generate value for Norwegian society. NORA plays a key role in this initiative, leading the work package on sustainable and trustworthy AI, as well as contributing to education and test-before-invest services.

In 2024, several services and courses were launched to support SMEs and PSOs in adopting AI. These offerings include tailored workshops, practical guidance

sessions and digital resources aimed at simplifying AI adoption and fostering trust in AI systems.

Additionally, the Norwegian government, through Innovation Norway, allocated NOK 20 million in national funding to support both EDIH Nemonoor and EDIH Oceanpolis, ensuring robust infrastructure and impactful services across these hubs. This funding reinforces the government's commitment to advancing AI and digital technologies in Norway.

NORA continues to focus on promoting sustainable and trustworthy AI, contributing to the development of guidelines that align with EU regulations and support ethical and lawful AI use. These efforts aim to assist SMEs and PSOs through various forms of guidance and resources, preparing them for future regulatory landscapes.

By delivering practical services, encouraging collaboration and using national funding effectively, EDIH Nemonoor is playing a vital role in preparing Norwegian enterprises and public organisations to navigate the AI-driven future.

7.4 Norwegian AI Cloud

The Norwegian AI Cloud (NAIC) project, a three-year initiative supported by the Norwegian Research Council, continues to make steady progress in establishing a national infrastructure for AI in Norway. NAIC remains focused on fostering AI education, research and innovation through access to High-Performance Computing (HPC) resources and inclusive training programmes.

In 2024, NAIC advanced its mission by scaling its infrastructure and expanding its reach to researchers, PhD students, educators, entrepreneurs, startups and SMEs. New training programmes were introduced, offering tailored resources for both introductory and advanced levels, enabling participants to effectively utilise the HPC infrastructure for developing advanced AI models and algorithms.

The consortium, comprising NORA, UiO, NTNU, UiB, SIMULA, UiA, SINTEF, UiT, SIGMA2 and NORCE Research, continues to collaborate closely to ensure the success of the initiative. These efforts are bringing together leading experts to establish an

accessible, affordable and user-friendly infrastructure for machine learning and deep learning in Norway.

By pooling expertise and resources, the Norwegian AI Cloud remains on track to deliver a transformative platform that will support AI advancements across academia, industry and startups over the course of the project.



Industry Day NLDL



8

International Cooperation

Establishing international collaborations is essential to elevating Norwegian AI research and enhancing the international visibility of the NORA Consortium Partners' research efforts. To reinforce these international connections, NORA has signed agreements with prestigious institutions like the Alan Turing Institute in the United Kingdom and the Helmholtz Information & Data Science Academy (HIDA) in Germany. These agreements provide Norwegian researchers with opportunities for research exchanges with the Alan Turing Institute and HIDA.

NORA co-organised the fourth Nordic AI Meet conference in Helsinki, Finland, in collaboration with the Finnish Center for Artificial Intelligence (FCAI). The conference is supported by the Research Council of Norway. The Nordic AI Meet conference serves as an outstanding platform for NORA to collaborate with key Nordic partners in the field of AI. The programme and organising committees for the Nordic AI Meet include members from leading AI organisations in the region:

- Finnish Centre for Artificial Intelligence (FCAI)
- Finnish Artificial Intelligence Society (FAIS)
- AI Sweden
- Wallenberg AI, Autonomous Systems and Software Program (WASP), Sweden
- Pioneer Centre for Artificial Intelligence, Denmark

8.1 Alan Turing Institute

The collaboration between NORA and the Alan Turing Institute exemplifies our commitment to international research cooperation, offering Norwegian researchers opportunities to conduct research and exchange knowledge in a world-class AI environment.

Early in the year, two PhD students participating in NORA's 2023/2024 enrichment scheme agreement with the Alan Turing Institute achieved notable recognition at AI UK's PitchFest 2024. Lars Henry Berge Olsen from the University of Oslo and Anastasiia Grishina



Lars Henry Berge Olsen presenting at AI UK



Anastasiia Grishina presenting at AI UK



Anastasiia Grishina and Sushant Gautam

from Simula were among six finalists selected to present their research projects to a panel of judges and attendees. The PitchFest format challenges participants to present their work within 90 seconds, emphasising accessibility, real-world impact, creativity and innovation.

Lars Olsen's pitch, titled "What's in the Black Box", explored how explainable AI (XAI) helps demystify complex AI models. Reflecting on his experience, Lars shared with NORA "Being a finalist at the AIUK PitchFest 2024 was a thrilling challenge – trying to explain four years of research on explainable AI in just 90 seconds! Through numerous iterations and received coaching, I distilled and polished the complexities of what's inside black box models into a clear and engaging pitch for a fantastic and wide-ranging audience."

Anastasiia Grishina presented her pitch, "How Many Large Language Models Do You Need to Write Code Without Errors?" Her research focuses on leveraging multiple language models to gene-

rate, debug and repair code, with the goal of making quality coding practices more accessible. The project aims to address common challenges in software development by reducing bugs and improving test pass rates. Commenting on her experience, Anastasiia noted: "With professional coaching and some healthy peer competition, I enjoyed this AIUK 2024 PitchFest experience and definitely see this short talk in front of the largest audience I presented to as a highlight of my Enrichment Programme at the Alan Turing Institute."

In 2025, NORA's representative at the Alan Turing Institute's Enrichment Scheme will be Sushant Gautam, a PhD student at the Simula Metropolitan Center for Digital Engineering in Oslo and a member of the NORA Research School. The continuation of collaboration between NORA and the Alan Turing Institute is a shining example of international cooperation in advancing knowledge and skills in AI and data science.

8.2 The Helmholtz Information & Data Science Academy

NORA's collaboration with the Helmholtz Information & Data Science Academy (HIDA) facilitates research exchanges between Norway and Germany, offering access to all 18 Helmholtz Association research centres. This programme provides PhDs and postdocs from NORA's partner institutions opportunities to experience different scientific communities and cultures.

In 2024, the agreement provided the opportunity for a three-month-long study exchange to six candidates, three candidates from Germany and three candidates from Norway. The candidates from Norway were Qixia Zhang from UiT, who was hosted at Karlsruhe Institute of Technology (KIT); Fabien Sechi, who was hosted at CISPA - Helmholtz Center for Information Security; and Roza Abolghasemi from OsloMet, who was hosted at Helmholtz AI. The students received NOK 30,000 in scholarship from the NORA Research

School to cover travel and accommodation during the exchange programme.

Reflecting on his three-month exchange at KIT, Qixia Zhang shared that the experience enabled him to develop expertise in agent-based models (ABM), specifically applied to multi-UAV IoT data collection systems. He participated in research seminars and benefited from KIT's specialised

resources and collaborative environment.

Zhang's experience highlights the programme's success in fostering knowledge exchange and international collaboration, while demonstrating the similar collaborative research cultures present at both Norwegian and German institutions.

8.3 US Department of Energy

The AI Memorandum of Understanding (MoU) between the US Department of Energy and Norwegian Ministry of Education and Research (KD) was signed on 8 March 2022, with NORA's CEO Klas Pettersen being instrumental in its establishment. At the NORA Annual Conference 2024, Ravi Madduri of Argonne National Laboratory delivered a keynote on high-performance computing (HPC) and AI in biomedicine, encouraging international collaboration on federated learning projects to develop generalisable AI models for diverse medical needs. During the conference, he engaged with Norwegian researchers to collaborate on these initiatives.



Ravi Madduri of Argonne National Laboratory presenting at NORA Annual Conference

The MoU aims to strengthen Norway-US cooperation in AI research, innovation, education and ethical issues, advancing scientific and technological activities across fields impacting science, energy, climate and health.

The collaboration focuses on facilitating knowledge exchange in AI research, developing quality educational programmes and skills building at all levels. It seeks to advance world-class computing power for AI applications, including AI accelerator technologies, quantum computing, neuromorphic computing and emerging technologies. Additionally, the agreement aims to enable data access for AI development across industries through secure, state-of-the-art networks.



9

Humanities & Society

The field of AI has grown considerably in recent years, expanding from a technology-centred domain to a critical topic across the humanities, social sciences, law and education. This shift reflects both the potential and challenges of AI, encompassing responsible development and governance (including safety, ethics and transparency), societal and cultural impact, and the need for adaptive legal and democratic frameworks. The Norwegian government's "AI billion" initiative underscores this by dedicating two of its three tracks to the questions of how AI will impact society, including research and innovation.

NORA has been actively contributing towards building a shared knowledge of the impact of AI in society through active discussions during our CuttingEdgeAI seminars, especially during the September 2024 edition of CuttingEdge AI, where Prime Minister Jonas Gahr Støre delivered a keynote about how the government sees the opportunities and challenges posed

by AI to Norwegian society. Additionally, he elaborated on how the government plans to address such challenges through the "AI billion" initiative.

9.1 Ethical & Sustainable AI

In 2024, NORA maintained its active role in initiatives that promote responsible AI development. The focus remained on establishing and implementing guidelines for ethical, transparent and sustainable AI use, benefiting both public and private sectors, as well as society as a whole. As part of NEMONOOR, one of Norway's two European Digital Innovation Hubs (EDIHs), NORA led the work on the development of guidelines for sustainable and trustworthy AI in Norway. NORA is also a consortium partner in ENACT (Ethical risks assessment of AI in practice), the goal of which is to support Norwegian organisations in the public and private sectors to reduce ethical risks by increasing their understanding of AI ethics through training programmes



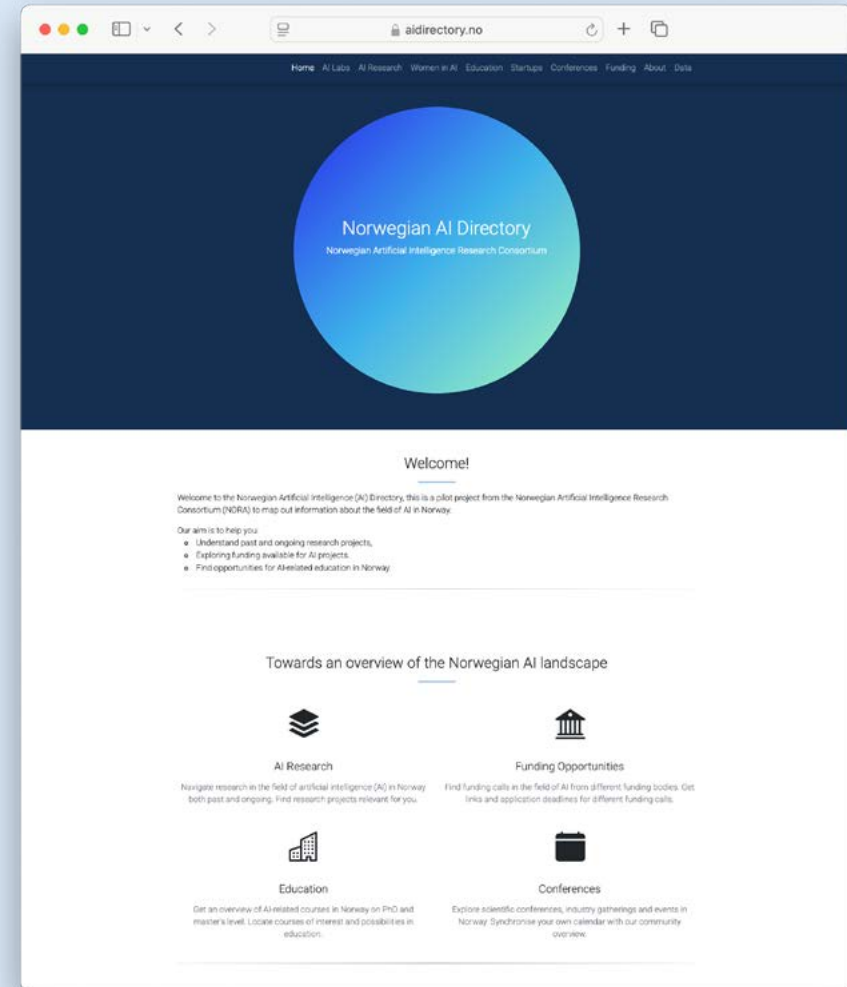
Andrea Gasparini. Photo by Roberts Blaubs



Women in AI Speakers: Birte Hansen (NORA), Ieva Martinkenaite (Telenor), Rebecca Wiborg Seyfarth (Völur), Hilde G. Corneliussen (Vestlandsforskning), Ajla Gasal (TEDx speaker) and Silvija Seres (Technorocks).



Women in AI Panel: Rebecca Wiborg Seyfarth (Völur), Ieva Martinkenaite (Telenor), Ajla Gasal (TEDx speaker) and Silvija Seres (Technorocks).



Norwegian AI Directory

and courses, and by translating ethical principles into practical guidelines. See Chapter 5.5 for more information about ENACT.

The release of the EU's AI Act, as the first comprehensive AI regulation globally, has driven organisations to proactively adjust their AI development practices. Companies have begun establishing AI governance frameworks, conducting risk assessments and implementing transparency measures. NORA's desire to lead by example and emphasis on the importance of implementing ethical practices around AI internally and externally led to the hiring of Andrea Gasparini in a 20% role focused on AI Policy and Ethics. Gasparini is a Senior Academic Librarian at the University of

Oslo Library Digital Services, as well as a Senior Lecturer on Digitalisation, and will be a tremendous resource both for NORA consortium partners and his colleagues from the NORA Secretariat in 2025.

9.2 Diversity in AI

NORA aims to improve the position of marginalised groups and the visibility of women in the field of AI. By focusing on gender diversity and inclusion, NORA hopes to ensure that future generations have equal access and opportunities within this rapidly evolving field.

On 8 March 2024, NORA and its partners hosted the second annual Women in AI event at Domus Bibliotheca, Oslo. The event brought together representatives from in-

dustry and research to address the gender disparity in AI in Norway and discussed initiatives to ensure inclusivity and diversity in AI for the future. The programme included four keynote speeches by Ajla Gasal, Chief Editor at the non-profit Sciencious and ambassador of the Norwegian WiSTEM chapter; Hilde G. Corneliussen, Research Professor and Research Leader at Vestlandsforskning; Ieva Martinkenaite, SVP & Head of Telenor Research and Innovation; and Rebecca Wiborg Seyfarth, Vice President of Engineering at Völur.

At the end of the event, an updated version of the Women in AI Directory was launched. The goal of the directory is to raise awareness by promoting female role models from all backgrounds and employ-

ment, and to portray the breadth of opportunities for AI in society at large. The Women in AI Directory allows users to browse profiles, conduct targeted searches for experts and explore the diverse sectors and industries where women are actively contributing to the field. The directory has been used by various organisations as a reference tool to enhance gender diversity in discussions and panel presentations, ensuring balanced representation.

Through the Women in AI campaign, NORA has made dedicated efforts towards supporting universities, colleges, research institutions, start-ups, companies and individual researchers who wish to discuss and address the diversity and gender gap in AI education and in industry.

By highlighting the achievements and contributions of women to the field of AI in Norway, the directory aims to inspire others and showcase the myriad opportunities available within the field.

NORA upholds diversity and gender balance as core principles across its operations, from webinars and conferences to its board composition and committee membership. This commitment to inclusivity in AI remains central to NORA's strategic vision.

ENACT

The 'Ethical risks assessment of Artificial intelligence in practice (ENACT)' project, funded by The Research Council of Norway, aims to develop methods to

manage ethical AI in Norwegian public and private sectors. The project introduced the Ethical AI Literacy concept and adapted the CORAS methodology for AI-related ethical risks. It has hosted seminars, participated in public forums, and engaged with diverse stakeholders to discuss AI ethics, privacy, and energy concerns. In collaboration with NORA, ENACT organized a seminar on workplace AI co-pilots, featuring varied perspectives. Future efforts include pilot studies of the adapted CORAS methodology and continued advocacy for ethical AI risk assessment.

CuttingEdgeAI

10

NORA.ai



Norwegian Ministry
of Education and Research



Det Norske
Videnskaps-Akademi
The Norwegian Academy
of Science and Letters

Communication and Dissemination

Communication at NORA takes place through events, social media, traditional media and presentations for companies and organisations. Highlights during the year are the CuttingEdgeAI seminars, which invite prominent researchers and professionals within AI to present their work on a selected topic to a broad audience. These events have also received significant press coverage through politicians and journalists who refer to them in the media. NORA also reaches a significant audience through its social media channels, most notably LinkedIn. The NORA Secretariat staff, especially CEO Klas Pettersen, has also participated in numerous podcasts, panel debates, talks and other public events

disseminating NORA's work. Lastly, NORA has hired Anne-Kat. Hærland in a 20% position specifically aimed at organisational outreach through AI presentations.

10.1 CuttingEdgeAI

2024 was NORA's second year of producing the seminar series CuttingEdgeAI, aimed at making AI accessible to a broader audience and focusing on knowledge-sharing, idea exchange and collaborative projects. The series uniquely addresses policy-related aspects of AI, providing a well-rounded perspective that encompasses both theoretical and applied AI concepts.



Panel discussion with Jill Rettberg, Stuart Russell, Oddmund Hoel



Norwegian Prime Minister Jonas Gahr Støre and Minister of Research and Higher Education of Norway Oddmund Hoel

**CuttingEdgeAI:
Weather Forecasting with AI
(29 February 2024)**

This CuttingEdgeAI event featured leading experts in the fields of AI and meteorology from the Bjerknes Centre for Climate Research and the Meteorological Institute of Norway and more. The first part provided a comprehensive understanding of the intersection between meteorology and AI technology, highlighting their combined potential to enhance our predictive capabilities. State-of-the-art weather forecasting models were also showcased, including GraphCast by Google DeepMind and the new “21-dagersvarselet” from YR, which is based on three different weather forecasting models: MEPS, EC medium range and EC extended range.

**CuttingEdgeAI: Open Norwegian
Language Models as a Public Good
(12 April 2024)**

This CuttingEdgeAI event was held in Norwegian and gave insights into the technology and ongoing work at institutions such as the University of Oslo and the National Library of Norway to offer open generative language models especially adapted to the Norwegian language, for use both in research and commercial development. The focus was on how the training data used in large language models are crucial to their behaviour, including knowledge about language, values and sociocultural frameworks. It was discussed how generative AI will continue having pervasive effects on society moving forward, and that the development is dominated by large American technology companies, mostly behind closed doors. Smaller languages like Norwegian are not prioritised, making it necessary for Norway to take action to preserve our digital autonomy through open Norwegian language models that, to a greater extent, reflect Scandinavian culture and values.

**CuttingEdgeAI with Stuart Russell
– a Kavli Prize Week Special
(4 September 2024)**

This edition of CuttingEdgeAI was organised in collaboration with The Norwegian Ministry of Education and Research and The Norwegian Academy of Science and Letters (DNVA), as a special event during the Kavli Prize Week. Held in the University Aula, it featured keynote speaker Stuart Russell, Professor of Computer Science, a leading researcher in AI and co-director of the Kavli Center for Ethics, Science and the Public at UC Berkeley, who addressed the implications of AI. The event was led by Torkild Jemterud, science journalist and radio host at the Norwegian Broadcasting Corporation, and in addition to several prominent AI researchers, Minister of Research and Higher Education Oddmund Hoel and Prime Minister Jonas Gahr Støre were also on the speaker list. The event was attended by almost 400 guests, including students from nearby schools.



Professor Stuart Russell and Prime Minister Jonas Gahr Støre at CuttingEdgeAI



CuttingEdgeAI Panel discussion (left to right) Stuart Russell, Oddmund Hoel, Pinar Heggernes, Alexander Selvikvåg Lundervold and Ajla Gasal



Arendalsuka NORA panel from the left- Inga Strümke, Yngvar Ugland, Anne-Kat. Hærland, Minister Karianne Tung and Morten Goodwin. Moderator Klas Pettersen

CuttingEdgeAI: Talking to Machines – The Future of Speech-to-Text (29 November 2024)

The fourth CuttingEdgeAI seminar of the year explored the fascinating technology that turns spoken language into written text, known as speech-to-text or Automatic Speech Recognition (ASR). A special focus was on the Norwegian Whisper model, trained by the National Library of Norway. This model is tailored specifically to the Norwegian language, offering improved transcription accuracy and voice recognition for Norwegian speakers. Experts discussed the real-world applications and challenges of speech-to-text in a panel debate, addressing topics such as recognising different dialects and improving accuracy in noisy environments. A live demonstration of the Norwegian Whisper model in action showcased its practical use in various industries, such as healthcare, media and customer service.

“Organising the CuttingEdgeAI series has been an incredible journey, bringing together experts and enthusiasts to explore the possibilities of AI. These events create a unique space for sharing knowledge, fostering collaboration and making AI both accessible and impactful.”

– Kushtrim Visoka, Senior Advisor, NORA

10.2 Arendalsuka 2024

Arendalsuka is, according to its official website, “... the largest political gathering in Norway held annually since 2012. The event’s mission is clear: strengthen the belief in political empowerment and democracy through open debate and involvement.”

It has become an annual tradition for NORA to organize at least one event in Arendalsuka, as part of our strategic goal to strengthen Norway’s research policy and commitment to AI. The event ‘Norway’s Role in the AI Revolution’ was coorganized with University of Agder (UiA) and took place in their tent. We had prominent guests on the panel. Inga Strümke and Morten Goodwin represented the research community. They were accompanied by Minister of Digitalisation and Public Governance Karianne Tung, comedian and AI enthusiast Anne-Kat. Hærland and Yngvar Ugland from the banking sector (DNB). The panel was chaired by Klas Pettersen.

Karianne Tung and Anne-Kat. Hærland led the first part of the event, with an

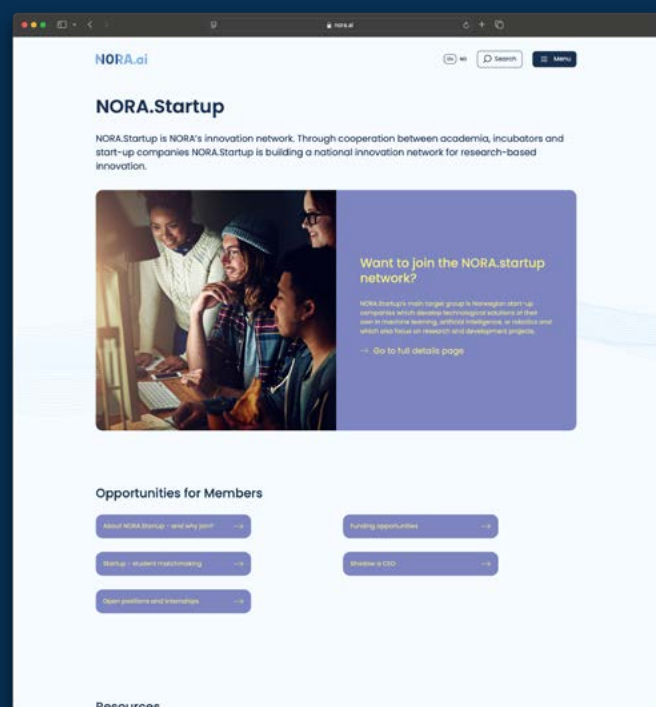
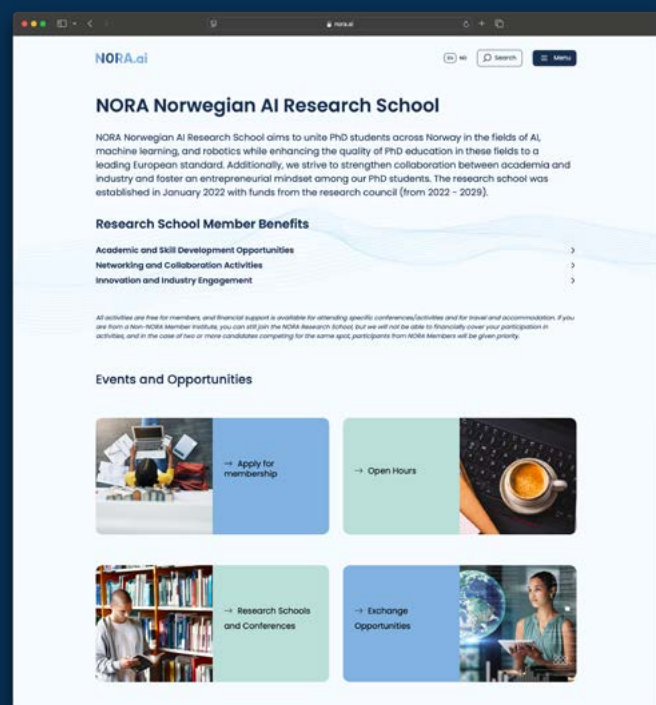
introduction on how AI will impact our lives, how we can facilitate good use and development of this technology in Norway and what can be done to ensure that AI developments will benefit humanity. Other questions discussed by the panel included the following:

- What role Norway can and should take in the AI revolution
- How we can facilitate Norway taking a prominent position internationally
- What can be done for business and industry to drive this process forward
- How AI can be responsibly implemented in the public sector
- How we can ensure that AI safeguards Norwegian values and adds to our trust-based society
- Whether AI can strengthen an empathetic society
- What dangers these developments may entail



CuttingEdgeAI Per Egil Kummervold from National Library of Norway

The event was led by Professor Morten Goodwin and Klas Pettersen, with music by Yngvar Ugland and Espen Sande Larsen. The event was popular among visitors at Arendalsuka, and the tent was filled to the brim.



“The redesigned website is more than just a visual upgrade – it represents our commitment to creating a central hub for the AI community in Norway. It’s a place where researchers, industry professionals and the public can connect, collaborate and innovate”

Kushtrim Visoka, [Senior Adviser at NORA](#)

10.3 NORA's Website

In 2024, NORA's website underwent a transformative redesign to better serve its diverse audience of researchers, students, industry professionals and the public. This initiative, undertaken in collaboration with the University of Oslo's IT department (USIT), aimed to create a platform that reflects NORA's commitment to advancing AI innovation and collaboration.

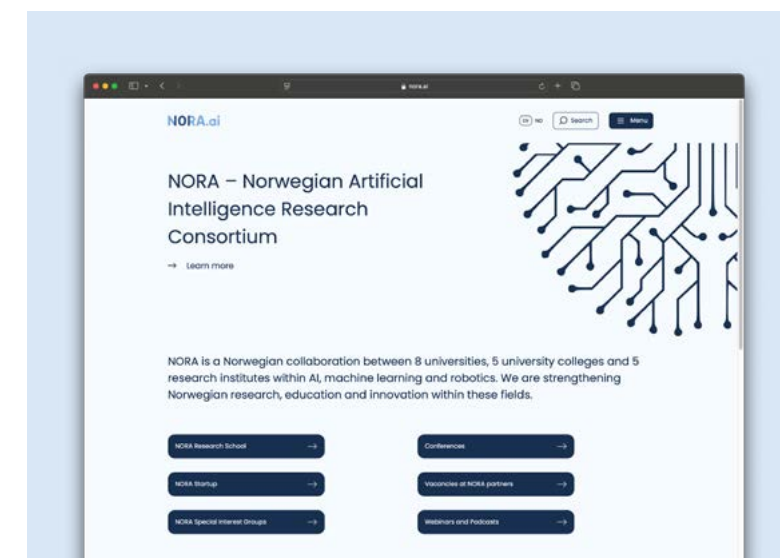
The updated website features improved navigation, enhanced accessibility and streamlined access to key resources, including tools, datasets and updates on NORA's projects. The new design also integrates seamlessly with NORA's communication channels, providing users with a more cohesive and dynamic digital experience.

Kushtrim Visoka, Senior Adviser at NORA, emphasised the significance of this project: “The redesigned website is more than just a visual upgrade – it represents our commitment to creating a central hub for the AI community in Norway. It’s a place where researchers, industry professionals and the public can connect, collaborate and innovate.”

Pål Fugelli, Director of Digitalisation at USIT, reflected on the collaborative

effort: “Working with NORA on this project was a rewarding experience. Our goal was to build a platform that not only met the technical and design needs of today but was also future-ready, supporting NORA's mission to make AI accessible and impactful.”

NORA website home page



NORA.ai website

Visitors and views

469 940 VISITORS
2019–2024

NORA’s webpage has had 469 940 individual users and 128 773 page views in total from 1st April 2019 until the end of 2024

*NORA was operational from 1st April 2019

2024

100 979 page views



26 788 visitors



2023

91 837 page views



26 640 visitors



Newsletter

2605 

Subscribers to NORA.ai newsletter

20849 

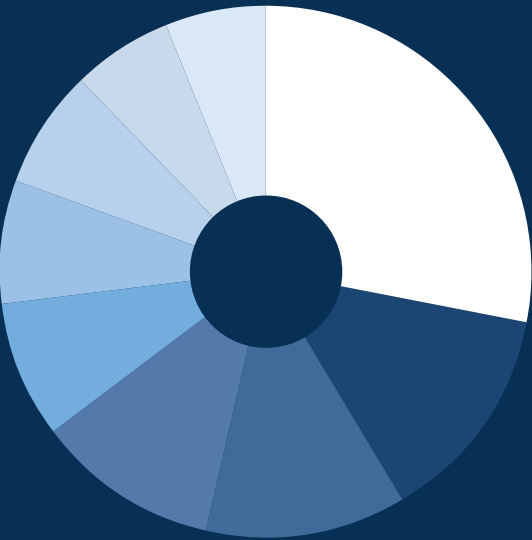
Newsletter opens throughout the year

NORA.ai top ten countries by visitors 2024



74% NORWAY
26% WORLD

74% of NORA.ai’s visitors in 2024 were located in Norway. That is a total of 16,403 people.



NORA.ai top ten countries abroad

- United States: 1,585 visitors
- India: 764 visitors
- United Kingdom: 676 visitors
- Germany: 628 visitors
- Italy: 476 visitors
- Sweden: 426 visitors
- Spain: 401 visitors
- Denmark: 343 visitors
- Brazil: 339 visitors

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Intelligence Research Consortium

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Excellence in AI research, education and innovation

NORA.ai

