

APPENDIX A: CURRICULUM VITAE

Name: Odd Erik Gundersen
Date of Birth: February 14, 1977
Nationality: Norwegian
Website: <https://www.ntnu.edu/employees/odderik>

APPOINTMENTS

2017– Chief AI Officer, Aneo AS.
2015– Adjunct Associate Professor, Norwegian University of Science and Technology (20% position).
2023– Co-founder, Virtur AS.
2018 – 2023 Scientific Advisor, Advisory Board, Way AS.
2015–2018 Chief Operation Officer, MazeMap AS.
2015 Chief Operating Officer, Råd AS.
2007–2014 Chief Technology Officer, Director of Innovation and Research, Platform and Case-based Reasoning Director, Development Director, Team Lead Research, Software Developer, Verdande Technology AS.
2007–2014 Resarcher (guest), Norwegian University of Science and Technology (Only affiliation, 0% position).
2005–2007 University Lecturer, Higher Executive Officer, Resarch Assistant, Norwegian University of Science and Technology.

EDUCATION

2014 Doctor Philosophiae (dr.philos.) from the Norwegian University of Science and Technology. Defended: December 3, 2014
2004 Master of Science in Computer Science from the Norwegian University of Science and Technology.

AWARDS

2024	Deployed Application Award at Innovative Applications of AI (IAAI 2024) for the paper <i>The virtual driving instructor; Multi-agent system collaborating via knowledge graph for scalable driver education</i> (C32).
2023	Deployed Application Award at Innovative Applications of AI (IAAI 2023) for the paper <i>A Robust and Scalable Stacked Ensemble for Day-Ahead Forecasting of Distribution Network</i> (C30).
2020	Best paper award at Haaga-Helia Business Innovation Conference (HHBIC 2020) for the paper <i>Ecosystem, Education and Mindset of Startups in Canada's Capital</i> (C27).
2020	Deployed Application Award at Innovative Applications of AI (IAAI 2020) for the paper <i>Day-Ahead Forecasting of Losses in the Distribution Network</i> (C25).
2012	Deployed Application Award at Innovative Applications of AI (IAAI 2012) for the paper <i>A real-time decision support system for high cost oil-well drilling operations</i> (C12).
2008	Best technical student paper at the conference Theory and Practice of Computer Graphics (2008) for the paper <i>Level of Detail for Physically Based Fire</i> (C06).

ASSIGNMENTS

2022–2026	Advisory Board of the National Science Foundation funded project <i>FAIR in ML, AI Readiness, and Reproducibility</i> hosted by San Diego Supercomputer Center at University of San Diego and lead by Christine Kirkpatrick.
2021–2024	Program Committee Board, IJCAI. IJCAI wishes to establish a long-term relationship with the most valued PC members and being appointed to the PCB is a sign of recognition.
2021–	Co-editor in Chief with K. Brent Venable, AI Magazine.
2021–	Executive Council (observer), Publications Committee, Finance Committee, Association for the Advancement of AI (AAAI).
2021–	Board Member of the Norwegian Open AI Lab (NAIL) at NTNU.
2021–	Electronic Publishing Editor at Journal of AI Research (JAIR).
2018–	Columnist and Editorial Board member of AI Magazine.
2018–	Chair of the Norwegian AI Society (NAIS).
2008–2018	Vice Chair of the Norwegian AI Society (NAIS).

MEMBERSHIP OF SCIENTIFIC SOCIETIES

- 2012– Association for the Advancement of AI (AAAI).
2008– Norwegian AI Society (NAIS).

IN THE PRESS

- M04** Kan en digital kjørelærer gi like bra opplæring som et menneske, til en billigere penge? by Sølvi Normannsen. Gemini. August 2024. <https://www.forskning.no/bil-og-trafikk-kunstig-intelligens-ntnu/kan-en-digital-kjorelaerer-gi-like-bra-opplaering-som-et-menneske-til-en-billigere-penge/2393563>
- M03** Vi bruker store ressurser til ingen nytte by Odd Erik Gundersen. Essay in Morgenbladet (online). June 15, 2018. <https://morgenbladet.no/ideer/2018/06/vi-bruker-store-ressurser-til-ingen-nytte>
- M02** Upålitelig forskning på kunstig intelligens by John Kåre Time. Morgenbladet. June 15, 2018. <https://morgenbladet.no/aktuelt/2018/06/upalitelig-forskning-pa-kunstig-intelligens>
- M01** Artificial intelligence faces reproducibility crisis by Mathew Hutson. Science. February 16, 2018. <http://science.sciencemag.org/content/359/6377/725>

FUNDING AND MANAGEMENT OF RESEARCH AND DEVELOPMENT PROJECTS

- 2024–2028 Robust and Fast Multi-market Optimization (RAFMO), Innovation Project Industrial Sector Ph.D. at Aneo AS, Total budget: 6.5M NOK, Role: Project Leader, Project number: 354165, NAERINGSPH Innovation Project Industrial Sector Ph.D. Project, Norwegian Research Council.
- 2022–2025 Robust Intelligent Control (RICO), Partners: NTNU, TrønderEnergi AS, Ohmia Retail, SINTEF, Solution Seeker AS, Total budget: 14M NOK, Role: Project Leader, Work Package Leader, Project number: 329730, IKTPLUSS, Norwegian Research Council.
- 2021–2025 Applied Transfer Learning in the Energy Domain (ATLE), Innovation Project Industrial Sector Ph.D. at TrønderEnergi Kraft/Aneo, Total budget: 3.7M NOK, Role: Project Leader, Project number: 329073, NAERINGSPH Innovation Project Industrial Sector Ph.D. Project, Norwegian Research Council.
- 2019–2022 Predictive Maintenance of Wind Turbines, Partners: TrønderEnergi Kraft AS, Total budget: 9.7M NOK, Role: Project Administrator, Project number: 307438 Skattefunn, Norwegian Research Council.

2019–2022	Smartere produksjonplanlegging og budgiving, Partners: TrønderEnergi AS, Total budget: 27.2M NOK, Role: Project Administrator, Project number: 30713 Skattefunn, Norwegian Research Council.
2018–2023	Automatisert tilbakemeldings- og instruksystem for trafikkopplæring personbil, Partners: Way AS, NTNU, SINTEF and Nord University, Total budget: 24.4M NOK, Role: Project Leader, Project number: 296640 TRANSPORT, Norwegian Research Council.
2017–2018	Infrastructure-less indoor positioning in 3D, Total budget: 43.9 MNOK, Partners: UiO, Sonitor Technologies AS, MazeMap AS, Norwegian Defence Research Establishment (FFI), Role: Work package leader. Project number: 269614 BIA, Norwegian Research Council.
2017–2018	Database- og bruksplanlegging for person-, adferds-, biometrisk, trafikk- og kjøretøysdata logget i simulator, Partners: Way AS, NTNU, Total budget: 500k NOK, Role: Project Leader, Project number: 289191 TRANSPORT, Norwegian Research Council.
2016–2017	Scaling MazeMap to a global provider of indoor maps, Partners: MazeMap, Total budget: 71k EUR, Role: Project Leader, EU SME instrument, phase 1 (2016-2017).
2016–2018	MazeMap – Tilgjengelige Bygg for alle, project manager, Partners: MazeMap AS, NTNU, Lydia AS, Cisco AS, The Norwegian Association of the Blind and Partially Sighted, Total budget: 18.3M NOK, Role: Project Leader, Project Number: 256776 BIA, Norwegian Research Council.
2016	Platform for indoor positioning of people of and things across indoor and outdoors, Partners: MazeMap, Total budget: 686k NOK, Role: Project Leader, Norwegian Space Agency (2016).
2015	Smart Decision Support - Et verktøy for økt samvirke mellom publikum og nødmeldesentraler, Partners: Råd AS, Trondheim kommune, St. Olavs Hospital, Trøndelag brann. og redningstjeneste, Total budget: 8.6M NOK, Role: Project Leader, Project type: OFU, Innovation Norway, (2015-2016).
2006–2010	Improved treatment of pain, depression and fatigue through translation research (EPCRC), Role: Scientific Team Leader, Verdande Technology, EU FP6-LIFESCI-HEALTH, European Union 6th Framework Program (2006-2010).

APPENDIX B: ANNOTATED LIST OF SELECTED PUBLICATIONS

For conferences the ranking is provided by the CORE Rankings Portal provided by Computing Research and Education Association of Australasia¹, while the ranking of journals and books are provided by the Norwegian Register for Scientific Journals, Series and Publishers². My contributions to the selected publications are described both in free form and by using CRediT author statement³

Reproducibility and Open Science

Publication [C23]: GUNDERSEN, O. E., AND KJENSMO, S. State of the art: Reproducibility in artificial intelligence. In *Proceedings of the AAAI Conference on Artificial Intelligence* (2018), vol. 32.

Ranking (conference): A* (highest)

Content and main contributions: This is my most cited paper published at AAAI, which is a highly renowned AI venue, and it is central to my scientific production as it has spurred many of my research collaborations in open science and reproducibility. This paper has become one of the standard references for the reproducibility crisis in artificial intelligence. It has been cited both in high impact AI venues such as AAAI, NeurIPS, ICLR, IJCAI, and the Journal of Machine Learning Research, but also more broadly in journals such as Nature, Science Translational Medicine, Nature Methods, Nature Reviews Cancer, npj Digital Medicine, and Communications of the ACM. It is also an example of a paper in which I collaborated closely with a master student.

Own contributions: Sigbjørn Kjensmo was central to complete this research as he reviewed 350 of the 400 papers that we surveyed. However, the idea of this paper was mine, I surveyed the first 50 of the papers in this study, I wrote the paper and I supervised the research.

CRediT author statement: Conceptualization, Methodology, Investigation, Data Curation, Visualization, Writing - Original Draft, Supervision.

Publication [J08]: GUNDERSEN, O. E., GIL, Y., AND AHA, D. W. On reproducible AI: Towards reproducible research, open science, and digital scholarship in AI publications. *AI magazine* 39, 3 (2018), 56–68.

Ranking (journal): 1

Content and main contributions: In this paper, I collaborated with experienced AI researchers Research Professor Yolanda Gil at USC who is a former president of AAAI, and Dr. David Aha, who is the Director of Navy Center for Applied Research in AI at the Naval Research Laboratory. We saw the need to provide a practical and pragmatic recommendation for how to document AI research, so that results are reproducible and

¹<http://portal.core.edu.au/conf-ranks/>

²<https://kanalregister.hkdir.no/publiseringskanaler>

³<https://www.elsevier.com/authors/policies-and-guidelines/credit-author-statement>

decided to collaborate to make such a recommendation for AI researchers. Based on our investigations, we made a reproducibility checklist and described how every item in the checklist can be documented by authors and examined by reviewers. This collaboration formed my view on open science and has been important for establishing me as an advocate of open science. A main contribution of this work is that it has strongly influenced the reproducibility checklists that all authors submitting contributions to AAAI, IJCAI, EMNL and JAIR have to fill out.

Own contributions: This paper was my idea, and I initiated the collaboration with Yolanda Gil and David Aha at AAAI 2018 before presenting the AAAI 2018 paper. I was the main author and driving force of this paper that was a true collaboration in the sense that all authors contributed text to the paper.

CRedit author statement: Conceptualization, Methodology, Visualization, Writing - Original Draft.

Publication [J15]: GUNDERSEN, O. E. The fundamental principles of reproducibility. *Philosophical Transactions of the Royal Society A* 379, 2197 (2021).

Ranking (journal): 2 (highest)

Content and main contributions: I was invited by professor Peter Coveney at University College London to contribute a paper to the special issue of Philosophical Transactions of the Royal Society A on Reliability and reproducibility in computational science: implementing verification, validation and uncertainty quantification in silico. The paper presents an investigation of the term reproducibility and a definition of reproducibility that is grounded in a representation of the scientific method that was further developed in this paper. I use machine learning to exemplify and explain reproducibility. The paper was well received by reviewers, and professor Coveney later invited me to talk about the paper at the workshop The Role of Uncertainty in Mathematical Modelling of Pandemics at Isaac Newton Institute in Cambridge.

Own contributions: This paper is an example of a paper that came to be because I started to be recognized as an expert on reproducibility. It is also an example of a theoretical paper in which I investigate the the concept of reproducibility.

CRedit author statement: Conceptualization, Methodology, Writing - Original Draft.

Publication [J21]: GUNDERSEN, O. E., SHAMSALIEI, S., AND ISDAHL, R. J. Do machine learning platforms provide out-of-the-box reproducibility? *Future Generation Computer Systems* 126 (2022), 34–47.

Ranking (journal): 2 (highest)

Content and main contributions: My master student Richard Isdahl and I were invited to submit an extended version of our paper (C24) at eScience 2019 to the journal Future Generations of Computer Systems. The first part of this paper is to a large extent the eScience 2019 paper (C24), which is a survey on how well machine learning platform supports reproducibility. We use the recommendations proposed in J08 as a template for features the platforms should support, and we investigated the documentation with some hands on testing of the platforms. The second part represents the extension of the eScience paper where Saeid Shamsaliei conducted machine learning experiments on

the surveyed platforms, and we compared and analyzed the results of these experiments. The main finding of our paper was that machine learning platforms do not support reproducibility well and that results can differ significantly between them even when the code being executed is exactly the same. This research was the seed of the PhD project of Kevin Coakley.

Own contributions: This is another example of research where I have been collaborating with my students to conduct research that was published in a high-impact venue. While Isdahl was a master student and the eScience paper documented his master thesis research, Shamsaliei was a fourth year student that was my research assistant at the time. Both parts of this paper were done in close collaboration between the students and me. I designed the experiments, analyzed the results, wrote the paper, and supervised the research.

CRedit author statement: Conceptualization, Methodology, Writing - Original Draft, Supervision, Project administration.

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Case-based Reasoning and Decision Support

Publication [C13]: GUNDERSEN, O. E. Toward measuring the similarity of complex event sequences in real-time. In *Case-Based Reasoning Research and Development: 20th International Conference, ICCBR 2012, Lyon, France, September 3-6, 2012. Proceedings 20* (2012), Springer, pp. 107–121.

Ranking (conference): B

Content and main contributions: This paper is an example of research where I designed a set of novel similarity metrics for complex event sequences and conducted experiments to evaluate them. This research was done to speed up the case retrieval of DrillEdge, a decision support system utilizing case-based reasoning, which had issues when event sequences became too large. While the metric solved the main issue (speed), it had some side-effects that made it unusable for our use case that this research documented, so this paper is a rare example of a published paper documenting a negative result. The metrics, however, have seen some use in process-oriented case-based reasoning. The International Conference on Case-Based Reasoning is the premier conference for research on the topic.

Own contributions: The idea was mine, and the research was conducted, analyzed, and documented by me alone.

CRedit author statement: Conceptualization, Methodology, Investigation, Data Curation, Visualization, Writing - Original Draft.

Publication [J05]: GUNDERSEN, O. E., SØRMO, F., AAMODT, A., AND SKALLE, P. A real-time decision support system for high cost oil-well drilling operations. *AI Magazine* 34, 1 (2013), 21–21.

Ranking (journal): 1

Content and main contributions: In this paper we describe a commercial and award-winning hybrid AI system that monitored oil-well drilling operations. It was implemented as an agent system where individual agents monitored data-streams for symptoms. The current situation was described by these symptoms and compared to past problem situations in a case-based reasoning system. The system was developed over several years based on research and the results of many experiments. For some time, DrillEdge an example of a commercially successful case-based reasoning system that held high esteem in the CBR community.

Own contributions: I led the writing of this paper, structured it and wrote the largest share of it although all co-authors contributed text. While I contributed my share in the development, administration and research behind the hybrid AI and case-based reasoning system, the system was developed over several years by many contributors. The co-authors of this paper were the founders of the company and were experienced and renowned researchers in their areas.

CRedit author statement: Conceptualization, Methodology, Investigation, Data Curation, Visualization, Writing - Original Draft. Project administration.

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Driving Education

Publication [J28]: REHM, J., RESHODKO, I., AND GUNDERSEN, O. E. A virtual driving instructor that assesses driving performance on par with human experts. *Expert Systems with Applications* 248 (2024), 123355.

Ranking (journal): 2 (highest)

Content and main contributions: The paper presents a study of how well the virtual driving instructor is at assessing traffic situations in real-time. The capability of the system is compared with the assessment of experienced driving instructors and professors teaching these instructors as well as examiners responsible for certifying drivers. The assessment has been evaluated on three distinct and complex traffic scenarios and shows that the system has a performance that is comparable to human experts. As mentioned above, the system is now responsible for instructing students driving in the simulator and is commercially deployed. It reduces the need for human involvement and allows one instructor to manage three students. The number of students that can be educated in parallel is currently constrained by the number of commercial simulators that the company operates.

Own contributions: I have been responsible for designing the experiments and administering this research, as well as supervising the PhD student and researcher.

CRedit author statement: Conceptualization, Methodology, Writing - Original Draft, Supervision, Project administration, Funding acquisition.

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Applications of Artificial Intelligence

Publication [J20]: ALFREDSEN, K., DALSGÅRD, A., SHAMSALIEI, S., HALLERAKER, J. H., AND GUNDERSEN, O. E. Towards an automatic characterization of riverscape development by deep learning. *River Research and Applications* 38, 4 (2022), 810–816.

Ranking (journal): 1

Content and main contributions: This paper demonstrates how historical imagery can be used to develop maps that can be processed further in a GIS to evaluate natural versus anthropogenic changes of riverscapes over time. Developing such maps is typically done manually and is extremely time-consuming, and therefore in practice, it is impossible to conduct a large scale study unless it is fully automated, which is exactly what we seek to accomplish with this research. It is an example of my research contributing to what is called sustainable AI, as it seeks to improve land management. The research is a collaboration between the domain experts Professor Knut Alfredsen at the Department of Civil and Environmental Engineering and Jo Halvard Halleraker, the Chief Scientist at the Norwegian Environment Agency, and my master student Arild Dalsgård, my PhD student Saeid Shamsaliei and me. A large scale study of riverscape development can only be done in a close collaboration between the domain experts and AI experts. Our goal is that the research can inform both national and international policies for how to protect riverscapes in the future.

Own contributions: This research collaboration was initiated by Jo Halvard Halleraker and me, and I have been instrumental in conceptualizing and designing the research in addition to supervising it.

CRedit author statement: Conceptualization, Methodology, Writing - Review Editing, Supervision, Project administration.

Publication [J16]: DALAL, N., MØLNA, M., HERREM, M., RØEN, M., AND GUNDERSEN, O. E. Day-ahead forecasting of losses in the distribution network. *AI Magazine* 42, 2 (2021), 38–49.

Ranking (journal): 1

Content and main contributions: In this paper, we present a commercial system for forecasting grid loss in the distribution network. Several experiments show the value of a robust machine learning system that takes the available data into account. A comparison with the previously used quadratic polynomial regression model shows a reduction in mean average error (MAE) of 40% over a period of three months. This paper is an extension of a paper that was presented at the Innovative Applications of AI (IAAI 2020) and published in the Proceedings of the AAAI 2020 (C25). The best deployed papers at IAAI are invited to publish in AI Magazine, which was the case for our paper. The system was developed by the AI department at Aneo AS that I lead. In 2023, we published a follow-up paper (C30), also at IAAI, where two interns at the AI department made further improvements and reduced the MAE with another 11%. This is another example of research contributing to what is called sustainable AI, as better forecasting of consumption increases the efficiency of the energy system.

Own contributions: I initiated the research and supervised it. I structured the paper and wrote substantial parts of it.

CRedit author statement: Conceptualization, Methodology, Writing - Original Draft, Supervision, Project administration.

Publication [B03]: XING, L., SIZOV, G., AND GUNDERSEN, O. E. Digital Transformation in Renewable Energy: Use Cases and Experiences from a Nordic Power Producer. In *Digital Transformation in Norwegian Enterprises*. Springer International Publishing Cham, 2022, pp. 63–89.

Ranking (book): 1

Content and main contributions: The electric power system is changing, and these changes have radical effects that can only be tackled if electric power system is digitized. This paper documents and discusses the effects of the digital transformation going on in Aneo AS (previously TrønderEnergi). A digitization framework from literature is used to describe the state of digitization of three use cases inside the company. We discuss how machine learning helps to improve and increase the efficiency of renewable energy production and the operation of assets. This research has contributed to the execution of the digitization process in Aneo AS, and it has also been instrumental in forming the AI strategy of the company. The research is a contribution to what is called sustainable AI, as the digital transformation is key to make the energy system more efficient. Sharing experiences from Aneo AS, who is in front of taking advantage of the benefits of digitization, can help other producers and operators to increase their efficiency and as such improve the efficiency of the energy system as a whole.

Own contributions: I initiated the research and conceptualized it. I led and supervised the research team that did the research.

CRedit author statement: Conceptualization, Methodology, Writing - Review Editing, Supervision.

APPENDIX C: PUBLICATIONS

The table summarizes my publications. *Total* indicates the total number of publications for a given category, while *First author* indicates how many of these I am the first author of, *Supervisor* indicates how many of the publications for which I have acted as a supervisor and *Award* indicates how many of the publications have received awards.

Publication type	Total	First author	Supervisor	Award
Patents	5	0	2	0
Journal	37	10	8	0
Books and Book Chapters	4	3	1	0
Conference	34	15	17	4
Workshop	7	4	2	0
Total	82	32	34	4

PATENTS

- P05** LORENTZEN, A., GUNDERSEN, O. E., BACH, K., AND SØRMO, F. Monitoring a situation by generating an overall similarity score, 2017. Patent No.: 9619765
- P04** LORENTZEN, A., GUNDERSEN, O. E., BACH, K., AND SØRMO, F. Monitoring a situation by comparing parallel data streams, 2017. Patent No.: 9613362
- P03** AAMODT, A., SKALLE, P., GUNDERSEN, O. E., SØRMO, F., AND SOLSTAD, J. Method and system for monitoring a drilling operation, 2013. Patent No.: 8615363
- P02** AAMODT, A., SKALLE, P., GUNDERSEN, O. E., SØRMO, F., AND SOLSTAD, J. Method and system for monitoring a drilling operation, 2012. Patent No.: 8332153
- P01** AAMODT, A., SKALLE, P., GUNDERSEN, O. E., SØRMO, F., AND SOLSTAD, J. Method and system for monitoring a drilling operation, 2012. Patent No.: 8170800

JOURNAL ARTICLES

- J37** DAVIS-STOBER, C. P., SARAFIOGLOU, A., ACZEL, B., CHANDRAMOULI, S. H., ERRINGTON, T. M., FIELD, S. M., FISHBACH, A., FREIRE, J., IOANNIDIS, J. P., OBERAUER, K., ET AL. How can we make sound replication decisions? *Proceedings of the National Academy of Sciences* 122, 5 (2025), e2401236121 (S)
- J36** ACZEL, B., BARWICH, A.-S., DIEKMAN, A. B., FISHBACH, A., GOLDSTONE, R. L., GOMEZ, P., GUNDERSEN, O. E., VON HIPPEL, P. T., HOLCOMBE, A. O., LEWANDOWSKY, S., ET AL. The present and future of peer review: Ideas, interventions, and evidence. *Proceedings of the National Academy of Sciences* 122, 5 (2025), e2401232121

- J35** INTAHCHOMPHOO, C., MILLAR, J., GUNDERSEN, O. E., TSCHIRHART, C., MEAWASIGE, K., AND SALEMI, H. Effects of artificial intelligence and robotics on human labour: A systematic review. *Legal Information Management* 24, 2 (2024), 109–124
- J34** FLETEN, K. K., AASGÅRD, E. K., XING, L., GRØTTUM, H. H., FLETEN, S.-E., AND GUNDERSEN, O. E. Applying and benchmarking a stochastic programming-based bidding strategy for day-ahead hydropower scheduling. *Computational Management Science* 21, 2 (2024), 44
- J33** NASAR, W., GUNDERSEN, O. E., DA SILVA TORRES, R., AND KARLSEN, A. Knowledge graphs to accumulate and convey knowledge from past experiences in search and rescue planning and resource allocation. *Applied Artificial Intelligence* 38, 1 (2024), 2434296
- J32** SHAMSALIEI, S., GUNDERSEN, O. E., ALFREDSEN, K., HALLERAKER, J. H., AND FOLDVIK, A. Highlighting challenges of state-of-the-art semantic segmentation with HAIR - a dataset of historical aerial images. *DMLR - Data-centric Machine Learning Research* (2024) (S)
- J31** KJÆRNLI, H. H., MAS-RIBAS, L., ASHRAFI, A., SIZOV, G., LANGSETH, H., AND GUNDERSEN, O. E. Probing the robustness of time-series forecasting models with counterfactuals, (Submitted) (S)
- J30** KAPOOR, S., CANTRELL, E., PENG, K., PHAM, T. H., BAIL, C. A., GUNDERSEN, O. E., HOFMAN, J. M., HULLMAN, J., LONES, M. A., MALIK, M. M., ET AL. Reforms: Reporting standards for machine learning based science. *Science Advances* 10, 18 (2024)
- J29** REHM, J., RESHODKO, I., AND GUNDERSEN, O. E. A virtual driving instructor that assesses driving performance on par with human experts. *Expert Systems with Applications* 248 (2024), 123355 (S)
- J28** STRØM, E., AND GUNDERSEN, O. E. Evaluation of Multi-step Forecasting Models: An Empirical Deep Learning Study. *Applied Intelligence* (2024), 1–26 (S)
- J27** NASAR, W., TORRES, R. D. S., GUNDERSEN, O. E., AND KARLSEN, A. S. T. Improving search and rescue planning and resource allocation through case-based and concept-based retrieval. *Journal of Intelligent Information Systems* (2024), 1–23
- J26** GUNDERSEN, O. E., HELMERT, M., AND HOOS, H. Improving reproducibility in ai research: Four mechanisms adopted by jair. *Journal of Artificial Intelligence Research* 81 (2024), 1019–1041 (F)
- J25** VENABLE, K., AND GUNDERSEN, O. E. Editorial. *AI Magazine* 44, 31 (2023), 3–3
- J24** GUNDERSEN, O. E., AND COAKLEY, K. Open research in artificial intelligence and the search for common ground in reproducibility: A commentary on “(why) are

open research practices the future for the study of language learning?”. *Language Learning* 73, S2, 407–413 (F)

- J23** NASAR, W., DA SILVA TORRES, R., GUNDERSEN, O. E., AND KARLSEN, A. T. The Use of Decision Support in Search and Rescue: A Systematic Literature Review. *ISPRS International Journal of Geo-Information* 12, 5 (2023)
- J22** GUNDERSEN, O. E., COAKLEY, K., KIRKPATRICK, C., AND GIL, Y. Sources of irreproducibility in machine learning: A review. *arXiv preprint arXiv:2204.07610* (2023) (F)
- J21** GUNDERSEN, O. E., SHAMSALIEI, S., AND ISDAHL, R. J. Do machine learning platforms provide out-of-the-box reproducibility? *Future Generation Computer Systems* 126 (2022), 34–47 (F)
- J20** ALFREDSEN, K., DALSGÅRD, A., SHAMSALIEI, S., HALLERAKER, J. H., AND GUNDERSEN, O. E. Towards an automatic characterization of riverscape development by deep learning. *River Research and Applications* 38, 4 (2022), 810–816 (S)
- J19** INTAHCHOMPHOO, C., VELLINO, A., GUNDERSEN, O. E., JARUSAWAT, P., WONG-JAMRAS, P., AND TSCHIRHART, N. The impact of Thailand’s migrant worker law on literacy and social media among ethnic Shan female migrants from Myanmar. *International Journal of Legal Information* 49, 3 (2021), 162–170
- J18** INTAHCHOMPHOO, C., VELLINO, A., AND GUNDERSEN, O. E. Facebook usage among urban indigenous youth at risk. *American Indian Culture and Research Journal* 45, 2 (2021), 103–130
- J17** VENABLE, K., AND GUNDERSEN, O. E. Letter from the Editors: AI Magazine in the new era of AI. *AI Magazine* 42, 3 (2021), 79–80
- J16** DALAL, N., MØLNA, M., HERREM, M., RØEN, M., AND GUNDERSEN, O. E. Day-ahead forecasting of losses in the distribution network. *AI Magazine* 42, 2 (2021), 38–49 (S)
- J15** GUNDERSEN, O. E. The fundamental principles of reproducibility. *Philosophical Transactions of the Royal Society A* 379, 2197 (2021) (F)
- J14** GUNDERSEN, O. E. The case against registered reports. *AI Magazine* 42, 1 (2021), 88–92 (F)
- J13** GUNDERSEN, O. E. The reproducibility crisis is real. *AI Magazine* 41, 3 (2020), 103–106 (F)
- J12** INTAHCHOMPHOO, C., AND GUNDERSEN, O. E. Artificial intelligence and race: A systematic review. *Legal Information Management* 20, 2 (2020), 74–84 (S)

- J11** INTAHCHOMPHOO, C., VELLINO, A., GUNDERSEN, O. E., TSCHIRHART, C., AND SHAABAN, E. References to artificial intelligence in Canada’s court cases. *Legal Information Management* 20, 1 (2020), 39–46
- J10** INTAHCHOMPHOO, C., VELLINO, A., AND GUNDERSEN, O. E. Connecting with Youth at Risk: Indigenous Organizations Use of Facebook. *The Journal of Community Informatics* 15 (2019)
- J09** GUNDERSEN, O. E. Standing on the Feet of Giants—Reproducibility in AI. *AI Magazine* 40, 4 (2019), 9–23 (F)
- J08** GUNDERSEN, O. E., GIL, Y., AND AHA, D. W. On reproducible AI: Towards reproducible research, open science, and digital scholarship in AI publications. *AI magazine* 39, 3 (2018), 56–68 (F)
- J07** AHA, D. W., BACH, K., GUNDERSEN, O. E., AND LIEBER, J. The 25th International Conference on Case-Based Reasoning. *AI Magazine* 39, 2 (2018), 79–80
- J06** JAATUN, E. A. A., HJERMSTAD, M. J., GUNDERSEN, O. E., OLDERVOLL, L., KAASA, S., HAUGEN, D. F., (EPCRC, E. P. C. R. C., ET AL. Development and testing of a computerized pain body map in patients with advanced cancer. *Journal of pain and symptom management* 47, 1 (2014), 45–56
- J05** GUNDERSEN, O. E., SØRMO, F., AAMODT, A., AND SKALLE, P. A real-time decision support system for high cost oil-well drilling operations. *AI Magazine* 34, 1 (2013), 21–21 (F)
- J04** SKALLE, P., AAMODT, A., AND GUNDERSEN, O. E. Experience transfer for process improvement. *Engineering Applications of Artificial Intelligence* 26, 9 (2013), 2206–2214
- J03** SKALLE, P., AAMODT, A., AND GUNDERSEN, O. E. Detection of symptoms for revealing causes leading to drilling failures. *SPE Drilling & Completion* 28, 02 (2013), 182–193
- J02** HJERMSTAD, M. J., LIE, H. C., CARACENI, A., CURROW, D. C., FAINSINGER, R. L., GUNDERSEN, O. E., HAUGEN, D. F., HEITZER, E., RADBRUCH, L., STONE, P. C., ET AL. Computer-based symptom assessment is feasible in patients with advanced cancer: results from an international multicenter study, the EPCRC-CSA. *Journal of pain and symptom management* 44, 5 (2012), 639–654
- J01** ÖZTÜRK, P., ROSSLAND, K., AND GUNDERSEN, O. E. A multiagent framework for coordinated parallel problem solving. *Applied Intelligence* 33 (2010), 132–143

BOOK CHAPTERS

- B04** GUNDERSEN, O. E. Increasing trust and productivity of artificial intelligence research by improving reproducibility. In *Artificial Intelligence in Science: challenges,*

opportunities and the future of research, A. Nolan, Ed. The Organisation for Economic Co-operation and Development (OECD), 2023, pp. 259–268

- B03** XING, L., SIZOV, G., AND GUNDERSEN, O. E. Digital Transformation in Renewable Energy: Use Cases and Experiences from a Nordic Power Producer. In *Digital Transformation in Norwegian Enterprises*. Springer International Publishing Cham, 2022, pp. 63–89
- B02** GUNDERSEN, O. E. *Enhancing the Situation Awareness of Decision Makers by Applying Case-Based Reasoning on Streaming Data.*, vol. 315 of *PhD Theses at Norwegian University of Science and Technology*. Tapir Forlag, 2014
- B01** GUNDERSEN, O. E. The role of context and its elements in situation assessment. In *Context in Computing: A Cross-Disciplinary Approach for Modeling the Real World*, P. Brézillon and A. J. Gonzalez, Eds. Springer, 2014, pp. 343–357

PEER REVIEWED CONFERENCE ARTICLES

- C34** GUNDERSEN, O. E., CAPPELEN, O., MØLNÅ, M., AND NILSEN, N. G. The unreasonable effectiveness of open science in AI: A replication study. In *Proceedings of the AAAI Conference on Artificial Intelligence* (2025)
- C33** BJØRNLAND, J. F. R., REHM, J., RESHODKO, I., AND GUNDEREN, O. E. A virtual driving instructor that generates personalized driving lessons based on student skill level. In *Proceedings of the AAAI Conference on Artificial Intelligence* (2024)
- C32** REHM, J., RESHODKO, I., BØRRESEN, S. Z., AND GUNDEREN, O. E. The virtual driving instructor: Multi-agent system collaborating via knowledge graph for scalable driver education. In *Proceedings of the AAAI Conference on Artificial Intelligence* (2024)
- C31** GUNDERSEN, O. E., SHAMSALIEI, S., KJÆRNLI, H. S., AND LANGSETH, H. On reporting robust and trustworthy conclusions from model comparison studies involving neural networks and randomness. In *2023 ACM Conference on Reproducibility and Replicability (ACM-REP)* (2023), ACM
- C30** GROTMOL, G., FURDAL, EIVIND HOVEGÅRD, D. N., OTTESEN, A. L., RØRVIK, E.-L. H., MØLNA, M., SIZOV, G., AND GUNDERSEN, O. E. Day-ahead forecasting of losses in the distribution network. In *Proceedings of the AAAI Conference on Artificial Intelligence* (2023), vol. 37
- C29** COAKLEY, K., KIRKPATRICK, C. R., AND GUNDERSEN, O. E. Examining the effect of implementation factors on deep learning reproducibility. In *2022 IEEE 18th International Conference on e-Science (e-Science)* (2022), IEEE, pp. 397–398
- C28** INTAHCHOMPHOO, C., GUNDERSEN, O. E., PEYTON, L., AND WECHAYACHAI, O. Post-Pandemic Sustainable Innovation Business Values: Perspectives from the US,

- Canada, Norway, and Thailand. In *Proceedings of Haaga-Helia Business Innovation Conference (HHBIC 2022)* (2022)
- C27** INTAHCHOMPHOO, C., GUNDERSEN, O. E., AND TSCHIRHART, C. Ecosystem, Education and Mindset of Startups in Canada’s Capital. In *Proceedings of Haaga-Helia Business Innovation Conference (HHBIC 2020)* (2020)
- C26** SANDBERG, M. K., REHM, J., MNOUCEK, M., RESHODKO, I., AND GUNDERSEN, O. E. Explaining traffic situations—architecture of a virtual driving instructor. In *Intelligent Tutoring Systems: 16th International Conference, ITS 2020, Athens, Greece, June 8–12, 2020, Proceedings 16* (2020), Springer, pp. 115–124
- C25** DALAL, N., MØLNA, M., HERREM, M., RØEN, M., AND GUNDERSEN, O. E. Day-ahead forecasting of losses in the distribution network. In *Proceedings of the AAAI Conference on Artificial Intelligence* (2020), vol. 34, pp. 13148–13155
- C24** ISDAHL, R., AND GUNDERSEN, O. E. Out-of-the-box reproducibility: A survey of machine learning platforms. In *2019 15th international conference on eScience (eScience)* (2019), IEEE, pp. 86–95
- C23** GUNDERSEN, O. E., AND KJENSMO, S. State of the art: Reproducibility in artificial intelligence. In *Proceedings of the AAAI Conference on Artificial Intelligence* (2018), vol. 32
- C22** GUNDERSEN, O. E., PRAM, C., AND ØVERGÅRD, F. Hailing a ride with a rescue helicopter: A case study. In *2017 IEEE Conference on Cognitive and Computational Aspects of Situation Management (CogSIMA)* (2017), IEEE, pp. 1–3
- C21** BACH, K., SZCZEPANSKI, T., AAMODT, A., GUNDERSEN, O. E., AND MORK, P. J. Case representation and similarity assessment in the SELFBACK decision support system. In *Case-Based Reasoning Research and Development: 24th International Conference, ICCBR 2016, Atlanta, GA, USA, October 31–November 2, 2016, Proceedings 24* (2016), Springer, pp. 32–46
- C20** GUNDERSEN, O. E., ØVERGAARD, F., AND RØREN, J. Towards reducing the reaction time of emergency services through improved situation assessment. In *2016 IEEE International Multi-Disciplinary Conference on Cognitive Methods in Situation Awareness and Decision Support (CogSIMA)* (2016), IEEE, pp. 205–211
- C19** KUCS, R., THONHAUSER, G., REGAN, M., HANSON, J., HAUGEN, J., AND GUNDERSEN, O. E. An holistic approach to improving drilling performance in realtime: Integrating measured, analysed, modelled and reported drilling data. In *SPE/IADC Drilling Conference and Exhibition* (2015), OnePetro
- C18** GUNDERSEN, O. E. Decision support in the automated future: an analysis from the rig site. In *2015 IEEE International Multi-Disciplinary Conference on Cognitive Methods in Situation Awareness and Decision* (2015), IEEE, pp. 206–212

- C17** BACH, K., GUNDERSEN, O. E., KNAPPSKOG, C., AND ÖZTÜRK, P. Automatic case capturing for problematic drilling situations. In *Case-Based Reasoning Research and Development: 22nd International Conference, ICCBR 2014, Cork, Ireland, September 29, 2014–October 1, 2014. Proceedings 22* (2014), Springer, pp. 48–62
- C16** GUNDERSEN, O. E., KUCS, R., SHEEHY, T., AND DE HOLDEN, M. S. Transferring Knowledge Through Decision Support: A Case Study in Drilling. In *IADC/SPE Drilling Conference and Exhibition* (2014), OnePetro
- C15** GUNDERSEN, O. E. Situational awareness in context. In *Modeling and Using Context: 8th International and Interdisciplinary Conference, CONTEXT 2013, Annecy, France, October 28-31, 2013, Proceedings 8* (2013), Springer, pp. 274–287
- C14** GUNDERSEN, O. E., AND SØRMO, F. An architecture for multi-dimensional temporal abstraction supporting decision making in oil-well drilling. In *Combinations of Intelligent Methods and Applications: Proceedings of the 3rd International Workshop, CIMA 2012, Montpellier, France, August 2012* (2013), Springer, pp. 21–40
- C13** GUNDERSEN, O. E. Toward measuring the similarity of complex event sequences in real-time. In *Case-Based Reasoning Research and Development: 20th International Conference, ICCBR 2012, Lyon, France, September 3-6, 2012. Proceedings 20* (2012), Springer, pp. 107–121
- C12** GUNDERSEN, O. E., SØRMO, F., AAMODT, A., AND SKALLE, P. A real-time decision support system for high cost oil-well drilling operations. In *Proceedings of the Twenty-Sixth AAAI Conference on Artificial Intelligence* (2012), pp. 2209–2216
- C11** BAKKEN, R. H., AND GUNDERSEN, O. E. View-Independent Human Gait Recognition Using CBR and HMM. In *Eleventh Scandinavian Conference on Artificial Intelligence* (2011), IOS Press, pp. 143–152
- C10** AAMODT, A., GUNDERSEN, O. E., LOGE, J. H., WASTESON, E., AND SZCZEPANSKI, T. Case-based reasoning for assessment and diagnosis of depression in palliative care. In *2010 IEEE 23rd International Symposium on Computer-Based Medical Systems (CBMS)* (2010), IEEE, pp. 480–485
- C09** SKALLE, P., AAMODT, A., AND GUNDERSEN, O. Transfer of experience for improved oil well drilling. In *Advances in Drilling Technology—E-proceedings of the First International Conference on Drilling Technology (ICDT-2010), November* (2010), pp. 18–21
- C08** GUNDERSEN, O. E., AND SKJERMO, J. A framework for physically based forest fire animation. In *Proceedings of Theory and Practice of Computer Graphics 2009 (TPCG 2009)* (2009), The Eurographics Association

- C07** GUNDERSEN, O. E., AND SØRMO, F. Case-based Reasoning on Streaming Data. In *Proceedings of Norwegian Artificial Intelligence Symposium 2009 (NAIS 2009)* (2009), A. Kofod-Petersen, Ed., Tapir Academic Press, p. 33–42
- C06** GUNDERSEN, O. E., AND TANGVALD, L. Level of detail for physically based fire. In *Proceedings of Theory and Practice of Computer Graphics 2007 (TPCG 2007)* (2007), The Eurographics Association
- C05** EK, L. A., VISTNES, R., AND GUNDERSEN, O. E. Animating physically based explosions in real-time. In *Proceedings of the 5th international conference on Computer graphics, virtual reality, visualisation and interaction in Africa* (2007), pp. 61–69
- C04** GUNDERSEN, O. E., RØDAL, S., AND STORLI, G. Realistic 2D Fire in Real-Time. In *Proceedings of Norwegian Symposium on Informatics* (2006), Citeseer, pp. 179–191
- C03** RØDAL, S., STORLI, G., AND GUNDERSEN, O. E. Physically Based Simulation and Visualization of Fire in Real-Time using the GPU. In *Proceedings of Theory and Practice of Computer Graphics 2006 (TPCG 2006)* (2006), pp. 13–20
- C02** GUNDERSEN, O. E., AND KOFOD-PETERSEN, A. Multiagent based problem-solving in a mobile environment. *Norsk Informatikkonferance* (2005), 7–18
- C01** OZTURK, P., AND GUNDERSEN, O. E. A combined top-down and bottom-up approach to integrated task-decomposition and allocation. In *Proceedings of 2004 International Conference on Machine Learning and Cybernetics (IEEE Cat. No. 04EX826)* (2004), vol. 1, IEEE, pp. 163–168

PEER-REVIEWED WORKSHOP ARTICLES

- W07** SHAMSALIEI, S., GUNDERSEN, O. E., ALFREDSEN, K., AND HALLERAKER, J. H. Towards historical analysis of riverscape development utilizing semantic segmentation. In *The Workshop on Artificial Intelligence for Social Good at AAAI 2023* (2023)
- W06** REHM, J., GUNDERSEN, O. E., BACH, K., AND RESHODKO, I. Utilizing driving context to increase the annotation efficiency of imbalanced gaze image data. In *Workshop on Data-centric AI at NeurIPS 2021* (2021)
- W05** GUNDERSEN, O. E. Towards scientific benchmarks: on increasing the credibility of benchmarks. In *Proceedings of the 2015 Eurographics Workshop on 3D Object Retrieval* (2015), pp. 83–86
- W04** GUNDERSEN, O. E. An analysis of long term dependence and case-based reasoning. In *Workshop Proceedings of the Twenty-Second International Conference on Case-Based Reasoning* (2013), pp. 156–162

- W03** AHA, D. W., AND GUNDERSEN, O. E. A Reproducibility Process for Case-Based Reasoning. In *Workshop Proceedings of the Twenty-Second International Conference on Case-Based Reasoning* (2013), pp. 156–162
- W02** GUNDERSEN, O. E. Enhancing situation awareness for decision support by utilizing data streams and past experiences. In *Workshop Proceedings of the Twenty-First International Conference on Case-Based Reasoning* (2012), Citeseer, pp. 246–248
- W01** GUNDERSEN, O. E., AND SØRMO, F. An architecture for multi dimensional temporal abstraction supporting decision making in oil-well drilling. In *3rd International Workshop on Combinations of Intelligent Methods and Applications (CIMA 2012)* (2012), p. 13

KEYNOTES

- K08** Keynote at VinterKraft 2024, Gardermoen, Norway, Feb. 14. Title of talk: What is AI really, and how do we use it in Aneo?
- K07** Keynote at NorthWind Annual Innovation Forum 2022, Trondheim, Norway, Dec 7. Title of talk: Optimized operation of wind farms.
- K06** Keynote at NorwAI Innovate 2022. Trondheim, Norway, Nov 2. Title of talk: Predictive maintenance at Aneo.
- K05** Keynote at SciDataCon 2022 Session: AI & Reproducibility, Repeatability, and Replicability virtually and in Seoul, South-Korea, June 20th. Title of talk: Fundamental Principles of Reproducibility.
- K04** Keynote at Evaluating Evaluations of AI Systems (Meta-Eval 2020), Workshop at AAAI 2020, How can we know it is shoulders we stand on? Reproducibility and Evaluation.
- K03** Keynote at ATEA Community Tech 2019, Bodø, September 2019. Title of Talk: On ants and men, on computers and humans.
- K02** Keynote at employee conference for ATEA (170 attendees), Sweden, December 2017. Title of talk: Kunstig intelligens og maskinlæring (Artificial intelligence and machine learning).
- K01** Keynote at Doctoral Consortium at the International Conference on Case-Based Reasoning in Trondheim, June 28th 2017. Title of talk: Knowledge and Value - Academia and Startups.

INVITED TALKS, GUEST LECTURES AND PANEL DISCUSSIONS

- T35** Panel talk at Maintech conference on April 17, 2024, in Trondheim. Title of Panel: The use of AI in industry.
- T34** Panel talk at Trøndelagsmøtet 2024 on January 12th, 2024, in Trondheim. Title of Panel: Artificial Intelligence - how we use it today.
- T33** Talk at Make Data Smart conference in Trondheim on November 16 2023. Title of talk: How to make maintenance predictive.
- T32** Talk at Virtual Tech day - Data Science and Python on November 16 2023. Title of talk: Use of AI in Power and Utilities Businesses.
- T31** Invited talk at the KraftKom conference on September 27th, 2023, in Trondheim. Title of talk: Artificial Intelligence - what is it and how can it be used in communications work.
- T30** Webinar hosted by The FAIR in ML, AI Readiness, & Reproducibility Research Coordination Network on August 23rd 2023. Title of talk: Strategies for Machine Learning Reproducibility with Kevin Coakley.
- T29** Invited talk at the FME HydroCen meeting March 29th, 2023, in Trondheim. Title of talk: Hydro and Wind in Aneo.
- T28** Invited by The Royal Society and the UK Reproducibility Network to a virtual round-table discussion on the reproducibility crisis in machine learning-based scientific research.
- T27** Invited talk at The Reproducibility Workshop Reproducibility Crisis in ML-based Science hosted by Professor Arvind Arayanand and Sayash Kapoor at Princeton with more than 400 attendees. Title of talk: Towards a Definition or Reproducibility. The workshop was featured in the article “Could machine learning fuel a reproducibility crisis in science?” in Nature July 26, 2022. Web site with recorded version of the talk: Towards a Definition of Reproducibility. <https://sites.google.com/princeton.edu/reproducibility-workshop/>
- T26** Invited talk at The Role of Uncertainty in Mathematical Modelling of Pandemics at Isaac Newton Institute, Cambridge, England, Feb 8 2022. Title of talk: Fundamental Principles of Reproducibility.
- T25** Invited talk at Global Data Science and Python Workshop organized by Cegal: Creating Value using Data Science and AI in Renewables.
- T24** Invited discussant in the session The current limits of AI in science at the OECD workshop on AI and science.
- T23** Invited talk on Tutorial at NorwAI Innovate: AI Innovation in TrønderEnergi

- T22** Invited talk at NorthWind Webinar 2021: From corrective to predictive maintenance.
- T21** Invited talk at Workshop on AI & Innovation at Norwegian ICT conference for research and education (NIKT 2021), December 2021. Title of Talk: Standing on the Feet of Giants - Reproducibility in AI.
- T20** Panel at Evaluating Evaluations of AI Systems (Meta-Eval 2020), Workshop at AAAI 2020.
- T19** Invited talk at TrønderEnergi's Christmas Conference, December 2019. Title of Talk: AI in renewable energy.
- T18** Invited talk at IDI Symposium om Digital Transformasjon og AI, Oktober 2019. Title of Talk: Fornybar Maskinlæring - digitalisering og automatisering i TrønderEnergi og energibransjen.
- T17** Guest lecture at University of Southern California, data science class, September 2019. Title of talk: Standing on the Feet of Giants.
- T16** Invited talk at Information Sciences Institute at University of Southern California, September 2019: How Can We Know It Is Shoulders We Stand On?
- T15** Invited talk at Software Engineering and Ethics in AI seminar, Norwegian University of Science and Technology, March, 2019. Title of talk: If The Results Of Our AI Experiments Are Not Reproducible, Are We Doing Science?
- T14** Invited talk at AAAI 2019 Workshop on Reproducible AI, Honolulu, January, 2019. Title of talk: How Can We Know It Is Shoulders We Stand On?
- T13** Invited talk for the Text And Machine Learning group, University of Ottawa in December, 2018. Title of talk: Reproducible AI — Standing on the Feet of Giants.
- T12** Invited talk at Trondheim Big Data Meetup, organized by Oath in November, 2018. Title of talk: Reproducible AI — Standing on the Feet of Giants.
- T11** Invited talk at ONRs Science of Autonomy Review, organized by Office of Naval Research in Washington DC, August 2018 Title of talk: Reproducible AI.
- T10** Panel discussion at Innovation Breakfast: Can Machines Teach Other Machines?, organized by Trondheim Playground and Technoport in Trondheim, August 2017. Discussion with Professor Keith Dawning, Ieva Martinkenaite, Head of Office of Digital Innovation Network at Telenor.
- T09** Invited talk at Intelligent Energy, organized by East West Internationalization Association in Stavanger, August 2017. Title of talk: Predictive Real-Time Analytics in Drilling.

- T08** Invited talk at FuckUp Nights, organized by FuckUp Nights Norway in Trondheim, November 2016, Title of Talk: Verdande Technology
- T07** Invited talk at Big Data Solutions and Analytics in Oil and Gas industry, organized by Society of Petroleum Engineers in Oslo, February 2015. Title of talk: Predictive Real-Time Analytics Driven Decision Support for Oil Well Drilling.
- T06** Invited talk at the SPE Aberdeen Summit Series Seminar: Drilling Automation, organized by Society of Petroleum Engineers in Aberdeen, October 2014. Title of talk: Decision Support in the Automated Future.
- T05** Invited talk at the 2nd European Digital Oilfield Summit, organized by ACI in London, September 2014. Title of talk: Leveraging Real-Time Data.
- T04** Invited talk at Trondheim Big Data Meetup, organized by Yahoo! and NTNU in November, 2013. I presented together with Anders Kofod-Petersen. Title of talk: Case-Based Reasoning.
- T03** Invited talk at Improving the Drilling Process, organized by Drilling Engineering Association Europe, DEA(e), and Det Norske in Trondheim June 2013. Title of Talk: Leveraging Real-Time Data.
- T02** Invited talk at Drilling and the Digital Oil Well, organized by Finding Petroleum in Aberdeen, May 2012. Title of talk: Identifying critical drilling problems in advance - comparing past experience with current operations.
- T01** Guest lecture at the computer science group at Texas A&M organized by professor John Keyser, January 2011. Title of talk: Physically-based real-time animation of fire.

APPENDIX D: SUPERVISION AND TEACHING

The table provides an overview of my supervision and teaching.

Type	Total
Tutorials	4
Postdoc supervision	3
Researcher supervision	4
PhD supervision (main)	7
PhD supervision (co-supervisor)	4
PhD Defence Committees	3
Master Students	74
Courses	9

TUTORIALS

- TUT04** GUNDERSEN, O. E. Making Your AI Research Reproducible, 2021. IJCAI 2020, Yokohama, Japan (presented virutally)
- TUT03** GUNDERSEN, O. E. What I Talk about when I talk about Reproducibility - A Tutorial, 2019. IJCAI 2019, Macau, China
- TUT02** GUNDERSEN, O. E. Knowledge level models of situations and situation assessment: theory and applications, 2016. 10th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO) and 2016 IEEE International Conference on Cloud and Autonomic Computing (ICCAC) joint tutorials, Augsburg, Germany
- TUT01** GUNDERSEN, O. E. Knowledge level models of situations and situation assessment: theory and applications, 2016. IEEE International Multi-Disciplinary Conference on Cognitive Methods in Situation Awareness and Decision Support (CogSIMA), San Diego, USA

POSTDOC AND RESEARCHER SUPERVISION

- 2023 Lluís Mas-Ribas, postdoc: *RICO - Robust Intelligent Control*, six months funded by the Norwegian Research Council (NTNU).
- 2020 Irina Reshodko, postdoc: *Development of an Intelligent Driving Tutor*, six months funded by the Norwegian Research Council (NTNU).
- 2020–2021 Håkon Thorsteinsen, machine learning researcher: *Transfer Learning for Wind Forecasting*, ten months, funded by TrønderEnergi Kraft AS.

2022	Håkon Slåtten Kjærnli, machine learning researcher: <i>Reproducibility of time-series forecasting methods</i> , two months, funded by TrønderEnergi Kraft AS.
2020	Saeid Shamsaliei, machine learning researcher: <i>Reproducibility of time-series forecasting methods</i> , two months, funded by TrønderEnergi Kraft AS.
2019–2020	Saeid Shamsaliei, assistant researcher: <i>Reproducibility of AI research</i> , total of two months, funded by the Department of Computer Science (NTNU).
2019–2020	Martin Kristoffer Hoel Sandberg, assistant researcher: <i>Data Collection and Analysis of Car Simulator Data</i> , total of two months, funded by the Department of Computer Science (NTNU).
2016–2018	Rune Havnung Bakken, postdoc: <i>Automating the Generation of Indoor Maps</i> , two years, funded by the Norwegian Research Council (NTNU).

PHD SUPERVISION (MAIN SUPERVISOR)

2020–2023	Johannes Rehm: <i>Development of an Intelligent Driving Tutor</i> with Associate Professor Kerstin Bach (NTNU) and Dr. Irina Reshodko.
2020–2025	Saeid Shamsaliei: <i>Spatiotemporal Analysis of Scandinavian Rivers</i> with Professor Helge Langseth (NTNU) and Professor Knut Alfredsen (NTNU).
2021–2025	Håkon Thorstensen: <i>Applied Transfer Learning in the Energy Domain</i> with Professor Helge Langseth (NTNU) and Dr. Gleb Sizov.
2021–2025	Kevin Coakley: <i>Sources of Irreproducibility in Machine Learning</i> with Professor Theoharis Theoharis (NTNU), Professor Yolanda Gil (University of Southern California) and Christine Kirkpatrick (San Diego Supercomputing Center).
2022–2026	Gunnar Grotmol: <i>Applied Robust Reinforcement Learning in Power Systems</i> with Professor Helge Langseth (NTNU).
2022–2027	Aleksandra Jekic: <i>Robust Control with Physics-Informed Machine Learning</i> from 2022 to 2027 with Professor Helge Langseth (NTNU) and Dr. Signe Riemer-Sørensen (SINTEF Digital).
2024–2028	Håkon Hanish Kjærnli: <i>Robust and fast multi-market operation</i> with Professor Helge Langseth (NTNU), Professor Henrik Andersson (NTNU) and Dr. Ellen Krohn Aasgård (Aneo AS).

PHD SUPERVISION (CO-SUPERVISOR)

2021–2024	Wajeeha Nasar: <i>AI-Informed Decision Support for Search and Rescue</i> with Associate Professor Anniken Susanne T. Karlsen and Professor Ricardo Da Silva Torres (NTNU), defence in May 2024.
2019–2024	Yanzhe Bekkemoen: <i>Explainable AI</i> with Professor Helge Langseth (main supervisor) and Professor Heri Ramampiaro (NTNU).
2019–2024	Ludvig Killingberg: <i>Distributional Reinforcement Learning</i> with Professor Helge Langseth (main supervisor) and Professor Heri Ramampiaro (NTNU).
2017–2018	Channarong Intahchomphoo: <i>Facebook Usage among Urban Indigenous Youth at Risk in Ontario</i> with Associate Professor André Vellino (University of Ottawa), defended in December 2018.

PHD DEFENCE COMMITTEES

2023	Samuel Idowu (Chalmers University of Technology): <i>Towards Next-Gen Machine Learning Asset Management Tools</i> . Opponent: Professor Martin Monperrus, University of Stockholm. Grading Committee: Professor Timo Kehrer, University of Bern, Professor Mikkel Baun Kjærgaard, University of Southern Denmark, and me (Chair of the grading committee).
2021	Bjørn Magnus Mathisen (NTNU): <i>Using similarity learning to enable decision support in aquaculture</i> , with opponents Dr. Thomas Gabel and Dr. Frode Sørmo (Amazon Alexa). I was the administrator.
2020	Igor Barros Barbosa (NTNU): <i>Unconventional Biometrics</i> , with opponents Dr. Stefano Berretti, University of Firenze, and Dr. Rocío Cabrera Lozoya, SAP Security Research. I was the administrator.

MASTER STUDENT SUPERVISION (MAIN AND CO-SUPERVISOR)

In total, I have supervised 74 Master students. For most of these students, I supervised both the specialization projects and the Master thesis.

2025	Håkon Lund Isaksen: <i>Adversarial Intraday Trading of Wind Power</i>
2025	Thale Krohn-Pettersen: <i>Explainable Wind Power Forecasting</i>
2025	Simen Eidal and Markus Risa Vesetrud: <i>Representation Learning for Wind Forecasting</i>
2025	Peter Lundestrand Lawrence and Anders Lerang: <i>Explainable Predictive Maintenance</i>

- 2025 Vegard Sjøvik and Hans Jakob Håland: *What-if Analysis for Time-series Forecasting*
- 2025 Anine Syrstad and Sofie Karlsen Ytterstad: *Probabilistic Wind Power Forecasting*
- 2024 Henrik Hammer and Daniel Bao Duy Nguyen: *Predictive Maintenance for Retail Freezers.*
- 2024 Aleksandra Jekic: *Robust Control with Physics-Informed Machine Learning*
- 2023 Yrjar Gedde and Johan Fredrik Rønningen Bjørnland: *Procedural Content Generation for virtual Driving Situations.*
- 2023 Kenneth Juul Wannebo: *Selecting Time Series Forecasting Model Based On Time Series Characteristics.*
- 2022 Saeid Shamsaliei: *Improving the semantic segmentation of historical aerial images of riverscapes using both data-centric and model-centric approaches..*
- 2022 Espen Hansen Højord: *Explainable AI (XAI) for grid loss forecasting.*
- 2022 Henrik Gustavson Grytten: *How State of Charge Impacts Machine Learning Algorithms for State of Health Estimation of Lithium-ion Batteries..*
- 2022 Erling Stray Bugge and Tarje Rusten Wang: *Electricity Price Forecasting Benchmark of ENTCN on Nordic Bidding Areas*, Department of Industrial Economics and Technology Management (IØT).
- 2021 Jakob Fougner Engebretsen and Marius Engen: *Mid-Term Electricity Price Forecasting using Auction Data to Construct Supply and Demand Curves – A Similar Day Approach*, Department of Industrial Economics and Technology Management (IØT).
- 2021 Håkon Sletten Kjærnl: *Improving the robustness of neural networks through augmentations with specific characteristics.*
- 2021 Ask Sommervoll: *An Evaluation of Probabilistic Hybrid Machine Learning Models For Inflow Forecasting.*
- 2021 Eivind Strøm: *Evaluation of Multi-step Forecasting Models: An Empirical Deep Learning Study.*
- 2021 Herman Rommetveit and Lars Martin Kleppe: *Leveraging Turbine-Level Data in a Deep Learning Approach for Wind Power Forecasting.*
- 2021 Kim Erling Rasmussen and Andreas Risvaag: *Topology Estimation in Powergrids.*

- 2020 Kristine Klock Fleten and Marie Frøysa Bjørdal: *The Value of Considering Uncertainty in Short-Term Hydropower Scheduling – Combining Machine Learning and Stochastic Programming*, Department of Industrial Economics and Technology Management (IØT).
- 2020 Morten Olsen Osvik and Stian Ismar: *Detecting Gear and Bearing Faults in Wind Turbines Using Vibration Analysis: A Practical Application of Spectral Analysis and K- Means Clustering*, Department of Mechanical and Industrial Engineering (MTP).
- 2020 Magnus Myrmo Osberg: *LSTM Hybrid Model for Water Reservoir Inflow Forecasting, a Comparison Between Black Box- and Interpretable Hybrid Models*.
- 2020 Arild Sørensen Dalsgård: *Segmentation of river ecology using deep learning on aerial images*.
- 2020 Martin Kristoffer Hoel Sandberg: *Design and Implementation of the Architecture of a Virtual Driving Instructor*.
- 2020 Matej Mnoucek: *Data-oriented Multi-agent Assessment System for Real-time Driving Simulators*.
- 2020 Pål Christian Glenna Iversen and Håkon Thorstensen: *Automatic Wind Power Forecasting as a Service*.
- 2020 Sverre Herland: *Automating Wind-power Trading in the Nordic Intraday Market*.
- 2020 Maria Soleim: *Reproducibility of the Top-Performing Methods in the M4 Competition*.
- 2019 Stefan Artur Sobczyszyn Borg: *Neural Ordinary Differential Equations for Forecasting in the Energy Sector*.
- 2019 Richard Juul Isdahl: *Investigating the Reproducibility Support of Machine Learning Platforms*.
- 2019 Rasmus Stene: *Case-basert Resonnering for feildiagnose i strømnettet*.
- 2019 Sander Aker Christiansen and Ivar Fauske: *Developing a Virtual Driving Instructor*.
- 2019 Stein-Erik Bjørnnes and Sindre Adolfsen Gjerde: *Using deep learning to process images as basis for knowledge graph*.
- 2018 Nicklas Grimstad Nilsen: *Research method in AI: Reproducibility of results*.
- 2018 Martin Mølne and Odd Cappelen: *Performing reproductions to understand the state of reproducibility in current AI research*.

2018	Gabriel Berthling-Hansen and Eivind Morch: <i>Automating Behaviour Modelling for Computer Generated Forces - Evolving Behaviour Trees with Observational Learning</i> .
2018	Sigbjørn Kjensmo: <i>Research Method in AI – Reproducibility of Results</i> .
2017	Morten Alver Normann and Helmer Råby Schaug Njærheim: <i>Improving User Experience of Indoor Maps Through Merging of Rooms</i> .
2010	Øystein Kjærnet: <i>Framework for real-time forest fire animation: Simulating fire spread using the GPU</i> .
2007	Lars Andreas Ek and Rune Vistnes: <i>Animating explosions in real-time</i> .
2007	Lars Tangvald: <i>Implementing LOD for physically-based real-time fire rendering</i> .
2007	Ola Haavik: <i>Improving Image Quality on The Setred Scanning Slit 3D Display</i> .
2007	Janne Beate Lervik Bakeng: <i>Kollisjonsdeteksjon og -respons ved animasjon av tekstiler og klær</i> .
2006	Frode Ingebrigtsen: <i>Visualizing terrain with shadows</i> .
2006	Terje Sanderud Haaland: <i>Virtual Reality Techniques in the Domain of Surgical Simulators</i> .
2006	Knut Erik Samuel Rødal and Geir Storli: <i>Physically Based Simulation and Visualization of Fire in Real-Time using the GPU</i> .
2006	Svein Erik Voll: <i>Augmented Reality within Interior Design</i> .
2006	Jostein Gustavsen and Dan Lewi Harkestad: <i>Visualization of water surface using GPU</i> .
2006	Gunnar Solheim: <i>Visualisering av DAK-modeller i VR</i> .
2006	Kjartan Dencker: <i>Cloth Modeling on the GPU</i> .
2006	Kari Røssland: <i>A Shared Memory Structure for Cooperative Problem Solving</i> .
2005	Tore Aurstad: <i>Interactive removal of outlier points in latent variable models using virtual reality</i> .

LIST OF COURSES GIVEN

C10 Course coordinator for DT8114 PhD Seminar in Computer and Information Science, 2023 and 2024.

- C09** Course coordinator for TDT4136 Introduction to AI, 2022.
- C08** Course coordinator and lecturer for TDT4171 Methods in Artificial Intelligence, 2018.
- C07** Course coordinator and lecturer for TDT4136 Introduction to AI, 2016.
- C06** Course coordinator and lecturer for TDT4171 Methods in Artificial Intelligence, 2016.
- C05** Course coordinator and lecturer for TDT4230 Graphics and Visualization, 2015.
- C04** Lecturer for TDT4195 Image techniques, 2006.
- C03** Course coordinator and lecturer for TDT4230 Visualization, 2005.
- C02** Course coordinator and lecturer for TDT3 Advanced topics in visualization, 2005.
- C01** Lecturer for TDT4195 Image techniques, 2005.

I have also given lectures in TDT4172 Machine learning (since 2015) and IT3010 Research-based Innovation Methodologies in Computer and Information Science (since 2019) as well as lectures in AI Master class, TDT39 Empiriske studier i IT and TDT4137 Cognitive Architectures.

APPENDIX E: PROFESSIONAL ACTIVITIES

The table summarizes my professional activities.

Type	Total
Senior Program Committee Member	2
Program Committee Member	14
Journal Reviewer	7
Conference Organization	10
Workshop Organizaton	7

SENIOR PROGRAM COMMITTEE MEMBERSHIP

2022	Association for the Advancement of AI Conference.
2019–2021	International Joint Conference on Artificial Intelligence (IJCAI): IJCAI 2019, IJCAI 2020 and IJCAI 2021).

PROGRAM COMMITTEE MEMBERSHIP

2023	K-CAP 2023, the Twelfth International Conference on Knowledge Capture.
2022–	AI for Social Good Track at AAAI.
2022–	Survey Track at IJCAI.
2022–	NeurIPS Track on Datasets and Benchmarks.
2021–2023	Uncertainty in Artificial Intelligence (UAI). <i>I was identified as one of the top reviewers for UAI 2023.</i>
2021–	Innovative Applications of Artificial Intelligence (IAAI).
2019–	NeurIPS Competition Track.
2019	IEEE International Conference on Systems, Man, and Cybernetics, special session Computational Models of Cognition and Situated Behavior in Cyber-Physical-Human Systems (IEEE SMC).
2019	International Conference on Information Fusion (Fusion 2019).
2018–	Association for the Advancement of AI Conference (AAAI 2018). <i>Top 25% reviewers at AAAI 2021.</i>
2018–	International Conference on Case-based Reasoning (ICCBR).
2017–	International Joint Conference on Artificial Intelligence (IJCAI). <i>Distinguished reviewer (top 3%) at IJCAI 2022 and IJCAI 2023.</i>

2016–2021	IEEE Conference on Cognitive and Computational Aspects of Situation Management (CogSIMA).
2014–2015	International Conference on Autonomic and Autonomous Systems (ICAS).
2011–2013	Scandinavian AI Conference (SCAI).
2011	International and Interdisciplinary Conference on Modeling and Using Context (Context).
2008–	Symposium for Norwegian AI Society (NAIS).

JOURNAL REVIEWER

2024	ACM Computing Surveys
2024	Journal of Machine Learning Research
2024	Nature Machine Intelligence
2024	Journal of Reliability Engineering & System Safety
2023	Earth and Space Science
2023	Royal Society Open Science.
2023	Computational Linguistics.
2023	Artificial Intelligence Review.
2023	Data Mining and Knowledge Discovery.
2022	Nature Communications.
2022	npj Digital Medicine.
2021	SN Computer Science.
2021	Proceedings of Machine Learning Research.
2019	Communications of the ACM.
2016	Cognitive Systems Research, special issue on Situation Awareness in Human-Machine Interaction.

CONFERENCE ORGANIZATION

2022	Track Chair for the Research Methods and Reproducibility Track with Professor Dieter Jannach at UMAP 2022 - the 30th ACM Conference on User Modeling, Adaptation and Personalization.
2022	Reproducibility Chair at AAAI 2022, the 36th AAAI Conference on Artificial Intelligence, virtual.

2021	Reproducibility Chair at AAAI 2021, the 35th AAAI Conference on Artificial Intelligence, virtual.
2019	Technical Program Co-Chair with Galina Rogova and Nicolette McGeorge, CogSIMA 2019, IEEE Conference on Cognitive and Computational Aspects of Situation Management, Boston, US.
2018	Technical Program Co-Chair with Galina Rogova and Christian Lebiere, CogSIMA 2018, IEEE Conference on Cognitive and Computational Aspects of Situation Management, Boston, US.
2017	Local Chair, ICCBR 2017, International Conference on Case-Based Reasoning, Trondheim, Norway.
2017	International publicity and patron co-chair with Jurgo Preden, CogSIMA 2017, IEEE Conference on Cognitive and Computational Aspects of Situation Management, Savannah, Georgia, US.
2011	Sponsor Chair, SCAI 2011, Scandinavian AI Conference, Trondheim, Norway.
2009	Co-chair with Anders Kofod-Petersen, NAIS 2009, Symposium for Norwegian AI Society, Trondheim, Norway.
2008	Co-chair with Anders Kofod-Petersen, NAIS 2009, Symposium for Norwegian AI Society, Trondheim, Norway.

WORKSHOP ORGANIZATION

2022	Co-chair of the 5th Workshop on Process Oriented Case-Based Reasoning, POCCBR 2022, with Ditty Matthew, Mirjam Minor and Stefania Montani.
2020	Co-chair of the AAAI 2020 Workshop on Reproducible AI, RAI 2020, with David Aha and Daniel Garijo.
2019	Co-chair of 4th Workshop on Process Oriented Case-Based Reasoning, POCCBR 2019, with Miltos Petridis, Mirjam Minor and Stefania Montani.
2019	Co-chair of the AAAI 2019 Workshop on Reproducible AI, RAI 2019, with Yolanda Gil, Joelle Pineau and Satinder Sing.
2017	Co-chair of the 3rd ICCBR Workshop on Process Oriented Case-Based Reasoning, POCCBR 2017, with Miltos Petridis, Mirjam Minor and Stefania Montani.
2016	Co-chair of the 2nd ICCBR Workshop on Reasoning about Time in Case-based Reasoning, RATIC 2016, with Kerstin Bach.

2014

Co-chair of the 1st ICCBR Workshop on Reasoning about Time in Case-based Reasoning, RATIC 2014, with Stefania Montani.

June 6, 2025