

Academic CV

By Chiara Bordin

Associate Professor, Energy Informatics

Department of Computer Science,
UiT, The Arctic University of Norway

Last Update – July 2025

Sex: Female
Current residence: Norway
Nationality: Italian

Personal website: [Here](#) LinkedIn: [Here](#) Google Scholar: [Here](#)

2012-2015	PhD in Control Systems Engineering and Operations Research <i>"Mathematical Optimization Applied to Thermal and Electrical Energy Systems"</i> Department of Electrical, Electronic and Information Engineering "Guglielmo Marconi" University of Bologna, Italy
2008-2010	Master of Engineering - Industrial Engineering, special curriculum on Energy Technologies Alma Mater Studiorum - University of Bologna, Italy Department of Energy and Nuclear Engineering, and Environment Control

2019 - now	Associate Professor, Energy Informatics UiT, The Arctic University of Norway, Tromsø (Norway) Department of Computer Science
2024 - 2025	Visiting Professor University of Bologna (Italy) Department of Agricultural and Food Sciences
2015-2019	Research Scientist SINTEF Energy, Trondheim (Norway)
2016-2017	PostDoc Norwegian University of Science and Technology, Trondheim, (Norway)
2014-2015	Research Associate School of Engineering and Computing Sciences Durham University, (UK)
2013-2014	Visiting PhD Research Fellow School of Engineering and Computing Sciences Durham University, (UK)
2012-2014	PhD Candidate Department of Electrical, Electronic and Information Engineering “Guglielmo Marconi” University of Bologna, (Italy)
2011	Private Company Energy Researcher: continuous pyrolysis of waste tyres through an experimental reactor in Faenza (Italy). Data analysis and research activity support - AREA: research and development - COMPANY: Curti Energia (Italy)
2010	Quality Control Assistant: thermoplastic materials treatment and transformation field; activity support in the quality control of an innovative photovoltaic plastic tile - AREA: quality control - COMPANY: Wegaplast (Italy)

SUPERVISION OF MASTER STUDENTS – MASTER’S THESES

Main Supervisor

Name and Institution	Thesis Title	Completed Year
Georgios Kournoutis (UiT)	Analyzing the Impact of Peak-Shaving on Load Reduction and on Battery Energy Storage System Degradation: A Simulation-Based Study in Husøy	2023
Ole-Andre Fagerli Isaksen (UiT)	Development of heavy-duty electric vehicle charging infrastructure for Northern Norway	2023
Astrid Fossum (UiT)	Decomposition strategies in large instances of vehicle routing problems and their utilization on the REMIKS data set	2023
Amin Ziagham Ahwazi (UiT)	Budget-aware scheduling algorithm for scientific workflow applications across multiple clouds. A Mathematical Optimization-Based Approach	2022

Co-supervisor

Name and Institution	Thesis Title	Completed Year
Ingrid Schulstad (UiT)	Optimization of PV and electric mobility for a site in Tanzania	2025
Shahrzad Jafargholi (USN)	Comparative Analysis of Converter Ratings and Topologies for Reactive Power Control in Offshore Wind Farms (Dataset from Equinor)	2025
Eirik Slatlem (USN)	Time aggregation for energy systems modelling	2025
Sandhya Bohara (USN)	Optimal energy management strategies for data centers	2024
Shamim Al Mamum (USN)	Optimal route management for mobile energy storage considering construction sites	2024
Carlos Tellez (USN)	Comparison between conventional and flow-based market coupling with flexibility provisions	2023
Marit Utheim Breimo (UiT)	Attention-based Neural Networks for Solving Green Vehicle Routing Problems	2023

SUPERVISION OF MASTER STUDENTS – MASTER’S PROJECTS

Master’s projects are one semester projects where the student can apply and combine their knowledge and skills at the level of an independent study or practical task. The student can combine information from literature and any results of their own work to write a capstone project on a given topic.

Main supervisor

Name and Institution	Project Title	Completed Year
Astrid Fossum (UiT)	Explore the application of vehicle routing problems in published literature and develop an optimization algorithm to be applied on zone A* of the REMIKS data set	2022

Co-supervisor

Name and Institution	Project Title	Completed Year
Pahala Gedara Lasintha (USN)	Group project: Comparative analysis of energy system models in terms of performance	2023
Alva Brisbananda Ashari (USN)	Group project: Comparative analysis of energy system models in terms of performance	2023
Mohammad Farzadian (USN)	Group project: Comparative analysis of energy system models in terms of performance	2023
Marit Utheim Breimo (UiT)	Explore the application of vehicle routing problems in published literature and develop an optimization algorithm to be applied on zone B* of the REMIKS data set	2022
Brynhild Bentsen Sæther (UiT)	Predictive maintenance in power systems	2020

SUPERVISION OF PHD STUDENTS

Main supervisor

Name and Institution	PhD Thesis Title/Topic	Completed Year
Karoline Ingebrigtsen (UiT)	Models for optimal battery management, energy analytics for Smart Senja related activities	ongoing
Abd Alelah Derbas (UiT)	Artificial Intelligence Approaches and Applications for Optimal Control of Resilient Renewable Microgrids	ongoing

Co-supervisor

Name and Institution	PhD Thesis Title / topic	Completed Year
Ahmad Zubair (University of Stavanger, Norway)	Advanced Power Distribution Network Analytics	ongoing
Luca Wellmeier (UiT, Norway)	Tensor optimization for storage integration	ongoing
Silvia Anna Cordieri (University of Bologna, Italy)	Exact and heuristic algorithms for the integrated planning of multi-energy systems	2024
Sambeet Mishra (Tallinn University of Technology, Estonia)	Models for Modern Power Distribution Systems Planning	2018

SUPERVISION OF POSTDOCTORAL FELLOWS**Co-supervisor**

Name and Institution	Research area - Duration	Completed Year
Sulabh Sachan (USN)	Optimal coordination of multi-level power system operation (two years)	ongoing

SUPERVISION OF RESEARCH ASSISTANTS**Main supervisor**

Name and Institution	Research area - Duration	Completed Year
Shamim Al Mamum (UiT & USN)	Mobile energy storage modelling and applications	2024
Amin Ziagham Ahwazi (UiT)	VEDA - moVE the DAta to balance the grid – Exploiting data centres flexibility within the power system (two years)	2021
Martin Haug (UiT)	Value stacking of battery energy storage (two years)	2022

INDUSTRIAL R&D MENTORSHIP, AND COOPERATION

2025	Co-supervision of master theses with industrial involvement from Equinor
2024	Co-supervision of master theses with industrial involvement from Skagerak Energi
2022-2023	Supervision of master projects and theses for green vehicle routing applications for optimal waste management operations, with involvement of the local waste management company Remiks Miljøpark AS.
2022-2023	Supervision of a master's thesis for optimal electric vehicle charging infrastructure, with involvement of Posten AS.
2021-2022	Academic R&D mentor and advisor in LaavaTech , Estonian start-up company working with efficient solutions for indoor farming.
2020-now	Academic mentor for ARVA AS (formerly Troms Kraft AS) Cooperation within the “Smart Senja” project, advisory tasks for industrial research directions, proposals development, industrial PhD supervision.
2012-2015	Participation in the activities of Optit srl (spinoff of the University of Bologna), with a focus on district heating optimization models.

FELLOWSHIPS, AWARDS AND PRIZES

2023	“Feature paper” award for the article “<i>Bordin, C., Mishra, S., & Benth, F. E. (2023). Pedagogical Perspectives of Interdisciplinary Teaching and Research: An Energy System Modelling Outlook in Relation to Energy Informatics. Energies, 16(15), 5757.</i>” Feature papers are substantial original articles that represent the most advanced research with significant potential for high impact in the field. Feature papers are submitted upon individual invitation or recommendation by the scientific editors and must receive positive feedback from the reviewers.
2022	Outstanding Reviewer award of the Journal of Energy Engineering (ASCE - American Society of Civil Engineers) for the calendar year 2022.
2020	Receiver of the 500.000 NOK start-up grant by the faculty of science and technology of UiT, The Arctic University of Norway, based on career plan
2018	Member of the winning team for the best innovative research project idea for improving access to affordable and clean energy, within the YEAR (Young European Associated Researchers network) annual Conference. Read the article online
2014	Winner of a grant by the Excellence Initiative of the German Government for a funded participation to the ENERstore Summer School 2014 (Energy Storages for Sustainable Energy Supply)
2013	Winner of a PhD grant (Marco Polo funds) for one year of scientific research at the School of Engineering and Computing Sciences - Durham University, UK
2011	Winner of a 3-years grant for a PhD in “Control System Engineering and Operational Research” at DEI- “Guglielmo Marconi”, University of Bologna (Italy)

TEACHING ACTIVITIES

Year	Teaching position	Course Code	Course Name and Institution	Level	Ects
2025	Coordinator and lecturer	INF-8810	Special curriculum: AI-Driven Optimal Control of Hybrid Renewable Energy Systems (UiT)	PhD	10
2025	Coordinator and lecturer	INF-8806	Special curriculum: Philosophy of Science and Ethics in Artificial Intelligence (UiT)	PhD	6
2024	Coordinator and lecturer	INF-8815	Artificial Neural Networks in Microgrids Control (UiT)	PhD	15
2024	Coordinator and lecturer	INF-3993	Special curriculum: Applied Optimization – Theory and Energy Informatics Applications (UiT)	Master	10
2023-now	Lecturer	INF-2300	Computer Communication (UiT)	Bachelor	10
2023	Coordinator and lecturer	INF-2700	Database Systems (UiT)	Bachelor	10
2023	Coordinator and lecturer	INF-3701	Advanced Database Systems (UiT)	Master	10
2023	Coordinator and lecturer	INF-8701	Advanced Database Systems (UiT)	PhD	10
2022-now	Coordinator and lecturer	INF-3010	Energy Informatics - Smart Energy and Power Systems Modelling (UiT)	Master	10
2022-now	Coordinator and lecturer	INF-8010	Energy Informatics - Smart Energy and Power Systems Modelling (UiT)	PhD	10
2022	Coordinator and lecturer	INF-3993	Special Curriculum: Mathematical Optimization and Machine Learning for the Green Vehicle Routing Problem (UiT)	Master	10
2020-21	Lecturer	INF-2700	Database Systems (UiT)	Bachelor	10
2020-now	Lecturer	INF-3701	Advanced Database Systems (UiT)	Master	10
2020-now	Lecturer	INF-8701	Advanced Database Systems (UiT)	PhD	10
2020-21	Guest lecturer	INF-3210	Green Computing (UiT)	Master	10
2020-21	Guest lecturer	INF-8210	Green Computing (UiT)	PhD	10

DEVELOPMENT OF NEW COURSES AND CURRICULA

The table below highlights the new courses that I have designed, developed, and coordinated at various academic levels. These entries reflect my contributions to creating original course content, establishing curricula, and overseeing their successful implementation, demonstrating my commitment to innovation in teaching and pedagogy. Courses highlighted with * were collaboratively developed with the PhD candidate to fulfil part of the educational component, providing supervision and oversight to ensure alignment with academic standards and research goals.

Year	Course Code	Course Name and Institution	Level	Ects
2025	INF-8810*	Special curriculum: AI-Driven Optimal Control of Hybrid Renewable Energy Systems (UiT)	PhD	10
2025	INF-8806*	Special curriculum: Philosophy of Science and Ethics in Artificial Intelligence (UiT)	PhD	6
2024	INF-8815*	Special curriculum: Artificial Neural Networks in Microgrids Control (UiT)	PhD	15
2024	INF-3993	Special curriculum: Applied Optimization – Theory and Energy Informatics Applications (UiT)	Master	10
2022	INF-3993	Special Curriculum: Mathematical Optimization and Machine Learning for the Green Vehicle Routing Problem (UiT)	Master	10
2021	INF-3010	Energy Informatics - Smart Energy and Power Systems Modelling (UiT)	Master	10
2021	INF-8010	Energy Informatics - Smart Energy and Power Systems Modelling (UiT)	PhD	10

ORGANIZATION OF CONFERENCES, SCIENTIFIC MEETINGS, KEYNOTE SPEECHES

2025	Invited keynote speaker at the Nordic Energy Informatics Academy Conference 2025 . Topic: Integrating Electric Mobility and Smart Buildings - Educational Perspectives on Sustainable Urban Development.
2025	Member of the Technical Programme Committee of the 14th DACH+ Conference on Energy Informatics
2025	Member of the International Program Committee for the KES Conference on Smart Education and E-Learning 2025

2025	Program Chair of the Nordic Energy Informatics Academy Conference 2025
2024/25	Member of the organizing committee for CCGrid2025 - International Symposium on Cluster, Cloud, and Internet Computing
2024	Invited keynote speaker at the Energy Informatics Academy Nordic innovation festival . Topic: Norway's road to EV leadership – Informatics and the green transport revolution
2024	Member of the program Committee for the Kick-off workshop & Recruitment event held in Paris within the EU Marie Curie Doctoral Network TENORS
2024	Member of the technical program committee of the 21th EAI International Conference on Mobile and Ubiquitous Systems
2024	Member of the Technical Programme Committee of the 13th DACH+ Conference on Energy Informatics
2024	Invited chair of session at the KES Conference on Sustainability in Energy and Buildings 2024 . Session “ Intelligent and data driven decision-making in green urban mobility ”.
2024	Member of the Technical Program Committee for the KES Conference on Sustainability in Energy and Buildings 2024
2022,23,24,25	Member of the Technical Program Committee for the Energy Informatics.Academy Conference 2022 , 2023 , 2024 , 2025
2021	Chair of the workshop “from PhD to professor” at the WomENCourage pre-event within the project Better gender Balance in Informatics (BBI)
2016	Invited Chair of session at ICCOPT2016 – August 2016 -Tokyo (Japan) <i>Stream "Applications in Energy, Science and Engineering"; Session "Energy Systems Optimisation"</i>
2015	Invited Chair of session at EURO 27 - July 2015 - Glasgow (UK) <i>Stream "Combinatorial Optimization"; Session "Mathematical Models for Energy Optimisation"</i>
2014	Invited Chair of session at IFORS 20 - July 2014 – Barcelona (Spain) <i>Stream "Technical and Financial Aspects of Energy Problems"; Session “Exact and heuristics decision support approaches for energy distribution, planning and management”</i>
2012	Member of the organizing committee of <i>VeRoLog, EURO conference on Vehicle Routing Problems</i> , at University of Bologna.

CONTRIBUTIONS TO SCIENTIFIC JOURNALS

2024-now	Member of the Editorial Board of the Journal Discover Applied Science (Springer Nature)
2021-now	Member of the Editorial Board of the Energy Informatics Journal (Springer)
2021-2023	Guest Editor for the special issue “Smart and sustainable energy hubs for a future integrated energy system” , in the <i>Energies Journal</i> (MDPI)

CONTRIBUTIONS TO EVALUATION COMMITTEES

Evaluations of master's thesis

- 2024 **Master student:** Gholamreza Shahmohammadi (USN)
Project: Reactive power market mechanism for pricing
Role: external member of the evaluation committee for the master degree
- 2024 **Master student:** Sibbir Ahmed Uchchus (USN)
Project: A Symmetric Review of Reactive Power Market Mechanism for Pricing
Role: external member of the evaluation committee for the master degree
- 2024 **Master student:** Kestutis Samulis (UiS)
Project: State space analysis of power distribution networks for studying voltage sensitivity
Role: external member of the evaluation committee for the master degree
- 2023 **Master student:** Thanh-Hi Anthony Vu (NTNU)
Project: Semantic Text Indexing
Role: external member of the evaluation committee for the master degree
- 2023 **Master student:** Christoffer Stensrud (NTNU)
Project: Augmenting Tables Using Annotated Document Collections
Role: external member of the evaluation committee for the master degree
- 2021 **Master student:** Jonas Berg Hansen (UiT)
Project: Power Flow Optimization with Graph Neural Networks
Role: internal member and leader of the master's thesis evaluation committee

Evaluations of PhD candidates – final defence

- 2025 **PhD candidate:** Diana Cremoncini (University of Pisa, Italy)
Project: Optimal management and cost analysis for the viability of redox flow batteries as renewable energy storage
Role: Member of the evaluation committee for the degree of PhD in science
- 2025 **PhD candidate:** Dung-Bai Yen (NTNU)
Project: The role of end-use flexibility in the Norwegian Power System for grid management and incentives for P2P trading
Role: Member of the evaluation committee for the degree of PhD in science and opponent
- 2023 **PhD candidate:** Enrico Tedeschi (UiT)
Project: Predictive modelling for fair and efficient transaction inclusion in a proof-of-work blockchain system
Role: Leader of the evaluation committee for the degree of PhD in science
- 2023 **PhD candidate:** Matteo Avolio (University of Calabria, Italy)
Project: Balancing the average weighted completion times of two classes of jobs: a new scheduling problem
Role: Member of the evaluation committee for the PhD degree
- 2021 **PhD candidate:** Miguel Ángel Tejedor Hernandez (UiT, The Arctic University of Norway)
Project: Glucose Regulation for In-Silico Type 1 Diabetes Patients Using Reinforcement Learning
Role: Leader of the evaluation committee for the degree of PhD in science

Evaluation of PhD candidates - midterm

2024	PhD candidate: Anders Sildnes (UiT, The Arctic University of Norway) Project: Computational pathology Role: member of the midterm evaluation committee
2023	PhD candidate: Emil Ghieh Melfald (USN, University of South Eastern Norway) Project: Advanced control design through reinforcement learning frameworks for hydropower systems Role: member of the midterm evaluation committee
2023	PhD candidate: Ingar Mæhlum Arntzen (UiT, The Arctic University of Norway) Project: Control-driven Media for Situation Awareness Role: member of the midterm evaluation committee
2023	PhD candidate: Erlend Johannessen (UiT, The Arctic University of Norway) Project: A large-scale infrastructure for data collection and analysis of health-related data from a population in a user-controlled way Role: member of the midterm evaluation committee
2021	PhD candidate: Odin Foldvik Eikeland (UiT, The Arctic University of Norway) Project: energy analytics Role: member of the midterm evaluation committee
2020	PhD candidate: Jo Inge Arnes (UiT, The Arctic University of Norway) Project: Swift epidemiological data analyses Role: member of the midterm evaluation committee

Sensoring and re-assessments

2024	External sensor of the exam Energy Informatics, University of Oslo, Norway.
2023	External sensor of the exam Power System Analysis EPE2316, USN, University of South Eastern Norway.
2023	External sensor of the appeal committee for the re-assessment of students within the exam “Information retrieval”, at NTNU, Norwegian University of Science and Technology
2023	Sensor of the appeal committee for the re-assessment of students within the exam “database systems”, at UiT, The Arctic University of Norway
2023-now	Sensor of the exam “computer networks”, at UiT, The Arctic University of Norway
2020-now	Sensor of the exam “advanced database systems”, at UiT, The Arctic University of Norway
2020-21-23	Sensor of the exam “database systems”, at UiT, The Arctic University of Norway
2022-now	Sensor of the exam “energy informatics: smart energy and power systems modelling”, at UiT, The Arctic University of Norway

CONTRIBUTIONS TO DIDACTIC COMMITTEES

2024 - now	Leader of the committee: integrating energy and sustainability into the computer science curriculum, UiT, The Arctic University of Norway
2021	Member of the committee for the development of a new 5 years integrated study programme in Renewable Energy at UiT, The Arctic University of Norway.

2021 Member of the committee for the restructuring of the “Energy Climate and Environment” study programme at UiT, The Arctic University of Norway

CONTRIBUTIONS TO RESEARCH COMMITTEES

2025 Member of the [French National Research Agency \(ANR\)](#) committee for the evaluation of research proposals under the Generic Call for Proposals 2025 (AAPG 2025), panel CE05 - Sustainable, clean, safe and efficient energy.

2023 Member of the committee for the recruitment of a postdoctoral fellow at USN, University of South Eastern Norway.

2022 Organizer of the annual PhD Supervision Seminar at the Faculty of Science and Technology at UiT, The Arctic University of Norway

FUNDING ACQUISITION ACTIVITY

SUCCESSFUL RESEARCH FUNDING ACQUISITION

2024 **Project:** Sustainable Health-Energy Systems for Arctic Resilience: Optimizing Green Systems and Voltage Regulation for Health, Stability, and Energy Efficiency
Funding source: Changing Arctic Transdisciplinary Research School
Coordinator Institution: UiT, The Arctic University of Norway
Project Duration: 3 years
Role in the project: Leader, principal investigator, main supervisor of the PhD candidate
Role in the proposal development: Leader

2024 **Project:** [Nor-Can Geo-Exchange] Developing Norwegian-Canadian Educational Network for Blended Research-Based Learning in Geothermal Energy
Funding source: Norwegian Directorate for Higher Education and Skills
Call: UTFORSK24
Coordinator Institution: USN, Kongsberg
Project Duration: 4 years
Role in the project: Work Package leader
Role in the proposal development: contribution to concept development and proposal writing
Funds Awarded: 3,750,000 NOK

2024 **Project:** Nordic Network on Energy System Integration and Sustainable Transport
Funding source: Nordic Energy Research - Mobility Programme
Call: Nordic mobility, exchange and networking
Coordinator Institution: University of Southern Denmark
Project Duration: 4 years
Role in the project: Part of the Principal Investigators group
Role in the proposal development: specialized expertise within the green transport part of the proposal
Funds awarded: 4,330,000 NOK

- 2023 **Project:** The “Health - Green Systems – Energy” nexus: optimization models, algorithms, and analyses
Funding source: UiT, The Arctic university of Norway
Call: Research and development sabbatical with stay abroad
Coordinator Institution: UiT, The Arctic university of Norway
Project Duration: One year
Role in the project: Researcher and principal investigator
Role in the proposal development: Concept development and leader
Funds Awarded: 274 800 NOK
- 2023 **Project:** TENORS - Tensor modEliNg, geOmetRy and optimiSation
Funding source: European Commission
Call: HORIZON-MSCA-2022-DN-01 - Marie Skłodowska-Curie Actions - Doctoral Networks
Coordinator Institution: INRIA National Institute for Research in Digital Science and Technology (France)
Project duration: 3 years
Role in the proposal development: Contribution to the concept, ideas development, proposal writing for the subtopics of interest.
Role in the project: member of the supervisory board, work package participant, PhD cosupervisor within the [DC 8 project – Tensor optimization for storage integration](#) (WP3)
Funds awarded: 4 049 582.39 EUR
- 2022 **Project:** “OptiBESS-HUB: Prescriptive Analytics to Optimize Power Grid Operations and Planning Based On Energy Storages and Human Energy Behaviour in Northern Norway”
Funding source: an industrial PhD funded by the Norwegian Research Council and ARVA AS
Coordinator institutions: UiT, The Arctic University of Norway and ARVA AS
Project duration: 3 years
Role in the proposal development: Leader of the proposal development, contribution to the concept, ideas development, proposal writing.
Role in the project: Main supervisor of the PhD candidate, contribution to the project management, research advancements and organization together with ARVA
Funds Awarded: NOK 5 million in total budget, including NOK 1,9 million from the Norwegian Research Council, the rest from ARVA AS
- 2021 **Project:** MASCOT – Mathematical Structures in Computation
Funding source: UiT the Arctic University of Norway
Call: UiT Aurora Centres
Coordinator Institution: mathematics department at UiT, The Arctic University of Norway
Project Duration: 4 years
Role in the proposal development: Contribution to the concept, ideas development, proposal writing for the topics of interest.
Role in the project: Part of the Principal Investigators group, member of the research team, main supervisor of one of the PhD candidates hired within the centre.
Funds Awarded: NOK 30 million
- 2020 **Project:** "VEDA – moVE the DAta to balance the grid"
Funding source: Arctic Centre for Sustainable Energy
Call: ARC strategy funds
Coordinator Institution: UiT, the Arctic University of Norway
Project Duration: 1 year
Role in the proposal development: Leader of the proposal development, contribution to the concept, ideas development, proposal writing.

Role in the project: Project Manager and leader of the initiative, main supervisor of the research assistant hired within the project
Funds Awarded: 434 000 NOK for a pre-study

- 2019 **Project:** "CleanExport: Planning clean energy export from Norway to Europe"
Funding source: Norwegian Research Council
Call: EnergiX – Knowledge Building projects for Industry (KPN)
Coordinator Institution: Sintef Energy
Project Duration: 4 years
Role in the proposal development: Full time key role in the concept and ideas development, coordination, and proposal writing.
Role in the project: research, contribution and co-authorship of one of the published papers
Funds Awarded: 20 million NOK for a full project to start in 2020
- 2018 **Project:** "Pre-study for CleanExport: Planning clean energy export from Norway to Europe"
Funding source: Norwegian Research Council
Call: EnergiX – Knowledge Building projects for Industry (KPN)
Coordinator Institution: Sintef Energy
Project Duration: 1 year
Role in the proposal development: leadership role in concept development, coordination, and proposal writing
Role in the project: research, contribution and co-authorship of the published deliverables (report) distributed to the industries
Funds Awarded: 2 million NOK for a pre-study to run in 2019;
- 2018 **Project:** OPEN ENTRANCE – OPEN Energy TRANsition to a low Carbon Economy
Funding source: European Commission
Call: European call "LC-SC3-CC-2-2018 - Modelling in support to the transition to a Low-Carbon Energy System in Europe"
Coordinator Institution: Sintef Energy
Project Duration: 4 years
Role in the proposal development: full time key role in the concept development, coordination, and proposal writing
Funds Awarded: 5 million Euros

CONTRIBUTIONS AND INVOLVEMENT IN RESEARCH PROJECTS AT VARIOUS GROUPS

- 2024 - 2034 **Project:** "FME Battery"
Coordinator Institutions: NTNU (Norway)
Role: project participant, co-supervisor of one PhD
- 2023 - 2025 **Project:** "SysOpt - System Optimization between power producer and grid owners"
Coordinator Institutions: USN (Norway)
Role: co-supervisor of the postdoc and co-author of published papers ([website](#))
- 2024 - 2028 **Project:** "RELAY - Relational Deep Learning for Energy Analytics"
Coordinator Institutions: UiT (Norway)
Role: co-leader of WP1 "Energy Analytics" and co-supervisor ([website](#))
- 2020 **Project:** "FME NTRANS Norwegian Center for Energy Transition Strategies"
Coordinator Institutions: NTNU and SINTEF Energy (Norway)
Role: contribution to one of the published papers (2021 full report [here](#))

- 2020 **Project:** “FarMind, solutions to reduce energy costs in indoor farming (EU funded)”
Coordinator Institution: Laava Tech (Estonia)
Role: academic R&D mentor and advisor
- 2020 **Project:** Smart Senja and Renew
Coordinator Institutions: Troms Kraft AS, UiT, Arctic Centre for Sustainable Energy
Role: advisory role upon request, co-supervisor of one of the PhDs
- 2020 – 2021 **Project:** CleanExport, planning clean energy export from Norway to Europe
Coordinator Institution: SINTEF Energy
Role: contribution within the first review published scientific article
- 2019 **Project:** Hydrogen for Europe
Coordinator Institution: SINTEF Energy
Role: Researcher
- 2017 – 2019 **Project:** OptiStore - Optimization of Marine Energy Storage Systems for Desired Lifetime, Energy Saving and Safety
Coordinator Institution: SINTEF Energy
Role: Researcher
- 2015 – 2017 **Project:** ChargeFlex - Optimization models and new business models for charging of electric vehicles
Coordinator institution: eSmart Systems / NTNU
Role: Postdoctoral Researcher

VISITING RESEARCH PERIODS

- 2024-2025 **Visiting Professor**
Department of Agricultural and Food Sciences, University of Bologna, Italy
Topic: the health – energy – green systems nexus

RESEARCH GROUPS

- 2025 - now Member of the [Changing Arctic](#) transdisciplinary research school – UiT, Tromsø
2025 - now Member of [The Innovation Horizons Research Lab](#) - Dhaka, Bangladesh
2024 - now Member of the [Advanced Power System Operations \(AdPSO\)](#) – UiS, Stavanger
2024 - now Member of the [Energy Systems and Advanced Materials group](#) – USN, Kongsberg
2022 – now Member of the [AURORA Centre MASCOT](#) – UiT, Tromsø
2020 – now Member of the [Arctic Centre of Sustainable Energy](#) – UiT, Tromsø
2020 – now Member of the [Arctic Green Computing group](#) – UiT, Tromsø

CONTRIBUTIONS TO SCIENTIFIC JOURNALS

Reviewer for several scientific journals, among which high ranked journals such as Journal of Energy (Elsevier) and Journal for Cleaner Production (Elsevier) both of scientific level 2 in Norway (top level in Norway), as well as Journal of Renewable Energy (Elsevier), Journal of Energy Reports (Elsevier), Energies (MDPI), Processes (MDPI), Journal of Energy Informatics (Springer), Discover Applied Science (Springer), Journal of Applied Mathematical Modelling (Elsevier), Journal of Renewable and Sustainable Energy (American Institute of Physics), Journal of Energy Systems (Springer)

POPULAR SCIENCE ACTIVITIES, MEDIA APPEARANCES, DISSEMINATION

- 2024 **Context:** [Norwegian-Brazil exchange programme](#)
Topic: Talk – presentation of own activity in terms of research, education, innovation, and connection with local industry
Location: Department of Computer Science, UiT
- 2024 **Context:** UiT workshop on industrial PhD - The Research Council on the public sector and industrial life phd scheme 2024
Topic: Talk - An industrial PhD with Arva AS, experience from the computer science department.
Location: online and in person (weblink [here](#))
- 2023 **Context:** Blog for Springer Nature's campaign on SDG 7 (ensuring access to clean and affordable energy)
Topic: Contemporary Energy Research: The Novel Domain of Energy Informatics
Location: online (weblink [here](#))
- 2022 **Context:** Arctic Center for Sustainable Energy (ARC) seminar series
Topic: ARC-seminar: “Contributing to the Energy Informatics domain at IFI. An overview of activities performed in the last years”
Location: UiT campus and online (weblink [here](#))
- 2021 **Context:** AIMMS stories – Interview
Topic: Contribution to the popular article “AIMMS-based Coordinated Planning for Electricity Microgrid Expansion Under Uncertainty”
Location: online (weblink [here](#))
- 2021 **Context:** INFORMS Analytics (Institute for Operations Research and the Management Sciences)
Topic: Contribution to the popular article “Incorporating green energy into power systems - How modeling and optimization are supporting the transition to renewables: three use cases”
Location: online (weblink [here](#))
- 2021 **Context:** AIMMS online community
Topic: Interview on the use of AIMMS for research, optimization for energy, and Energy Informatics
Location: online (weblink [here](#))

WORK TO IMPROVE THE GENDER BALANCE AND EQUALITY IN RESEARCH

- 2024 **Context:** Scholarships for the 10th ACM Celebration of Women in Computing (womENCourage 2024)
Role: Member of the evaluation committee
Location: online (weblink [here](#))
- 2023 **Context:** Scholarships for the 10th ACM Celebration of Women in Computing (womENCourage 2023)
Role: Member of the evaluation committee
Location: online (weblink [here](#))

- 2022 **Context:** Seminar “Better balance in informatics (BBI) PhD event”
Role: Participant in the panel discussion with industry representative and faculty members
Location: UiT, Department of computer science (weblink [here](#))
- 2022 **Context:** Seminar “A Global Approach to the Gender Gap in Mathematical, Computing, and Natural Sciences: How to Measure It, How to Reduce It?”
Role: Participant in the panel discussion
Location: online (weblink [here](#))
- 2021 **Context:** Scholarships for the 8th ACM Celebration of Women in Computing (womENCourage 2021)
Role: Member of the evaluation committee
Location: online (weblink [here](#))
- 2021 **Context:** Better gender Balance in Informatics (BBI) and WomENCourage pre-event
Role: Chair of the workshop “from PhD to professor”
Location: Tromsø (weblink [here](#))
- 2020 **Context:** Jentenettverk seminar, “*Females in ICT, Networking Seminar*”
Role: Invited speaker (working in IT, academic research, motivational talk)
Location: IFI – University of Tromsø
- 2020 – 2022 **Project:** Better Balance in Informatics (improve gender balance in computer science)
Role: Key participant within the academic advisory board and discussion partner
Location: Department of Computer Science – UiT, The Arctic University of Tromsø

PEDAGOGICAL AND EDUCATIONAL QUALIFICATIONS AND DEVELOPMENT

- 2024 **Course:** Researcher Management and Leadership Training (6 modules: leadership, finance and administration, starting a research team, growing and maintaining a research team, mentorship)
Institution: Coursera – University of Colorado
Effort: 20 hours plus completed assignments
- 2023 **EUGLOH webinar series:** “Spotlight on Education”, webinars for academics and staff involved in teaching.
Conversations about ChatGPT
Seed Money for Developing New Joint Learning Experiences
The Source of Happiness
Unexpected Outcomes of Internationalization
Institution: The European University Alliance for Global Health EUGLOH
Effort: 4 hours
- 2023 **Teaching seminar:** Moving Away from Lectures: the SCALE-UP Active-Learning Pedagogy
Institution: UiT, Tromsø
Effort: 3 hours
- 2022 **Workshop:** Integrating Sustainability into the Curriculum
Institution: UiT, Tromsø
Effort: 4 hours

2022	Course: Creating meaning by involving students in research Institution: UiT, Tromsø Effort: 20 hours pedagogical competence module plus completed assignments
2021/2022	Course: Forskningsveiledning – Researchers’ supervision Institution: UiT, Tromsø Effort: 100 hours plus completed assignments
2020/2021	Course: Universitetspedagogisk Basiskompetanse – Basic pedagogical competences Institution: UiT, Tromsø Effort: 200 hours plus completed assignments

SCIENTIFIC COMPETENCES DEVELOPMENT (COURSES TAKEN)

Mar 2021	“Optimization Models for Machine Learning” by Prof Antonio Fuduli University of Calabria (Italy) – course provided online
Dec 2018	Advanced Course in Energy Markets by Prof. Ben Hobbs NTNU, Trondheim (Norway)
Sept 2014	ENERstore Summer School Energy Storages for Sustainable Energy Supply Dresden (Germany)
Aug 2014	NorRen Summer School Implementing and integrating renewables in the energy system - focusing on consumer behaviour and energy storage, Asker (Norway)
Aug 2014	International DHC+ Summer School District Heating&Cooling systems management and optimization, Helsinki (Finland)
Apr 2014	CRISM Workshop Statistical & Probabilistic Methodologies for Energy Systems, Warwick (UK)
Oct 2013	COST Workshop Mixed Integer Nonlinear Programming for the Energy Systems, Paris (France)
Jun 2013	Artificial Evolution Summer School Heuristic, Metaheuristics and Hyperheuristics approaches, Quiberon (France)

Track record

Link to Google Scholar profile: [Google Scholar profile](#)

PEER-REVIEWED SCIENTIFIC PAPERS

- [1]. Sachan S, Mishra S, Øyvang T, Bordin C. *Reactive Power Observability for Improved Voltage Stability and Loadability: A Detailed Review*. Johnson Matthey Technology Review. 2025 Apr 1.
- [2]. Cordieri SA, Bordin C, Mishra S. *A bottom-up optimization model for solar organic Rankine cycle in the context of transactive energy trading*. Energy Systems. 2025 Feb 14:1-34.
- [3]. Mishra S, Silva TL, Hellemo L, Jaehnert S, Egner LE, Petersen SA, Signer T, Zimmermann F, Bordin C. *Agent-based modeling: Insights into consumer behavior, urban dynamics, grid management, and market interactions*. Energy Strategy Reviews. 2025 Jan 1;57:101613.
- [4]. Derbas AA, Bordin C, Mishra S, Blaabjerg F. *AC Microgrid Modeling and Adaptive Control Using Biomimetic Valence Learning: An AI-Based Approach*. In 2024 IEEE International Conference on Communications, Control, and Computing Technologies for Smart Grids (SmartGridComm) 2024 Sep 17 (pp. 117-122). IEEE.
- [5]. Derbas A. A, Bordin C, Mishra S, Blaabjerg F. *ANN-Based Real-Time Optimal Voltage Control In Islanded AC Microgrids*. In 2024 IEEE 15th International Symposium on Power Electronics for Distributed Generation Systems (PEDG) 2024 Jun 23 (pp. 1-5). IEEE.
- [6]. Sachan S, Mishra S, Øyvang T, Bordin C. *Comparison of Optimal Reactive Power Dispatch Methods in IEEE 30 Bus System*. In Energy Informatics Academy Conference 2024 Oct 19 (pp. 277-286). Cham: Springer Nature Switzerland.
- [7]. Mishra, S., Singh, P. P., Kiitam, I., Shafiq, M., Palu, I., & Bordin, C. (2024). *Diagnostics analysis of partial discharge events of the power cables at various voltage levels using ramping behavior analysis method*. Electric Power Systems Research, 227, 109988.
- [8]. Haug, M., Bordin, C., Mishra, S. and Moisan, J., (2023). *Prescriptive analytics for optimal multi-use battery energy storage systems operation: State-of-the-art and research directions*. Procedia Computer Science, 225, pp.676-685.
- [9]. Mishra S., Bordin C., Leinakse M., Wen F., Howlett R.J., Palu I. (2023) “Virtual Power Plants and Integrated Energy System: Current Status and Future Prospects.” In: Fathi M., Zio E., Pardalos P.M. (eds) Handbook of Smart Energy Systems. Springer, Cham.
- [10]. Bordin, C., Mishra, S., & Benth, F. E. (2023). *Pedagogical Perspectives of Interdisciplinary Teaching and Research: An Energy System Modelling Outlook in Relation to Energy Informatics*. Energies, 16(15), 5757.
- [11]. Mishra, S., Bordin, C., Wu, Q., & Manninen, H. (2022). “Resilient expansion planning of virtual power plant with an integrated energy system considering reliability criteria of lines and towers.” International Journal of Energy Research, 1:26.
- [12]. Mishra, S., Bordin, C., Taharaguchi, K., & Purkayastha, A. (2022). “Predictive analytics beyond time series: Predicting series of events extracted from time series data.” Wind Energy, 1:14.
- [13]. Mishra, S., Crasta, C. J., Bordin, C., & Mateo-Fornés, J. (2022). “Smart contract formation enabling energy-as-a-service in a virtual power plant”. International Journal of Energy Research.
- [14]. Fodstad, M., del Granado, P. C., Hellemo, L., Knudsen, B. R., Pesciella, P., Silvast, A., Bordin, C., Schmidt, S., & Straus, J. (2022). “Next frontiers in energy system modelling: A review on challenges and the state of the art.” Renewable and Sustainable Energy Reviews, 160, 112:246.

- [15]. Mishra, Sambeet, and Chiara Bordin. (2022) *"A Health-Energy Nexus Perspective for Virtual Power Plants: Power Systems Resiliency and Pandemic Uncertainty Challenges."* Springer Nature - Smart and Sustainable Technology for Resilient Cities and Communities: 267:284
- [16]. Ahwazi, A. Z., Bordin, C., Mishra, S., Horsch, A., & Ha, P. H. (2021). *"Sustainable and decarbonized data-center facilities: A socio-techno-economic discussion."* In 2021 IEEE PES Innovative Smart Grid Technologies-Asia (ISGT Asia) (pp. 1-5). IEEE.
- [17]. Ziagham Ahwazi, A., Bordin, C., Mishra, S., Ha, P. H., & Horsch, A. (2021). *"VEDA-moVE DAta to balance the grid: research directions and recommendations for exploiting data centers flexibility within the power system"*. In 2021 6th International Conference on Systems, Control and Communications (ICSCC) (pp. 13-18).
- [18]. Bordin, C., Mishra, S., Safari, A., and Eliassen, F. (2021). *"Educating the energy informatics specialist: opportunities and challenges in light of research and industrial trends."* SN Applied Sciences, 3(6), 1-17.
- [19]. Bordin, Chiara, Sambeet Mishra, and Ivo Palu. *"A multihorizon approach for the reliability oriented network restructuring problem, considering learning effects, construction time, and cables maintenance costs."* Renewable Energy 168 (2021): 878-895.
- [20]. Bordin, C., & Tomasgard, A. (2021). *"Behavioural Change in Green Transportation: Micro-Economics Perspectives and Optimization Strategies."* Energies, 14(13), 3728.
- [21]. Mishra, S., Oren, E., Bordin, C., Wen, F., Palu, I., (2020). *"Features extraction of wind ramp events from a virtual wind park"*. Energy Reports 6, 237-249
- [22]. Bordin, C., Skjelbred, H. I., Kong, J., & Yang, Z. (2020). *"Machine learning for hydropower scheduling: State of the art and future research directions"*. Procedia Computer Science, 176, 1659-1668.
- [23]. Bordin, C., Håkansson, A., & Mishra, S. (2020). *"Smart Energy and power systems modelling: an IoT and Cyber-Physical Systems perspective, in the context of Energy Informatics."* Procedia Computer Science, 176, 2254-2263.
- [24]. Lizana, J., Bordin, C., & Rajabloo, T. (2020). *"Integration of solar latent heat storage towards optimal small-scale combined heat and power generation by Organic Rankine Cycle"*. Journal of Energy Storage, 29, 101367.
- [25]. Mishra, S; Bordin, C; Taharaguchi, K; Palu, I. (2020) *"Comparison of deep learning models for multivariate prediction of time series wind power generation and temperature"*. Energy Reports 2020; Volum 6. ISSN 2352-4847.s 273 – 286
- [26]. Bordin, C., & Tomasgard, A. (2019). *"SMACS MODEL, a stochastic multihorizon approach for charging sites management, operations, design, and expansion under limited capacity conditions"*. Journal of Energy Storage, 26, 100824.
- [27]. Bordin, C; Mo, O. (2019) *"Including power management strategies and load profiles in the mathematical optimization of energy storage sizing for fuel consumption reduction in maritime vessels"*. Journal of Energy Storage, 23: 425-441.
- [28]. Mishra, S., Bordin, C., Tomasgard, A., & Palu, I. (2019). *"A multi-agent system approach for optimal microgrid expansion planning under uncertainty"*. International Journal of Electrical Power & Energy Systems, 109, 696-709.
- [29]. Mishra, S., Bordin, C., Fornes, J. M., & Palu, I. (2019). *"Reliability Framework for Power Network Assessment"*. In E3S Web of Conferences (Vol. 80, p. 02005). EDP Sciences.
- [30]. S Mishra, C Bordin, C Würsig, I Palu (2019) *"Multivariate Scenario Generation - An Arima and Copula Approach"*. International Journal of Modelling and Optimization 9, 146-149

- [31]. Mishra S. Bordin C. Palu I. (2018) "*RNR: Reliability oriented Network Restructuring*". IEEE 59th International Scientific Conference on Power and Electrical Engineering of Riga Technical University (RTUCON).
- [32]. Ibrahim A. A., Kazemtabrizi B., Dent C.J., Bordin C., McTigue J., White A. (2017) "*Pumped Thermal Electricity Storage for Active Distribution Network Applications*". PowerTech, 2017 IEEE Manchester.
- [33]. Bordin, C., Anuta, H. O., Crossland, A., Gutierrez, I. L., Dent, C. J., & Vigo, D. (2017). "*A Linear Programming Approach for Battery Degradation Analysis and Optimization in Offgrid Power Systems with Solar Energy Integration*". Renewable Energy, 101, 417-430.
- [34]. Bordin, C., Gordini, A., & Vigo, D. (2016). "*An Optimization Approach for District Heating Strategic Network Design*". European Journal of Operational Research, 252(1), 296-307.

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- [35]. Bordin, C. "*Mathematical Optimization Applied to Thermal and Electrical Energy Systems*." PhD Thesis (2015).
- [36]. Reigstad, G; Coussy, P; Straus, J; Bordin, C; Jaehnert, S; Størset, S; Ruff, B. (2019) "*Hydrogen for Europe - Final report of the pre-study*". (2019:00597) ISBN 978-82-14-06329-5. ISSN 1504-9795.
- [37]. Reigstad, A.G., Straus, J., Bordin, C., Jaehnert, S., Stoerset, S.O., Coussy, P. and Ruff, B., 2019. "*Hydrogen for Europe. Final report of the pre-study+ Pre-study-Key findings*". International Atomic Energy Agency. INIS-FR--19-1750

CONFERENCE PRESENTATIONS

- [1]. Bordin, C., Skjelbred, H. I., Kong, J., & Yang, Z., "*Machine learning for hydropower scheduling: State of the art and future research directions*". 24th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems, KES 2020 (online due COVID pandemic)
- [2]. Bordin, C., Håkansson, A., & Mishra, S., "*Smart Energy and power systems modelling: an IoT and Cyber-Physical Systems perspective, in the context of Energy Informatics*." 24th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems, KES 2020 (online due COVID pandemic)
- [3]. Bordin C., Tomasgard A., "*SMACS MODEL - A Stochastic Multihorizon Approach for charging sites Management, Operations, Design and Expansion under Limited Capacity Conditions*" – European Conference on Stochastic Optimisation (ECISO), Rome (Italy), 2017
- [4]. Bordin C., Tomasgard A., "*The Effect of Drivers Elasticity on The Optimal Pricing And Management Of Electric Vehicles Charging*" – Conference of the Institute for Operations Research and the Management Sciences (INFORMS), Nashville (USA), 2016
- [5]. Bordin C., Tomasgard A. "*Smart Charging of Electric Vehicles through Indirect Control and Smart Price Signals*" – International Conference on Continuous Optimisation (ICCOPT), Tokyo (Japan), 2016
- [6]. Bordin, C., Anuta, H. O., Crossland, A., Gutierrez, I. L., Dent, C. J., & Vigo, D. "*A Linear Programming Approach for Optimal Battery Operation in Off-Grid Solar Power Schemes, with Consideration of Battery Degradation*" – European Conference on Operational Research (EURO), Glasgow (UK), 2015

- [7]. Bordin C. Vigo D "A *decision support tool for the optimal distribution of thermal energy*" – Conference of the International Federation of *Operational Research* Societies (IFORS), Barcelona (Spain), 2014
- [8]. Bordin C. Vigo D. "An *optimization approach for district heating strategic network design*" - European Conference on Operational Research (EURO), Rome (Italy), 2013
- [9]. Bordin C. Vigo D. "*District Heating Systems Optimisation*" – Conference of the Operational Research Society (YoungOR), Exeter (UK), 2013