

Resume

Prof. Dr. M Sc. Eng. Mohamed Hamdy
Full professor, strategic leader, and a member of the innovation committee
at the Faculty of Engineering in the Norwegian University of Science and Technology (NTNU),
E-mail : Mohamed.Hamdy@ntnu.no
Tel. +4792052876



Mohamed Hamdy

Professor & Strategic leader at Norwegian University ([NTNU](https://www.ntnu.no))
Partner & board member at the software company ([LavaLoon](https://www.lavaloon.com))
Senior consultant and Business developers (Freelance)



- 18-year of experience in higher education, innovation/research, and business development.
- Expert in providing optimal integrated solutions for
 - Smart buildings,
 - Zero energy buildings,
 - Zero emission neighbourhoods,
 - Positive Energy Districts,
 - Circular communities,
 - Resource effective built environments,
 - Resilient buildings and communities,
 - Energy Flexibility and Energy management.
- His toolbox includes:
 - Modelling and simulation,
 - Life cycle cost analysis,
 - Multi-objective optimization,
 - Multi-criteria decision making,
 - Scenario analysis,
 - Resilience and environmental assessment.

Contact details of referees

- [Referee 1: Prof. Shady Attia \(The head of the SBD Laboratory at Université de Liège\)](#)
E-mail: shady.attia@uliege.be Tel. +32489868989
- [Referee 2: Prof. Rokia Raslan \(Vice Dean Enterprise & Associate Professor at UCL\)](#)
E-mail: r.raslan@ucl.ac.uk Tel. +442031085972
- [Referee 3: Prof. Gerardo Maria Mauro associate prof. at University of Sannio in Italy.](#)
E-mail: germauro@unisannio.it Tel. +393270928081
- [Referee 4: Alanne Kari \(Senior university lecturer at Aalto University, Finland\)](#)
E-mail: kari.alanne@aalto.fi Tel. +358504306837
- [Referee 5: Dr Cao Sunliang \(Assistant Prof. at The Hong Kong Polytechnic University\)](#)
E-mail: sunliang.cao@polyu.edu.hk Tel. +852 2766 5837
- [Referee 6: Prof. Jan Hensen \(Former-president and Fellow of the IBPSA\).](#)
E-mail: j.hensen@tue.nl Tel. +31 40 247 2988
- [Referee 7: Prof. Rongling Li \(Associate Professor at DTU, Denmark\)](#)
E-mail: liron@dtu.dk Tel. +45 45251806
- [Referee 8: Dr Ala Hasan \(Former president of IBPSA-Nordic, Senior researcher at VTT\)](#)
E-mail: Ala.Hasan@vtt.fi Tel. +358 50 4384394
- [Referee 9: Prof. Kai Sirén \(Former head of the energy department at Aalto University\)](#)
E-mail: kai.siren@aalto.fi Tel. +358405741871

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Resume summary

Mohamed Hamdy is a full professor, strategic leader and a member of the innovation committee at the Norwegian University of Science and Technology ([NTNU](https://www.ntnu.no)).

M.Hamdy is expert in computational modelling and simulation for optimizing the design (retrofitting) of buildings and communities in terms of (renewable) energy use, indoor environmental quality, and life cycle cost analysis (LCC). The focus is on widening the scope of building performance simulation to allow for multi-scale and multi-physics problems, and for incorporating optimization under uncertainty approaches (scenario analysis) towards climate-neutral resilience cities in line with the UN Sustainable Development Goals (SDGs).

M. Hamdy has got his PhD degree from Aalto University, Finland in 2012. Afterwards, he joined Eindhoven University of Science and Technology (TU/e) for post-graduate studies and joint-industrial research till 2015. His Bachelor and Masters degrees from Helwan University, Egypt, where he had appointed as a teacher assistant once graduated in 2005 (as the best graduate of the year from the Department of Mechanical Power Engineering).

Today, M. Hamdy has 18 years of experience in higher education (see, his [academic profile](#)), industrial research (see his [research profile](#)) and business developments (see his [business profile](#)). During his career, he has contributed to several academic works (i.e., teaching, supervision, scientific collaboration and international publication), participated in large-scale multidisciplinary projects (i.e., H2020 and Horizon Europe), and worked on new businesses development (i.e., one SME in Europe and another in MENA Area).

In 2021, M. Hamdy has participated in establishing the NTNU's Centre for Green Shift in the Built Environment ([Green2050](#)) as a deputy leader. Where now, he is the coordinator for the center's flagship project [LIFELINE2050](#) (Optimal Utilization of Resources in Built Environments). Between 2021 and 2016, M. Hamdy has participated in shaping multidiscipline consortiums for developing a number of EU projects including the large-scale funded Green Deal project: Climate Positive Circular Communities ([ARV](#)), and the H2020 projects TRAN-URBAN-EU-CHINA and [QUANTUM](#). Seeking for funds, he has participated in developing several research proposals.

Between 2015 and 2018, M. Hamdy has participated in the establishing phase of the SME [METABUILD GmbH](#) in Germany, as a team builder and senior consultant, where he is currently advisor for them from distance. In 2022, M. Hamdy has joined the SME [LavaLoon](#) (software company) as a partner and business developer, where he is establishing new business line.

Internationally, M.Hamdy is a member in a number of expert groups within the International Energy Agency for Building and Communities IEA-EBC and the European Construction, built environment and energy efficient building Technology Platform (ECTP). He is a co-leader of subtask A within [IEA EBC Annex 80](#) and active member within IEA [EBC Annex 82](#). He participated in [IEA EBC Annex 75](#) previously and the [IEA Task 40-Subtask B](#) during his PhD period. He is also a reviewer for high reputation journals (e.g., Energy and Building as well as Building and Environment) and a co-editor for Frontiers in Built Environment and Editor of a Special Issue with the MDPI journal [Energies](#). M.Hamdy has 70+ publications. His h-index and i10-index are [27 and 40](#), respectively, with worldwide [3500+](#) citations.

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Work Experience

In academia

➤ **Current academic positions**

- [Full professor](#) at NTNU Since 2023
- [Associate professor](#) at NTNU Since 2016
- [Strategic leader](#) for the pillar Resource effectiveness at the [Green2050](#) centre. Since 2021
- [Project coordinator](#) of the 8-PhD project [LifeLine2050](#), NTNU 2022-2025
- [A member of the innovation committee](#) of the faculty of engineering, NTNU Since 2022
- A member of
- A co-leader of subtask A within [IEA EBC Annex 80 \(Resilient cooling\)](#) Since 2018
- Official academic collaborator for University of Liège, Belgium Since 2017
- A steering committee and advisory board member for the project OCCuPANt Since 2017
- A member in the following assessment committees
 - Kuwait Foundation for the Advancement of Sciences([KFAS](#))
 - Spanish State Research Agency ([BECA](#)).
 - Canada Foundation for Innovation ([Innovation](#))

➤ **Previous academic positions**

- Postdoc research at [Eindhoven University of Technology](#)., The Netherlands 2013-2015
- PhD candidate/postdoc researcher at Aalto University, Finland 2008-2013
- Co-editor for the Journal Frontiers in Built Environment 2018 -2021
- A guest editor of the [Special Issue](#) “Sustainable Building Retrofit and Energy Optimization” in the Journal Energies. 2019-2021
- Visiting research at Loughborough University, UK 2009
- Scientist at the Research Centre (R.C.T.D), Egypt. 2007-2008
- Teacher assistant at Helwan University, Egypt 2005-2008

With Industry

➤ **Current business positions**

- Partner and business developers at the SME [LavaLoon](#), Egypt Since 2022
- Team leader/senior consultant at the SME [METABUILD](#) , Germany 2015-2019

➤ **Previous business positions**

- Consultant engineer at the design office [Crown Home Consultant](#), Egypt 2006-2007
- Consultant engineer at the design office E.M.G, Egypt 2005-2006
- [Flex link](#) Agency for product line and automation, Egypt. 2004-2005

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Qualifications

Academic degrees:

Associate professor	2016/current
Subject : Building performance simulation and optimization.	
University: Norwegian University of Science and Technology (NTNU)	
Senior research and post-doc	2013/2016
Subject : Building performance simulation and optimization	
University: Eindhoven University of Technology (TU/e)	
Visiting Scholar	2009/2009
Subject : Building performance simulation and optimization	
University: Loughborough University	
Doctor of Science in Technology (D.Sc.)	2008/2012
Subject : Integrated building design \ simulation-based optimization	
University: Aalto University, School of Engineering, Finland.	
Master of Science (M.Sc.)	2005/2007
Subject : Model-based optimal control of VAV air-conditioning system.	
University: Helwan University, Cairo, Egypt.	
Bachelor of Technology (B.Tech.)	1999/2004
Subject : Mechanical Power Engineering.	
University : Helwan University, Cairo, Egypt.	
Grade : Very Good with honour degree (The best student of 550).	

Pedagogical certificates:

The following pedagogical certificates are obtained from Norwegian University of Science and Technology (NTNU), Eindhoven University of science and Technology (TU/e), The Netherlands, and Cairo University (CU), Egypt.

- Exploitation of Research Results and Knowledge Transfer
- PCDI Post-doc retreat
- Supervising Master students
- Coaching Student
- Competing for research Funds
- Legal and Financial Aspects in University Environment
- Research Ethics
- Choosing qualitative or quantitative research methodologies
- The Credit Hour Systems
- Supervision of PhD Students
- Designing Courses & Projects
- Examination Committee, The Legal Framework (TEACH250-1)
- Competing for a research grant
- Academic Leadership
- Scientific Project Management

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Research profile

Within the last 14 years, M. Hamdy has

- published 70+ peer-reviewed [scientific papers](#), with [3500+](#) worldwide citations.
See [Appendix 1](#) (list of publications).
- develop 20 research proposals seeking for national (Norwegian, Dutch, Finnish, Belgium, German as well as Hongkong) and international (EU2020/Horizon Europe) funds.
See [Appendix 2](#) (list of projects and proposals).
- become a member within several international scientific committees (i.e., 4 funding assessment committees, 3 PhD examination committees, 6 conference/expert committees, and many hiring communities. See [Appendix 3](#) (List of positions in scientific committees)
- build 15 strong collaborations with international universities, research centers, industrial partners. See [Appendix 4](#) (List of international collaborations)
- commercialize his PhD output (i.e., building performance simulation-based optimization approaches and algorithms) through the German start-up company [METABUILD GmbH](#).
See [Appendix 5](#) (Acknowledgement letter from METABUILD)
- come with novel software [MOBO](#) (A New Software for Multi-objective Building Performance Optimization) with Aalto University. The software has been used by many researchers worldwide.

Teaching profile

Within the last 14 years, M. Hamdy has

- supervised 11 PhD candidates, 2 Postdoc fellows, 10 visiting researchers, 28 master students, as well as many projects' teams at masters and bachelor levels. See [Appendix 6](#) (supervision experience)
- participated in design, coordination, and/or teaching 16 academic courses.
See [Appendix 7](#) (Teaching experience).
- organized and/or participated in many events (i.e., short courses, summer schools, and online sessions) hosted by different universities from EMEA countries (i.e., Belgium, Luxembourg, Italy, Poland, Finland, and Egypt). See [Appendix 8](#) (Dissemination/Outreach activities).
- got 17 pedagogical certificates from four universities in three countries: Egypt, The Netherlands, and Norway. See [Appendix 9](#) (Pedagogical certificates).

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Appendix 1 (List of my Publications)

I have 70+ peer-reviewed publications: 39 journal papers, 4 book chapters, 26 conference papers, 2 technical reports in addition to my defended PhD thesis. I have h-index and i10-index of [27](#) and [40](#) (22 and 32 in [Scopus](#)), respectively, with [3500+](#) worldwide citations base on.

	All	Since 2018
Citations	3704	2690
h-index	27	26
i10-index	40	36



Journal article (peer-reviewed), original research.

1. S.Attia, C. Benzidane, R.Rahif, D. Amaripadath, **M. Hamdy**, P. Holzer, A. Koch, A. Maas, S. Moosberger, S. Petersen, A. Mavrogianni, J. M. Hidalgo-Betanzos, M. Almeida, J. Akander, H. K. Bakhtiari, O. Kinnane, R. Kosonen, S. Carlucci, (2023). Overheating calculation methods, criteria, and indicators in European regulation for residential buildings, Energy and Buildings, Volume 292, 2023,113170, ISSN 0378-7788, [see](#)
2. Zaki, D.A.; Hamdy, M. A Review of Electricity Tariffs and Enabling Solutions for Optimal Energy Management. Energies (2022), 15, 8527. [see](#)
3. M. S. Bakry, **M. Hamdy**, A. Mohamed, K. Elsayed, (2022) Energy saving potential in open museum spaces: A comparative hygrothermal microclimates analysis, Building and Environment, Volume 225, 2022, 109639, ISSN 0360-1323, [see](#).
4. Khan Z. A., Ullah Z., Haq I U., **Hamdy M.**, Mauro G. M., Muhammad K., M., Sung Baik W. (2022). Efficient Short-Term Electricity Load Forecasting for Effective Energy Management, Sustainable Energy Technologies and Assessments, Volume 53, Part A, 2022, 102337, ISSN 2213-1388, [see](#)
5. Kristiansen T., Jamil F., Hameed I. A., **Hamdy M.** (2022). Predicting annual illuminance and operative temperature in residential buildings using artificial neural networks, Building and Environment, Volume 217, 2022, 109031, ISSN 0360-1323, [see](#)
6. R. Rahif, M. **Hamdy**, S. Homaei, C. Zhang, P. Holzer, S. Attia (2022). Simulation-based framework to evaluate resistivity of cooling strategies in buildings against overheating impact of climate change, Building and Environment, 2021, 108599, ISSN 0360-1323, [see](#)
7. Rahmani S., Kaoula D., **Hamdy M.** (2022). Exploring the thermal behaviour of building materials: Terracotta, concrete hollow block and hollow brick, under the arid climate, case study of Biskra-Algeria, Materials Today: Proceedings, Volume 58, Part 4, 2022, Pages 1380-1388, ISSN 2214-7853, [see](#)

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8. Abbass, M.A.B.; **Hamdy, M. (2021)** A Generic Pipeline for Machine Learning Users in Energy and Buildings Domain. *Energies* 2021, 14, 5410. [see](#)
9. Homaei S., **Hamdy M. (2021)**. Thermal resilient buildings: How to be quantified? A novel benchmarking framework and labelling metric, Building and Environment, Volume 201, 2021, 108022, ISSN 0360-1323, [see](#)
10. Attia S., Levinson R., Ndongo E., Holzer P., Kazanci O. B., Homaei S., Zhang C., Bjarne W. Olesen, Q. Dahai, **Hamdy M**, Heiselberg P. (2021) Resilient cooling of buildings to protect against heat waves and power outages: Key concepts and definition, **Energy and Buildings**, Volume 239, 2021, 110869, ISSN 0378-7788, [see](#)
11. Homaei, S.; **Hamdy, M. (2021)** Quantification of Energy Flexibility and Survivability of All-Electric Buildings with Cost-Effective Battery Size: Methodology and Indexes. *Energies* 2021, 14, 2787, [see](#)
12. Attia, S., Rahif, Ramin R, Vincenzo C. **Hamdy M. (2022)**. Framework to evaluate the resilience of different cooling technologies. DOI. 10.13140/RG.2.2.33998.59208, [see](#)
13. L. Costardi, L. C. Tagliabue, **M. Hamdy**, and G Dotelli (2021). LCA evaluation and Energy performance of a housing building in different technological scenarios. Published under licence by IOP Publishing Ltd. Journal of Physics: Conference Series, Volume 2042, CISBAT 2021 Carbon-neutral cities - energy efficiency and renewable in the digital era 8-10 September 2021, EPFL Lausanne, Switzerland, [see](#)
14. Felius L. C., **Hamdy M.**, Dessen F., and Hrynyszyn B. D (2020). Upgrading the Smartness of Retrofitting Packages Towards Energy-Efficient Residential Buildings in Cold Climate Countries: Two Case Studies. *Buildings* 2020, 10, 200, [see](#)
15. Homaei S., **Hamdy M. (2020)**. A robustness-based decision-making approach for multi-targets high-performance buildings. *Applied Energy*, Volume 267, 2020, ISSN 0306-2619, [see](#)
16. Mariño S., Eguia P., Grandaa E., **Hamdy M. (2020)**. Performance Comparison of Multi-Objective Optimization-based approaches for Calibrating White-box Building Energy Models. *Energy and Buildings*, Volume 216, 2020, 109942, ISSN 0378-7788, [see](#)
17. Zhoua Y., Cao S., Kosonenb R., **Hamdy M. (2020)**. Multi-objective optimization of an interactive buildings-vehicles energy sharing network with high energy flexibility using the Pareto archive NSGA-II algorithm. *Energy Conversion and Management*, Volume 218, 2020, 113017, ISSN 0196-8904, [see](#).
18. Amer M., **Hamdy M.**, Wortmann T., Mustafa A., Attia S. (2020). Methodology for design decision support of cost-optimal zero-energy lightweight construction, *Energy and Buildings*, Volume 223, 2020, 110170, ISSN 0378-7788, [see](#)
19. Schönfeldt Karlsen S., **Hamdy M.**, Attia S. (2020). Methodology to assess business models of dynamic pricing tariffs in all-electric houses. **Energy and Buildings**, Volume 207, 2020, 109586, ISSN 0378-7788, [see](#).
20. **Hamdy M.**, Mauro G. (2019). Optimizing hybrid ventilation control strategies towards zero-cooling energy building. *Frontiers in Built Environment*, [see](#).
21. Tällberg, R., J B. P., Gao, T., Loonen R., **Hamdy M. (2019)**. Comparison of the Energy Saving Potential of Adaptive and Controllable Smart Windows: A State-of-the-Art Review and Simulation Studies of Thermochromics, Photochromic and Electrochromic Technologies. *Solar Energy Materials and Solar Cells*, [see](#).
22. Šuklje T., **Hamdy M.** Hensen Jan L.M. Arkar C. Medved S. (2019). An Inverse Modeling Approach for the Thermal Response Modeling of Green Façades. *Applied Energy*, Volume 235, Pages 1447-1456, ISSN 0306-2619, [see](#).
23. Eleftheriadis G. and **Hamdy M. (2018)**. The Impact of Insulation and HVAC Degradation on Overall Building Energy Performance: A Case Study. *Buildings* (ISSN 2075-5309), [see](#)

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24. **Hamdy M.**, Sirén K., Attia S. (2017). Impact of Financial Assumptions on the Cost Optimality towards Nearly Zero Energy in Existing Buildings. *Energy and Buildings*, Volume 153, 2017, Pages 421-438, ISSN 0378-7788, [see](#).
25. **Hamdy M.**, Carlucci S. Hensen J.L.M., (2017). The Impact of Climate Change on the Overheating Risk in Dwellings- A Dutch case study. **Building and Environment**, Volume 122, September 2017, Pages 307-323, [see](#).
26. **Hamdy M.**, Mauro G. (2017). Multi-objective optimization of building energy design to conciliate collective and private perspectives: CO₂-eq vs discounted payback time. A special issue on zero carbon buildings in *Energies* journal, **Energies** 2017, 10, 1016, [see](#).
27. Attia S. **Hamdy M.**, Ezzeldin S. (2017). Twenty-year tracking of lighting savings and power density in the residential sector, In *Energy and Buildings*, Volume 154, ISSN 0378-7788, [see](#).
28. Eleftheriadis G., **Hamdy M.**, (2017). Impact of building envelope and mechanical component degradation on the whole building performance: a review paper, In *Energy Procedia*, Volume 132, 2017, Pages 321-326, ISSN 1876-6102, [see](#).
29. Wójcika R., Panuša A., Tunkiewicz M., **Hamdy M.**, (2017). Influence of chemical damp proof cream on the capillary action and microstructure of mortars, In *Energy Procedia*, Volume 132, 2017, Pages 670-675, ISSN 1876-6102, [see](#).
30. **Hamdy M.**, Nguyen A., Hensen J. (2016). A performance comparison of multi-objective optimization algorithms for solving nearly-zero-energy-building design problems, **Energy and Buildings**, Volume 121, 1 June 2016, Pages 57-71, ISSN 0378-7788, [see](#).
31. Jung N., Moula M., Fang T., **Hamdy M.**, Lahdelma R. (2016). Social acceptance of renewable energy technologies for buildings in the Helsinki Metropolitan Area of Finland, **Renewable Energy**, Volume 99, December 2016, Pages 813-824, ISSN 0960-1481, [see](#).
32. Bischof J., Hensen J.L.M., **Hamdy M.**, Philips C. (2016). Renewable energy technology feasibility study for a new hotel building in Amsterdam. **REHVA Journal**. [see](#).
33. **Hamdy M.**, Sirén K. (2015). A Multi-Aid Optimization Scheme for Large-scale Investigation of Cost-optimality and Energy Performance of Buildings. **Journal of Building Performance Simulation**. ISSN: 1940-1493 (Print) 1940-1507 (Online). [See](#).
34. Mauro G.M., **Hamdy M.**, Vanoli G.P., Bianco N., Hensen J. (2015). A new methodology for investigating the cost-optimality of energy retrofitting a building category, **Energy and Buildings**, Volume 107, 15 November 2015, Pages 456-478, ISSN 0378-7788, [see](#).
35. Mohamed A., **Hamdy M.**, Hasan A., Sirén K., (2015). The performance of small scale multi-generation technologies in achieving cost-optimal and zero-energy office building solutions, **Applied Energy**, Volume 152, 15 August 2015, Pages 94-108, ISSN 0306-2619, [see](#).
36. Moula M., Maula J., **Hamdy M.**, Fang T., Jung N., Lahdelma R., (2013). Researching social acceptability of renewable energy technologies in Finland, **International Journal of Sustainable Built Environment**, Volume 2, Issue 1, 2013, ISSN 2212-6090, [see](#).
37. Attia S., **Hamdy M.**, O'Brien W., Carlucci S. (2013). Assessing Gaps and Needs for Integrating Building Performance Optimization Tools in Net Zero Energy Buildings Design, **Energy and Buildings**, 60 (5); pp. 110–124. [See](#).
38. **Hamdy M.**, Hasan A., Sirén K. (2013). A Multi-stage Optimization Method for Cost-Optimal nearly-Zero-Energy Building Solutions in Line with the EPBD-Recast 2010. **Energy and Buildings** 56 (1) 189–203. [See](#).
39. **Hamdy M.**, Hasan A., Sirén K. (2011). Impact of adaptive thermal comfort criteria on building energy use and cooling equipment size using a multi-objective optimization scheme. **Energy and Buildings**, 43 (9); pp. 2055-2067. [See](#).
40. **Hamdy M.**, Hasan A., Sirén K. (2011). Applying a multi-objective optimization approach for Design of low-emission cost-effective dwellings. **Building and Environment**, 46 (1). [See](#).

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41. **Hamdy M.,** Hasan A., Sirén K. (2010). Optimum design of a house and its HVAC systems using simulation-based optimization. **International Journal of Low-Carbon Technologies**, 5 (3); pp. 120-124. [See.](#)

Book section, chapters in research books (peer-reviewed).

1. Systematic investigation of interoperability issues between BIM and BEM, By M. Afzal, K. Widding, E. Hjelseth, **M. Hamdy**, Book, ECPPM 2022 - eWork and eBusiness in Architecture, Engineering and Construction 2022, Edition 1st Edition, First Published 2023
2. Imprint CRC Press, Pages 8, eBook ISBN 9781003354222, [see](#)
3. Ismail K., **Hamdy M.**, Maher A. (2019) Net Zero Energy Buildings (NZEBS) Potential in MENA Region: Critical Review on Egypt Case. In: Alalouch C., Abdalla H., Bozonnet E., Elvin G., Carracedo O. (eds) Advanced Studies in Energy Efficiency and Built Environment for Developing Countries. Advances in Science, Technology & Innovation (IEREK Interdisciplinary Series for Sustainable Development). Springer, Cham, [see](#)
4. Carlucci S., **Hamdy M.**, Moazami A. (2018). Challenges in Modeling and Simulation of Green Buildings. Handbook of Energy Systems in Green Buildings. ISBN 978-3-662-49119-5, [see.](#)
5. Attia, S., **Hamdy, M.**, Carlucci, S., Pagliano, L., Bucking, S. and Hasan, A. (2015) Building performance optimization of net zero-energy buildings, in Modeling, Design, and Optimization of Net-Zero Energy Buildings (eds A. Athienitis and W. O'Brien), Wilhelm Ernst & Sohn, Berlin, Germany, [see.](#)
6. Hasan A., Palonen **M., Hamdy M.** (2015) Simulation-Based Optimization for Energy and Buildings. In: Sayigh A. (eds) Renewable Energy in the Service of Mankind Vol I. Springer, Cham, [see.](#)

Conference papers (peer-reviewed)

1. Amaripadath, Deepak; **Hamdy, Mohamed**; Velickovic, Mirjana et al. 7 (2023). Hygrothermal exposure in a nearly zero-energy school during heat waves, [see](#)
2. Shayan Mirzabeigi, Shabnam Homaei, Mohamed Razkerari, and Mohamed Hamdy. 2022. The impact of Building retrofitting on Thermal Resilience against Power Failure: A Case of Air-conditioned House. Cobee 2022, Montreal, Canada.
3. L C Felius, **M Hamdy**, B D Hrynyszyn and F Dessen. (2019). The impact of building automation control systems as retrofitting measures on the energy efficiency of a typical Norwegian single-family house. SBE19 -Thessaloniki "Sustainability in the built environment for climate change mitigation", [see.](#)
4. Felius LC, Thalfeldt M, Georges L, Hrynyszyn BD, Dessen F, **Hamdy M.** (2019). Wood burning habits and its effect on the electrical energy demand of a retrofitted Norwegian detached house. The 1st Nordic Conference on Zero Emission and Plus Energy Buildings 2019 in Trondheim, Norway, [see.](#)
5. Felius L. C., Hrynyszyn B D., **Hamdy M.** (2019). Occupant behaviour-based patterns of using a fireplace in Norwegian housing: a survey-based statistical analysis. 1st International Seminar on 'Towards Sustainable Tomorrows: From Sound Concepts to Sound Practice' - 31st October-1st November 2019 - Abstract Book and Introduction to SAS Network, Espoo, Finland, [see.](#)
6. Schonfeldt, S.; Backe, S; **Hamdy, M.** (2019). Effect of Grid Tariffs on Demand-side Management In All-electric Buildings In Norway. 16th International Conference of the International Building Performance Simulation Association (**BS2019**), Italy, [see.](#)

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7. Eleftheriadis G., **Hamdy, M., (2017)**. Impact of building envelope and mechanical component degradation on the whole building performance: a review paper. 11th Nordic Symposium on Building Physics, **NSB2017**, 11-14 June 2017, Trondheim, Norway, [see](#).
8. Wójcika R., Panuša A., Tunkiewicz M., **Hamdy, M., (2017)**. Influence of chemical damp proof cream on the capillary action and microstructure of mortars. 11th Nordic Symposium on Building Physics, **NSB2017**, 11-14 June 2017, Trondheim, Norway.
9. Ismail K., **Hamdy M., Maher A. (2017)**. Net Zero Energy Buildings (NZEBs) Potential in MENA Region: Critical Review on Egypt Case. International conference: Improving Sustainability Concept in Developing Countries. ISCDC Conference 2017, Cairo, Egypt
10. **Hamdy, M., Hensen J. (2015)**. Ranking of Dwelling types in terms of Overheating Risk and Sensitivity to Climate Change. 14th International Conference of the International Building Performance Simulation Association (**BS2015**), 7-9 December 2015, Hyderabad, India, [see](#).
11. **Hamdy, M., Hensen J. (2015)**. Assessment of Overheating Risk in Dwellings. Healthy Building Europe 2015. May 18-20th 2015, Eindhoven, the Netherlands.
12. Hasan A., Mohamed A., **Hamdy M. (2015)**. Net- and Nearly- Zero Energy Buildings: A Review of the Definitions and Case Studies. Proceedings of the Sixth International Conference on Heating, Ventilation and Air-Conditioning May 26-28, 2015, RIPI Conventions Center, Tehran, Iran ICHVAC6-8112, [see](#).
13. Hasan, Ala; Palonen, M.; **Hamdy, M. (2014)**. Simulation-based optimization for energy and buildings. World Renewable Energy Congress XIII, WREC 2014, 3 - 8 August 2014, London, United Kingdom. World Renewable Energy Network WREN (2014), 7 p.
14. **Hamdy M., Hasan A. (2013)**. A Holistic Simulation-Based Optimization Approach for Dimensioning Cost Optimal and Nearly-Zero-Energy Buildings. 1st IBPSA-Egypt Conference, Building Simulation Cairo 2013. 23rd- 24th June 2013, [see](#)
15. Palonen M., **Hamdy M., Hasan A. (2013)**. MOBO: A New Software for Multi-Objective Building Performance Optimization. 13th International Conference of the International Building Performance Simulation Association (**BS2013**), France, [see](#).
16. Attia S., **Hamdy M., O'Brien, W., Carluccio, S. (2013)**. Computational Optimization for Zero Energy Buildings Design: Interviews results with twenty-eight International expert. 13th International Conference of the International Building Performance Simulation Association (**BS2013**), France, [see](#).
17. **Hamdy M., Palonen M., Hasan A. (2012)**. Implementation of Pareto-Archive NSGA-II Algorithms to A nearly-Zero-Energy Building Optimization Problem. The first Simulation and Optimization Conference (**BSO12**). IBPSA-England, Loughborough University, UK, [see](#).
18. Attia S., **Hamdy M., Saman M., De Herde A., Hensen J. (2011)**. Towards Strategic Use of BPS Tools in Egypt. IBPSA: 12th International Building Performance Simulation Association Conference, Sydney Australia; 14-16 Nov, 2011, [see](#).
19. **Hamdy M., Hasan A. (2011)**. Toward NZEB using automatic simulation-based optimization approach. International Conference on Modeling and Optimization (ICMO), Cairo, Egypt, [see](#).
20. **Hamdy M., Hasan A., Sirén K. (2011)**. Trade-off Relation between Energy Consumption and Comfort Level according to the Finnish-2008 Adaptive Thermal Comfort Criteria. 12th International conference on Air distribution in Rooms, RoomVent 2011, [see](#).
21. Sirén K., Hasan A., **Hamdy M. (2010)**. Optimal Design of an Office Building for Low-Primary Energy Requirement and High-Indoor Thermal Comfort Level. Accepted for presentation in Sustainable Community - building SMART conference 22-24.Sep. Dipoli, Espoo, Finland, [see](#).
22. Hasan A., **Hamdy M., Palonen M., Sirén K. (2010)**. Simulation-Based Optimization for Low Energy, High Comfort and Cost Effective Designs of Buildings and HVAC Systems. World Renewable Energy Congress XI. 25-30 September 2010, Abu Dhabi, UAE, [see](#).

Resume

Prof. Dr. M Sc. Eng. Mohamed Hamdy
Full professor, strategic leader, and a member of the innovation committee
at the Faculty of Engineering in the Norwegian University of Science and Technology (NTNU),
E-mail : Mohamed.Hamdy@ntnu.no
Tel. +4792052876



23. **Hamdy M.**, Hasan A., Sirén K. (2009). Combination of optimization algorithms for a multi-objective building design problem. IBPSA: 11th International Building Performance Simulation Association Conference (**BS2009**), Glasgow-UK, [see](#).
24. **Hamdy M.**, Hasan A., Sirén K. (2009). Combination between optimization and simulation for low-emissions cost-effective single-family house in cold climate of Finland. SET 2009-8th International Conference on Sustainable Energy Technologies. Aachen, Germany, [see](#).

National and international Reports

1. **Hamdy M.**, Hensen J., (**Oct. 2014**). Impact of Climate Change on Overheating Risk in Dwellings. CPC Project: Climate proof cities. Eindhoven University of Technology, Department of Built Environment.
2. **Hamdy M.** Lahdelma R. (**May. 2010**). Decision Making for Optimal Low-Emissions Cost-Effective Dwellings: Finnish Study. Practical Study Assignment in Energy Economics. Helsinki University of Technology. Department of Energy Technology.

Thesis (Paper-based Doctoral dissertation)

1. **Hamdy M.**, (**2012**). Combining Simulation and Optimisation for Dimensioning Optimal Building Envelopes and HVAC Systems. Aalto University publication series. Doctoral Dissertation 177/2012, [see](#).

Resume

Prof. Dr. M Sc. Eng. Mohamed Hamdy
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E-mail : Mohamed.Hamdy@ntnu.no
Tel. +4792052876



Appendix 2 (List of Projects and proposals)

Projects:

- **Coordinator of the Project [LifeLine2050](#)** (3.5 M Euro) funded by NTNU in 2022/2005. LIFELINE-2050 project (Optimal Utilization of Resources towards Neutral Climate Built Environments in Europe by 2030-2050), a part of the Centre for the green shift in the Built Environments [Green2050](#), is a collaborative project between six department (IBM, KT, EPT, IHP, MTP, and IVB) at NTNU to strengthen multi-disciplinary research within topic Resource Efficiency in Built Environments. Within LIFELINE-2050, the NTNU's widespread campuses will be taken as pilots to demonstrate the suggested framework, toolbox, and education-hub.
- **Subtask leader** at the EU Green Deal project [ARV](#) (20 M Euro) which will provide guidelines for future energy-efficient solutions in the construction industry. The project involves 36 European partners from seven countries.
- **A principal partner in the project ZEN** and its research centre [ZEN FME](#) (The Norwegian research Centre within Zero Emission Neighbourhoods in Smart Cities). Within this project, the research topic of my first PhD student (Shabnam Homaei, 2018-2021) is 'Optimal Integrated Building Designs for Resilient Zero Emission Neighbourhoods'. The research topic of my second PhD student Hang Yin (2022-2024) is 'Upgrading the Smartness of Buildings Performance at Zero-Emission Neighbourhoods: Optimal Integrated Design'.
- **A partner** in the strategic research area [ENERSENSE](#) at NTNU. Within the project, I am a co-supervisor of our PhD candidate Laurina C. Felius, 2016-2020, PhD candidate in "Effective energy use in existing buildings with the use of modern sensor technology and building automation".
- **A Partner** in the project Reuse of public building supporting constructions funded (2.2 M Euro) by the Research council Norway in 2021.
- **A steering committee and advisory board member** for the research projects: Impacts of climate change on the indoor environmental and energy performance of buildings in Belgium during summer [OCCuPANT], funded by the University of Liège, Council for Research and Development.
- **Co-leader (2018 - 2023) at subtask A\task force (Thermal Conditions) within the [IEA EBC Annex 80](#)** (Resilient cooling). [Post](#).
- **A Member** in ECTP Built4People.
- **Responsible on** the inter-institutional agreement 2021-2022 between NTNU and University of Degli Studi Del Sannio with EU Erasmus+ Programme.
- **A Co-participant** in the H2020 research project [QUANTUM](#). Within the project, I am a co-supervisor of our PhD candidate Alla Marchenko, 2018-2020, PhD candidate in Building quality management for improving energy performance and reducing the performance gap
- **A Co-participant** in the H2020 project [TRAN-URBAN-EU-CHINA](#). Within, I have participated in publishing the book chapter "Challenges in Modelling and Simulation of Green Buildings". Handbook of Energy Systems in Green Buildings. ISBN 978-3-662-49119-5.
- **A Co-participant** in Norwegian-Chinese project [SiNoPSE](#). Within this project, I have participated as a lecturer in the summer school (SiNoPSE on Sustainable Energy in Cities 2018), August 6-17, 2018 at Norwegian university of Science and Technology (NTNU), Trondheim, Norway, [see](#)

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E-mail : Mohamed.Hamdy@ntnu.no
Tel. +4792052876



Proposals

M. Hamdy have participated in writing several research proposals seeking for national and international funds including:

- A partner in the consortium of the **ARV** proposal that will be submitted to the H2020 Green Deal's call ([LC-GD-4-1-2020](#)), **Jan. 2021**.
- A partner in the consortium of the **Reflexy** proposal "Cost-effective and user-friendly retrofit solutions for energy efficiency and flexibility", will be submitted to the H2020's call ([LC-SC3-B4E-3-2020](#)), **Sep. 2020**.
- A partner in the consortium of the **3SCity-E2C** proposal "Software Services for Zero-Emission Neighborhoods of Smart City: Fundamental Research for Energy Management System based on Edge-to-Cloud", submitted to the research council of Norway's call ([Researcher Project for Young Talents](#)), **May 2020**.
- WP leader in the consortium of the **BITbox** proposal "BIg data analytics Toolbox for buildings", submitted to the H2020 call ([LC-SC3-B4E-6-2020](#)), **Jan. 2020**.
- WP leader in the consortium of the **Reflexy** proposal "Cost-effective and user-friendly retrofit solutions for energy efficiency and flexibility", submitted to the H2020 call ([LC-SC3-EE-4-2019-2020](#)), Sep. 2019.
- A partner in the consortium of the proposal "Increase the scientific potential of UWM and GrAFOS scientists in whole building performance simulation ". submitted to the H2020 call ([Spreading Excellence and Widening Participation/ WIDESPREAD](#)), 2019.

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Tel. +4792052876



Appendix 3 (List of positions in scientific committees)

Funding Assessment committees

1. A member in the assessment committee for [Kuwait Foundation for the Advancement of Sciences](#)
2. A member in the assessment committee for [Spanish State Research Agency \(BECA\)](#).
3. A member in the assessment committee [Canada Foundation for Innovation](#)
4. A member in the assessment committee for EU H2020 scheme as a reviewer in 2013/2014.

PhD Examination committees

A member at PhD thesis Examination committee (opponent):

1. PhD candidate Katarzyna Marta Luc. Thesis title: Implementation of flexible operational schemes for buildings in a district with smart energy systems. The thesis submitted in fulfilment of the requirements for the degree of PhD from DTU, Denmark.
2. PhD candidate [Keivan Bamdad](#). Thesis title: Building Energy Optimization Using Machine Learning and Metaheuristic Algorithms. The thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy from Queensland University of Technology, Australia.

A member at PhD thesis Examination committee (Administrator):

3. PhD candidate – Simone Conta. Thesis title: Vibroacoustic analysis of the Woodsol timber frame building concept (or floor elements). The thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy from NTNU, Trondheim, Norway.

Expert group/conference/journal committees (for example)

1. A co-leader of subtask A within IEA EBC Annex 80 (Resilient cooling)
2. Active member within IEA EBC Annex 82 (Energy Flexible Buildings).
3. Participant in IEA EBC Annex 75
4. Participant in the IEA Task 40-Subtask B,
5. A certified reviewer for the Journals: “Applied Energy” and “Energy and Buildings”.
6. A member in the scientific committee of the international conference BuildSim-Nordic, [see](#)
7. A member in the scientific committee of the international conference 11th Nordic Symposium on Building Physics, [NSB2017](#), 11-14 June 2017, Trondheim, Norway
8. An associate editor for the Journal “Frontiers in Built Environment”, [see](#).

Hiring committees (for example)

- I was a member in the hiring committees of all my PhD students at NTNU and some hiring committees abroad. For instance, the assessment committee of the professorship position - “Associate Professor in Modelling of Building Energy Systems” at Aarhus University, Department of Civil and Architectural Engineering. Contact person [Prof. Li Rong](#).

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Tel. +4792052876



Appendix 4 (List of international collaborations)

For supporting his research and education activities, *M. Hamdy* have built 15 strong collaborations with international universities, research centers, industrial partners, as well as different departments at my current universities such as:

1. University of Sannio in Italy. (Contact person: Prof. [Gerardo Maria Mauro](#)). Where, I have established new Erasmus+ agreement for collaboration between NTNU University of Sannio. Where, we have published 8 journal papers in high reputation Scientific Journals, we have had many research visits, and we collaborate on projects. For instance, We have recently developed a new project proposal “Smart innovative predictive controllers for building heating and cooling systems (SENTIENT)”
2. University of Liège in Belgium (Contact person: Prof. [Shady Attia](#)). Where, we have published 8 journal papers in high reputation Scientific Journals, we have had many research visits, and we collaborate on projects. For instance, I am a steering committee and advisory board member for the project: Impacts of climate change on the indoor environmental and energy performance of buildings in Belgium during summer [OCCuPANt], funded by the University of Liège, Council for Research and Development.
3. Aalto University in Finland (Contact person: [Alanne Kari](#))
Where, we have recently won a new project “Adaptive Multi-Energy Virtual Power Plant for a Complex of Buildings” funded by the Finnish Academy in 2022. We have also publication plan.
4. The research centre VTT in Finland (Contact person: Dr. [Ala Hasan](#)). Where, we have recently won a new project “Energy Resilience in Buildings in Extreme Cold Weather Conditions in Finland-FinERB” funded by the Finnish Academy in 2022. We have also common publications and a plan for more journal papers.
5. University of Warmia and Mazury (UWM) in Olsztyn, Poland (Contact person: [Piotr Kosinski](#)). Where, we have published 1 journal papers. In addition, we have had three research visits, and we collaborated on two research proposals.
6. University College London (UCL), UK (Contact person: [Rokia Raslan](#)). My next sabbatical leave is planned with UCL.
7. The Hong Kong Polytechnic University in Hong Kong (Contact person: Prof. [Sunliang Cao](#)). Where, we have published 2 journal papers in high reputation Scientific Journals, and we collaborate on projects. For instance, the project: The optimal transitions from interactively isolated systems to the mutually integrated unity between zero-energy building(s) and zero-energy vehicle(s). Jan 1st, 2019 – Dec 31st, 2021, Funded by HK RGC (Research Grants Council) ECS (Early Career Scheme).
8. Technical University of Denmark (DTU) in Denmark (Contact person: Prof. [Rongling Li](#)). With this collaboration. We have got a fund for one common PhD candidate to work from 2023 to 2026
9. METABUILD Company in Germany. (Contact person: Prof. [Tariq Kaddoura](#)). METABUILD has developed a groundbreaking AI technology that enables real estate professionals to create better buildings. Where, I am their senior consultant and teambuilder.

Resume

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E-mail : Mohamed.Hamdy@ntnu.no
Tel. +4792052876



10. Université Saad Dahlab de Blida in Algeria (Contact Person: [Prof. Soumia Rahmani](#)). Within this collaboration I am supervising one PhD and I have published one journal paper till now.
11. Department of Industrial Economics and Technology Management, Faculty of Economics and Management, NTNU. Within this cooperation, I have established and give a new PhD course.
12. Cairo University in Egypt (A honorary title). Within this cooperation, I am the co-supervisor of the PhD candidate Khaled Ismail.
13. Helwan University in Egypt (Contact person: [Prof Khairy Elsayed](#)). Within this cooperation, I am the co-supervisor of the PhD candidate Ahmed Maher and the PhD candidate [Mohamed Bakry](#).
14. Institute of IBR&I Institute of Building Research & Innovation ZT-GmbH (Contact person Dipl.-Ing. Dr. [Peter Holzer](#)), where we members in IEA Annex 80 (Resilient cooling).
15. The research center SINTEF in Norway (Contact person: Dr. [Judith Thomsen](#))

Within these collaborations, many publications have been conducted, several research visits have been conducted, and many masters and PhD, and Postdoc are jointly supervised.

Resume

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at the Faculty of Engineering in the Norwegian University of Science and Technology (NTNU),
E-mail : Mohamed.Hamdy@ntnu.no
Tel. +4792052876



Appendix 5 (Acknowledgement letter from METABUILD)



METABUILD GmbH - Bismarckstr. 10-12 - 10625 Berlin

Mr. Dr. Mohamed Hamdy Hassan Mohamed
Tungavegen 51A
7047 Trondheim
Norway

METABUILD GmbH
Bismarckstr. 10-12
10625 Berlin
Germany

Phone: +49 30 692 00 14 10
Fax: +49 30 692 00 14 19

kaddoura@metabuild.io
www.metabuild.io

Berlin, 14 September 2022

Letter of acknowledgement

To whom it may concern,

I would like to acknowledge the great effort that Dr. Mohamed Hamdy has paid for us during the establishing phase of Metabuild between 2015 and 2018.

Dr. Mohamed Hamdy has helped us shape the concepts of Metabuild's building optimization technology and actively supported its development. Our main algorithms have been developed directly under his supervision. He has also participated in activities related to capacity building of our multi-disciplinary team. This included trainings and coaching of our software developers and building simulation experts. In addition, he still provides us with advice whenever needed for which we are grateful.

We highly appreciate the professional work relationship and the outstanding expertise Dr. Mohamed Hamdy is bringing into Metabuild.

Sincere regards

Tariq Kaddoura (CEO)

METABUILD GmbH
Bismarckstr. 10-12 · 10625 Berlin
hello@metabuild.io · www.metabuild.io

Bankverbindung:
IBAN: DE29500310001055090005
SWIFT/BIC: TRODDEF1XXX · Triodos Bank

USt-ID: DE317300043
HRB 194560 B
GF: Tariq Kaddoura, M.Sc.

Resume

Prof. Dr. M Sc. Eng. Mohamed Hamdy
Full professor, strategic leader, and a member of the innovation committee
at the Faculty of Engineering in the Norwegian University of Science and Technology (NTNU),
E-mail : Mohamed.Hamdy@ntnu.no
Tel. +4792052876



Appendix 6 (Supervision experience)

PhD candidates/graduates

I have **supervised/been supervising 11 PhD candidates**. Where, I am the main supervisor for four and an local co-supervisor for three and external co-supervisor of for. Two candidates ([Shabnam Homaei](#) and [Laurina Feliuss](#)) have already finished, four ([Alla Marchenko](#), [Soumia Rahmani](#), [Khaled Ismail](#) and [Mohamed Bakry](#)) should finish by 2023/2024, and five ([Muhammad Afzal](#), [Hang Yin](#), [Alireza Norouzasas](#), [Hamed Mohseni](#), and [Mohamed Atef](#)) have just begun in 2021/2022.

Postdoc fellow

I am going to supervise two postdoc fellows within my project ARV funded by the EU Green deal and the project FinERB, funded by the Finnish Academy, respectively.

Master students

I have **supervised 28 masters' students** during his work in NTNU and TU/e. By direct and persistent supervision, he has successfully published **eight journal papers** with seven of his [28 master students](#) including [Tobias Kristiansen](#), [Sophie Karlsen](#), and [Rickard Tällberg](#), [Georgios Eleftheriadis](#), [Joep Bischoff](#), [Mahmoud Abbas](#), and [Luigi Costardi](#) (the publications' links are hyperlinked with the students' names). My proud to publish with my master students.

Visiting researchers

Ten masters and PhD international researchers have visited my research groups during the last 5 year (2017 – 2022) and other two visits are planned by postdoc researchers to take place in 2022/2023.

Resume

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at the Faculty of Engineering in the Norwegian University of Science and Technology (NTNU),
E-mail : Mohamed.Hamdy@ntnu.no
Tel. +4792052876



PhD Candidates

	Name	PhD topic	Work period	Project	My role
1	Shabnam Homaei	Towards Resilient Building Performance: Definitions, Frameworks, and Metrics.	Done 2017-2021	ZEN FME	Main supervisor
2	Hang Yin	Upgrading the Smartness of Buildings Performance at Zero-Emission Neighbourhoods: Optimal Integrated Design	2021-2024	ZEN FME	Main supervisor
3	Muhamma d Afzal	Digital Twin for Smart Buildings in a Positive Energy District (PED)	2021-2024	DigiTwin-PED	Main supervisor
4	Alireza Norouziass	AI-based Optimization for maximizing the Utilization of Indoor Spaces and Energy Systems in Buildings	2022-2025	LIFELINE 2050	Main supervisor
5	Laurina Felius	Combining building automation control systems with envelope retrofitting to improve the energy performance of cold climate housing	Done 2017-2021	ENERSEN SE	Co-supervisor
6	Alla Marchenko	A data-driven modelling for comfort assessment in buildings	2017-2022	QUANTUM	Co-supervisor
7	Hamed Mohseni	Achieving positive energy districts through energy efficiency, sustainability, and local energy sources.	2022-2025	LIFELINE 2050	Co-supervisor
8	Soumia Rahmani,	Towards effective Energy labelling systems for residential buildings in (semi)arid climates – Algerian Case	2020-2024	Private funding	External Co-supervisor
9	Khaled Ismail	Towards Zero Energy Building in MENA countries	2019-2023	Private fund	External Co-supervisor
10	Mohamed Bakry		2018-2022	Private fund	External Co-supervisor
11	Mohamed Atef	Building Portfolio Analysis and Benchmarking for Estimating Energy Saving Potential	2022-2025	Private fund	External Co-supervisor

Resume

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Tel. +4792052876



Postdoc fellow

	Post-PhD topic	Years	Project	My role
Charafeddine Mokhtara	Evaluation of the Interventions and Analysis of Building Performance Gaps	2022 - 2025	Climate Positive Circular Communities (ARV).	Main supervisor
Rehman Hassam	Energy Resilience in Buildings in Extreme Cold Weather Conditions in Finland-	2022 - 2025	FinERB, funded by the Finnish Acadimay	External Co-supervisor

Master students

1. Seyyedehniloufar Moaddeli, 2022. Optimizing Hybrid Ventilation Control Strategies Toward Zero-Cooling Energy Building.
2. Lars A. Justad, 2022. Potential for Heating Demand Reduction and Energy Flexibility by Improved Control and Automation of Heaters for Typical Norwegian Residential Buildings.
3. [Tobias Kristiansen](#), 2021, Predicting annual illuminance and operative temperature in residential buildings using artificial neural networks, [see](#)
4. Aurora Sterner, 2021. A comparative Life Cycle Analysis and Thermal Performance of Vacuum Insulation Panels for Building Applications.
5. Ingrid Skogli Fejerskov, 2021. Hygrothermal Performance of Internally Retrofitted Brick Masonry with Vacuum Insulation Panels: The Effects of Climate Change on Moisture Damage Risk.
6. [Aslaug Haukeland Mosebø](#), 2021
LCA evaluation and Energy performance of a housing building in different technological scenarios, Master thesis of Costardi Luigi, supervised by Prof. Mohamed Hamdy from Norwegian university of Science and Technology (NTNU), in cooperation with prof. Lavinia Chiara Tagliabue from University of Brescia (Università degli Studi di Brescia), Italy.
7. [Shawul Gulilat Haile](#). Integrated assessment using BIM integrated LCA with building energy simulation. a thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in building and architectural engineering. school of architecture urban planning and construction engineering. polytechnic of Milano. Milan, Italy. See.
8. [Tonje Omli-Moe](#) (master student from NTNU). 2018/2019. Investigation of strategies to dimension the HVAC system in museums. (Supervisors: prof. Hans Martin and associate Prof. Hamdy, M.), [see](#)
9. [Karoline Bondø Haug](#). 2019/2020. Strategies for Modelling Dynamic Parameters in Optimization-Based Building Energy Model Calibration: A Case Study. (Supervisors: prof. Hamdy, M.). [see](#).

Resume

Prof. Dr. M Sc. Eng. Mohamed Hamdy
Full professor, strategic leader, and a member of the innovation committee
at the Faculty of Engineering in the Norwegian University of Science and Technology (NTNU),
E-mail : Mohamed.Hamdy@ntnu.no
Tel. +4792052876



10. [Helene Solvang](#). (Master student from NTNU). **2018/2019**. Daylight requirements in the Norwegian Regulations vs. the European Standard: A case study considering thermal performance. (Supervisors: prof. **Hamdy, M.**), [see](#).
11. [Sophie Schönfeldt Karlsen](#) (master student from NTNU). **2017/2018**. Investigation of Grid Rent Business Models as Incentive for Demand-Side Management in Buildings - A case study on fully electric operated houses in Norway. (Supervisors: prof. **Hamdy, M.**), [see](#)
12. [Vilde Christine Hagen](#) (master student from NTNU). **2017/2018**. Robustness assessment methods to identify robust high performance building designs, (Supervisors: prof. **Hamdy, M.** and Shabnam Homaie), [see](#).
13. [Stian Wirak](#) (master student from NTNU). **2017/2018**. Passive and active techniques to damp indoor moisture fluctuations at optimal levels in museums (Supervisors: prof. **Hamdy, M.** and prof. Stig Geving), [see](#).
14. [Tor Atle Skramdal](#) (master student from NTNU). **2017/2018**. BIM-based building energy modelling. (Supervisors: prof. **Hamdy, M.** and prof. Ole Jonny Klakegg).
15. [Kristian Widding](#) (master student from NTNU). **2017/2018**. A Systematic Investigation of Interoperability Issues and Solutions Between Architectural BIM models and Building Energy Modeling: Case Studies. (Supervisors: prof. **Hamdy, M.**), [see](#).
16. [Georgios Eleftheriadis](#) (visiting student from TU/Berlin). **2016/2018**. Impact of technologies' performance degradation on overall NZEBs' performance. (Supervisors: prof. **Hamdy, M.** and Prof. Kriegel).
17. [Arghavan Akbarieh](#) (visiting student from University of Bologna). **2017/2018**. Information Exchange Issues between BIM-based Architectural Models and Building Energy Analysis Tools: A European Case-study. (Supervisors: prof. **Hamdy, M.** and Prof. Annarita Ferrante).
18. [Rebecca Celine Lundqvist](#) (master student from NTNU). **2017/2018**. Investigation of stabilizing the indoor environment using building thermal mas. A case study: Viking Ship museum in Norway. (Supervisors: prof. **Hamdy, M.** and prof. Stig Geving), [see](#).
19. [Håkon Eggebø](#), (2016/2017). Sensitivity analysis for investigating the energy performance of a retrofitted kindergarten under different weather scenarios. The Norwegian University of Science and Technology (NTNU). (Supervisors: Salvatore Carlucci and Mohamed Hamdy), [see](#).
20. [Kemme P.A.M.](#) (2014/2015). *Building Portfolio Analysis and Benchmarking for Estimating Energy Saving Potential*. Eindhoven, The Netherlands: TU/e. (Supervisor(s): Hensen, J.L.M., **Hamdy, M.**, Tuip, B. & Branderhorst, Ir. T.)
21. [Bischoff, J.](#) (2015). *Hotel 'Amstel Kwartier' Towards net Zero Energy Hotel By applying renewable energy systems*. Eindhoven, The Netherlands: TU/e. (Supervisors: Hensen, J.L.M., **Hamdy, M.**, Nastasi, B. & Philips, C.)
22. Spruijt, J.G. (2014/2015). *Supporting the Eindhoven University of Technology to reach thermal energy balance at the Campus 2020*. (Graduation Paper, TU Eindhoven. Fac. Bouwkunde : afstudeerverslagen, no 5751). Eindhoven, The Netherlands: TU/e. (Supervisors: Hensen, J.L.M., **Hamdy, M.**), [see](#).
23. S.P.J.C. van der Straten. (2014/2015). *A Comparison between the calibration of Low-resolution and detailed FDD Simulation Tools in the Post-Design Phase*. (Graduation Paper, TU Eindhoven. Fac. Bouwkunde: afstudeerverslagen, no 5751). Eindhoven, The Netherlands: TU/e. (Supervisors: Hensen, J.L.M., **Hamdy, M.**), [see](#).
24. [Randy van Eck](#). (2014/2015). Design reference data, present and future energy use. How robust are our metrics used in reference data? Eindhoven, The Netherlands: TU/e. (Supervisors: Loomans, M.G.L.C. **Hamdy, M.**)

Resume

Prof. Dr. M Sc. Eng. Mohamed Hamdy
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at the Faculty of Engineering in the Norwegian University of Science and Technology (NTNU),
E-mail : Mohamed.Hamdy@ntnu.no
Tel. +4792052876



25. Schurink, N. (2015). *Selling Hot Air: The Potential of Solar Heat for Agricultural Drying Application*. Eindhoven, The Netherlands: TU/e. (Supervisor(s): Hensen, J.L.M., **Hamdy, M.** & Donker, M.V.D.)
26. Voert, G. (2015). *Improved climate control Auditorium building TU/e*. Eindhoven, The Netherlands: TU/e. (Supervisor(s): Hensen, J.L.M., **Hamdy, M.**, & Loomans, M.G.L.C.)
27. Sande, R.P.J. (2015/2016). *Consulting housing corporations towards upgrading their existing Dutch housing stock*. Eindhoven, The Netherlands: TU/e. (Supervisors: Hensen, J.L.M., **Hamdy, M.**, & Torrens Galdiz, J.I.)
28. [Frank Tanuwijaya](#). (2015/2016). *Profitable Building Renovations by Woonbedrijf for Eindhoven Energy-Neutral by 2045*. The Netherlands: TU/e. (Supervisors: Hensen, J.L.M., **Hamdy, M.**)

Visiting researcher

	Name	Institute, Country	Visiting period	Outputs
1	Arghavan Akbarieh	PhD at Luxemburg University	2017	- Master thesis, - paper draft, - collaboration with Luxemburg University
2	Sandra Martínez Mariño	PhD. Escuela de Ingeniería Industrial (Universidade de Vigo), Spain	2018/ 2019	- One journal paper in Energy and Building Journal, see - Collaboration with the Spanish State Research Agency (BECA).
3	Mohamed Amer	PhD. Building Performance Engineer at RenoWatt, Belgium	2019/ 2020	- One Journal paper in the Journal Energy and Buildings, see
4	Semahi Samir	PhD. Assistant professor chez university of Blida Algeria, Algeria	2019/ 2020	- One paper in the conference Building simulation 2021, see
5	Luigi Costardi	MS.c. Junior structural timber engineer Junior structural timber engineer Wood Beton, Italy	2018/ 2019	- One Journal paper, see + Master thesis
6	Georgios Eleftheriadis	Sustainability Consultant at METABUILD GmbH, Germany	2017/ 2018	- Two journal papers publication 1 and publication 2 + Master thesis
7	Shawul Gulilat Haile	MS.c from Politecnico di Milano	2017/ 2018	Master thesis and a draft paper with prof. Francesco Causone from Politecnico di Milano
8	Soumia Rahmani	PhD candidate at Université Saad Dahlab de Blida Université Saad Dahlab de Blida, Algaria	2020/ 2022	One journal paper, 3rd International Congress on Materials & Structural Stability see
9	Rehman Hassam	Senior research at VTT. Finland	2021/ 2022	Funded research proposal
10	Dina Zaki	Postdoc at Ain Shames University, Egypt	2021/ 2022	One conference paper

Resume

Prof. Dr. M Sc. Eng. Mohamed Hamdy
Full professor, strategic leader, and a member of the innovation committee
at the Faculty of Engineering in the Norwegian University of Science and Technology (NTNU),
E-mail : Mohamed.Hamdy@ntnu.no
Tel. +4792052876



Faculty of Engineering

Date
16.09.2022

Our reference

1 of 1

Your letter dated Your reference

To whom it may concern

PhD candidates supervised by Mohamed Hamdy

A list of PhD candidates who supervised by Associate Professor Mohamed Hamdy within The Norwegian University of Science and Technology (NTNU)'s system:

1. Shabnam Homaei – main supervisor – defended thesis 22.06.22
2. Hang Yin – main supervisor - active
3. Muhammad Afzal – main supervisor - active
4. Alireza Norouzasas – main supervisor - active
5. Laurina Feliuss – Co-supervisor – defended thesis 26.05.21
6. Alla Marchenko – Co-supervisor - active
7. Hamed Mohseni – Co-supervisor – active

Linh Nilsen

Advisor HR

Department of Civil and Environmental Engineering
NTNU



Resume

Prof. Dr. M Sc. Eng. Mohamed Hamdy
Full professor, strategic leader, and a member of the innovation committee
at the Faculty of Engineering in the Norwegian University of Science and Technology (NTNU),
E-mail : Mohamed.Hamdy@ntnu.no
Tel. +4792052876



Faculty of Engineering
Cairo University
Graduate studies Administration

كلية الهندسة
جامعة القاهرة
إدارة الدراسات العليا

To Whom It May Concern

Engineer: Khaled Mohamed Abd ElKarem Ismail.
Nationality: Egyptian. ID: 28504080104093
Is registered on : 01/10/2017
For the degree of Doctor of Philosophy.
Department : "Architectural Engineering"
Supervision:
Prof. Dr. Ahmed Salah Eldin Ouf Prof. Dr. in Faculty of Engineering –
Cairo Uni.
Prof. Dr. Mohamed Hamdy Associate Professor in Norwegian Uni.
Of Science and Technology (NTNU).
And is still registered for the current academic year 2020/2021.
This record has been issued upon the candidate's request.

Responsible Manager Vice Dean
For Graduate Studies & Research
Ehab Iraqi Naasa El Shiekh Prof. Dr. Mohamed Mounir El-Attar

Date: 31/05/2021

Faculty of Eng. - Cairo University - 12613 Giza - Egypt

HELWAN
UNIVERSITY
FACULTY OF ENGINEERING
MATERIA - CAIRO - EGYPT
POSTGRADUATE DEPT

كلية الهندسة بالهليوان
الدراسات العليا

To Whom It May Concern

Engineer: Mohamed Salah Bakry
Nationality: Egyptian. ID: 28608090100371
Is registered on: 03/2016
For the degree of Doctor of Philosophy
Department: "Mechanical Power Engineering"
Supervision:
Prof. Dr. Khairy Elsayed Elsayed Associate Professor in Faculty of Engineering
Mechanical Power Department,
Helwan Uni.
Prof. Dr. Mohamed Hamdy Associate Professor in Norwegian Uni.
Of Science and Technology (NTNU).
Dr. Ayman Abd El Hamied Mostafa Faculty of Engineering
Mechanical Power Department,
Helwan Uni.
And is still registered for the current academic year 2021/2022.
This record has been issued upon the candidate's request.

Responsible Manager Vice Dean
For Graduate Studies & Research
Prof. Dr. Mohamed Alaa Mandour

Resume

Prof. Dr. M Sc. Eng. Mohamed Hamdy
Full professor, strategic leader, and a member of the innovation committee
at the Faculty of Engineering in the Norwegian University of Science and Technology (NTNU),
E-mail : Mohamed.Hamdy@ntnu.no
Tel. +4792052876



Appendix 7 (Teaching experience)

My teaching skills (i.e., design, develop, coordinate, teach academic courses) have significantly been upgraded by practicing in different teaching activities at bachelor, masters, PhD, and postdoc levels. I have participated in ¹⁾ developing four curriculums, ²⁾ coordinating two courses, and ³⁾ teaching within 16 academic courses ([Table 1](#)) at three universities (i.e., Helwan University in Egypt, Aalto university in Finland, TU/e in the Netherlands, and NTNU in Norway).

This international experience gives me a self-confidence to teach students with different cultures and backgrounds. In the beginning of my teaching career, I teach comprehensive courses (e.g., hydraulic machinery, thermal dynamic, HVAC design, automatic control, and pneumatic systems) in the Helwan University, Egypt. Afterwards, I have participated in developing and teaching **multidisciplinary courses** (e.g., [7LY3M0](#) Building performance and energy systems simulation at TU/e in The Netherlands and [TBA 4166](#), [TBM4322](#), [TEP 4235](#) and [TBA 4860](#) at NTNU in Norway). My main courses that I coordinate/participate in design (i.e., [TBA 4166](#) - Building performance Simulation, [TEP 4235](#) - Energy Management in Buildings) are **collaborative courses** where two and four departments, respectively, participate in developing and running the courses. These courses are not only multidisciplinary courses, but also research-based courses, where I usually can continuously develop using my most-recent research outputs. I also participate in the individual study syllabus for PhD candidates at NTNU, where I teach for PhD candidates with other departments. My participating in teaching includes bachelor, masters, PhD, and [continuing education](#) (EVU) courses at NTNU.

Table 1 My academic courses

	Course title	University/Department/ years	My role
1	Building Performance Simulation course TBA 4166 (TBM4322 after a serious upgrade over last 5 years)	NTNU, Dept. of Civil and Environmental Engineering, Since 2017	Developer, coordinator & Main lecturer
2	Energy Management in Buildings course (TEP 4235).	NTNU, Dept. of Energy process, Since 2017	Main lecturer Co-developer & co-coordinator
3	Experts in Teamwork course (TBA 4860)	NTNU, Dept. of Civil and Environmental Engineering, 2017 - 2020	Main lecturer, Co-developer & co-coordinator
4	Advanced and Sustainable Building Envelopes	NTNU, Dept. of Energy process, from 2022/2023	Main lecturer, Co-developer & co-coordinator
5	Advanced Building Performance Simulation (EP8301)	NTNU, Dept. of Civil and Environmental Engineering, Since 2018	Lecturer
6	Building and Material Engineering, Advanced Course (TBA 4171), adv.	NTNU, Dept. of Civil and Environmental Engineering, Since 2017	Lecturer
7	Individual study syllabus for PhD candidates at NTNU	NTNU, Dept. of Industrial Economics and Technology Management, 2021	Invited supervisor
8	Refurbishment Technology Specialized course (TBA4178)	NTNU, Dept. of Civil and Environmental Engineering, Since 2019	Guest lecturer
9	Property and Facilities Management, Advanced Course (TBA4176)	NTNU, Dept. of Civil and Environmental Engineering, Since 2017	Guest lecturer
10	7LY3M0 – Building performance and energy systems simulation, see	Eindhoven Uni. of Sci. and Tech. (TU/e), Dept. of Built Environment, 2014-2015	Main lecturer, Co-developer & co-coordinator
11	7NBB0 – Basic Design Course	Eindhoven Uni. of Sci. and Tech. (TU/e), Dept. of Built Environment 2014-2015	Guest lecturer
12	7S9X0–Environmental performance of buildings, BSc course)	Eindhoven Uni. of Sci. and Tech. (TU/e), Dept. of Built Environment 2014-2015	Guest lecturer
13	7S815 – Sustainable energy systems for the built environment	Eindhoven Uni. of Sci. and Tech. (TU/e), Dept. of Built Environment 2014-2015	Guest lecturer
14	Automatic control: and Pneumatic and hydraulic systems	Helwan University, Dept. of Mechanical power engineering, 2005- 2007	Teacher assistant, designer, and coordinator

Resume

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Tel. +4792052876



15	Fire Fighting	Helwan University, Dept. of Mechanical power engineering, 2005- 2007	Teacher assistant
16	Hydraulic machine	Helwan University, Dept. of Mechanical power engineering, 2005- 2007	Teacher assistant

Teaching Goals and Approaches

My teaching activities aims at spreading my scientific knowledge/experience (shown in the section above: [scientific qualification](#)) among the new generations and building the capacities of the specialists in the field of high-performance buildings. My goal is to improve the independency and team-work skills of my audience. Therefore, my academic courses and training sessions usually include individual assignments and group-based projects, adopting [interactive learning](#) and [research-based education](#). My teaching topics include multi disciplines such as building physics, energy management, system engineering, HVAC design, life cycle assessment, life cycle cost analysis, control systems, building performance simulation, robustness analysis, and optimization-based decision-making techniques.

I try to help my students to find opportunities for personality and career development. To achieve this goal, I connect the subjects that I teach with the practice using my experience from industry and consultation offices that I have worked with. I also inspire the students to open their own start-up guiding them to possible channels. My position as a member of the innovation committee of the faculty of engineering makes all channels and opportunities opened front of me. In this context, my role is to guide the students to the best-fit opportunity. Besides, within the online wall of my courses on the Blackboard platform, I announce summer jobs and exchange students' opportunities (from industry, research centres, international universities) within my major 'High-performance buildings – simulation and optimization'. I believe that a teacher should engage in public outreach activities for dissemination of knowledge and information to society at large, which includes high school students and teachers, practicing engineers and continuous learners, and policy makers. I believe in research-based education specially for masters and PhD levels. Even in my bachelor teaching, I familiarize the students with the state-of-the art methods and techniques. They are usually appreciating this knowledge. In rest of this statement, I will elaborate on courses that I taught and currently teach including plans and approaches.

Course Design and Organization

My main course at NTNU "Building Performance Simulation" is designed as a **project-based** academic course to enhance the understanding of the concepts of detection theories and gain a practical understanding of modelling and solving a real-world problem using simulation and optimization tools. The **interactive learning** approach has also been adopted to engage the students in deep learning and to improve the personal connection to their academic experience. In this context, the following learning techniques 1) Think, Pair, Share, 2) Take a Side, 3) Interactive Notebook, 4) Online Collaboration, and 5) Choice. The first two techniques are used during the first part of the course, where the main concepts are taught through theoretical lectures. In some lectures, the students are challenged by asking them some questions and let them think about possible answers in small groups before they share their opinion to the classroom. Then ask them to take side based on the total shared answers that convinced them. During Covid-19, digital learning is used on our online learning platform Blackboard. The techniques are applied by the "Polling option" and "Breakout Groups" on the Blackboard platform.

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Tel. +4792052876



The second two learning techniques (i.e., interactive notebooks and online collaboration) are used during the second part of the course, where the students work on their individual assignments and group-based project. The online collaboration was very effective during not only the Covid-19 period but also during the normal situation, where the students was not able to meet each other and where they needed to work on a common documents and simulation models simultaneously as a group.

The third technique (i.e., choice) is used during the beginning of the second part of the course, where the students are offer two choose between two branches. The first branch is for how would like to be specialist in solar analysis and simulation. While the second branch is for who would like to be expert in simulating advanced HVAC systems for zero energy buildings. The branches' topic is function of the market need. Therefore, I participate in our department education committees to listen to the challenges and needs that the market face to overcome the new challenges towards neutral-climate economy by 2050 in Europe.

Feedback and reflection

I have found that asking for direct feedback from students helps me improve the teaching-learning activities for the students. When incorporating new activities or ways of teaching in the classroom, I evaluate these activities through short online questionnaires. I also have discussion forums on the Blackboard wall of my courses. Within my course TBA4166, I use such forum intensively to keep the discussion between me and my students running during the course period. I have a general discussion forum, exercise discussion forum, and exam discussion forum. The exam forum was very useful to reduce the worries of the students when I have introduced a complete online exam with simulation exercise from home. Many students were worried about technical problems that could happened during the exam. I have handled all these collected worries through the discussion forum. The solutions included a collaboration with our simulation software company to provide technical service during the exam in cooperation with our IT system at NTNU. The students were also worried about cheating during the online home exam. A technical solution is developed to let the students work on the cloud without possibility to share their simulation models with other students. It was a great cooperation with the software provider, thanks to them. Another worry was related to use Windows and Mac operating system, where our simulation software operates mainly on Windows. I collaborate with Our NTNU system to solve this by providing visual Windows to who use Mac. There were also worries about the capabilities of use Laptops. The NTNU IT department offered laptops to be borrowed to solve this worry as well.

In addition to using direct discussion and forum-based online discussion for the whole class, I have had to meet the reference group of my course three times to discuss the student's feedback and how they can be handled efficiently. Such reflection helped me a lot to upgrade my courses (i.e., changing the content and methods of teaching). My course [TBA 4166](#) is developed intensively during the last 5 years, now it taken a new course code [TBM4322](#). In the attachments, you can find an example of feedback surveys and feedback from the reference groups of my main course TBA 4166 - 2021.

Increasing Student Participation and interest

The first challenge I faced in teaching was keeping most of the class interested. Many students were concentrating more on writing down the solutions without paying attention to internalizing the concepts, whereas the fast learners were bored. To overcome this, I handed out an outline of the solution of the problems with hand-waving at important steps. This helped the students actively participate in the discussion instead of concentrating on scribing from the board. Moreover, interested, and fast learners could proceed at their own pace without waiting for me. This increased the participation and interest among the students.

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Tel. +4792052876



Appendix 8 (Dissemination/Outreach)

To make a social benefit from my scientific work, I usually make my knowledge and research outputs available to be used for research or industry purposes. For instance,

- In 2011, I have contributed to developing a new software for multi-objective building performance optimization ([MOBO](#)) with Aalto University in Finland (Contact person: [Dr. Ala Hasan](#), my PhD supervisor at Aalto University, currently a senior researcher at VTT). MOBO has been used widely by many researchers all over the world.
- Between 2015 and 2018, I worked with [METABUILD GmbH](#), a SME in Germany, on commercializing my PhD simulation-based optimization approaches and algorithms for improving the energy efficiency of building sectors by finding cost-optimal solutions that can fit the budget of possible projects. Now, [METABUILD GmbH](#) has grown rapidly where I kept my connection with them as an expert advisor. During my working with them, I worked hard on establishing and training the technical team. In addition, I was participating in shaping the vision and mission of the entire company. Please check the acknowledgment of their CEO [Mr. Tariq Kaddoura](#), attached.
- In 2022, I have jointed the Egyptian/American SME [LavaLoon](#) as a partner and business developer, where I am establishing a new business line to facilitate the digital transformation of zero energy building (ZEB) market in MENA region.

Within my role as a strategic leader in our NTNU's centre [Green2050](#), I am working with the management team on arranging broadcast sessions to disseminate our research centre outputs and to listen to the challenges and needs from the industry. Our aim is to close the gap between the research and industry for achieving the national and international goals including the [United Nation's Sustainable Development Goals](#) and the EU goal for climate neutral cities by 2050. In this context, I am leading the project [LIFELINE-2050](#). Where multidisciplinary team (i.e., 7 department from my faculty) works together using our university campus as a pilot to engage the students and the socially into the project process, demonstrating the effectiveness of our research outputs.

Otherwise, within my role as a member in the innovation committee of my faculty of Engineering, I work on encouraging our bachelor, masters, and PhD students to come with innovative ideas in collaboration with industry showing them all possible opportunities for support from the university. Within the innovation committee, we also arrange monthly innovative talk sessions where colleagues with innovative research are invited to present in the presence of relevant actors from the industry. I also participate in several international summer scholars and short courses where I am getting invited as a guest lecturer or participating as a (co)organizer. In such international activities, I try to present the most recent research results in a simplified ways depending on the audience experiences. For instance:

- In Sept. 2022, I have been invited to give the Short Course on: Building Performance Optimization (BPO). Prof. Mohamed Hamdy, by Università degli Studi del Sannio, [see](#).
- In May 2022, I have been invited to give a lecture on Resilient cooling building performance by VentCool AIVC within Annex 80 activities: [Webinar on Resilient Cooling](#).
- In Aug. 2028, I have participated with NTNU in arranging the international summer schools SiNoPSE where I have lectured about the challenges and opportunities in using building performance simulation to scale up improving the energy performance in Europe.
- In June 2014, I have been invited to lecture in EuroTech at Technical University of Denmark,
- In 16 Nov. 2020, I lectured in the online BIM school, arranged by University of Luxembourg.

Resume

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Tel. +4792052876



- Invited as a guest lecturer by several universities including Aalto University in Finland, Università degli Studi del Sannio, Benevento in Italy,
- In 2019, I visited University of Wisconsin-Milwaukee in Poland, within our Erasmus+ program to lecture about the opportunities of building energy saving in eastern Europe.
- In 2020, I have been invited to give a lecture to a design team in the consultancy office [Multiconsult](#) in Norway, where young participants were attending as potential employee in future.
- Further, I have been invited as a speaker in several conferences worldwide.

Appendix 9 (Pedagogical certificates).

I have attended 17 pedagogical courses at four universities in three countries: Egypt, The Netherlands, and Norway, shown in the Table below, followed by the copies of the certificates.

M. Hamdy's pedagogical certificates from four universities in Norway, The Netherlands and Egypt

	Certificate title	From	Year
1	Uniped Modul - Development of pedagogical portfolio	Norwegian University of Science and Technology	2021 (April-June)
2	NTNU's Educational Program for New Academic Staff (PEDUP)	Norwegian University of Science and Technology	2018 Sep-) - 2019 (May)
3	Competing for research grant – Your presentation	Eindhoven University of Science and Technology	2015 (June)
4	Examination Committee, The Legal Framework	Eindhoven University of Science and Technology	2015 (June)
5	Coaching Student	Eindhoven University of Science and Technology	2014 (April)
6	Supervising Master students	Eindhoven University of Science and Technology	2014 (Oct.)
7	The Credit Hour Systems	Cairo University	2015 (Jan.)
8	Legal and Financial Aspects in University Environment	Cairo University	2015 (Jan.)
9	Research Ethics	Cairo University	2015 (Jan.)
10	Competing for a research grant	Cairo University	2015 (Jan.)
11	Choosing qualitative or quantitative research methodologies	Helwan University	2014
13	Supervision of PhD Students	Helwan University	2014
13	Designing Courses & Projects	Helwan University	2014
14	Exploitation of Research Results and Knowledge Transfer	Helwan University	2013
15	PCDI Postdoc retreat	Helwan University	2013
16	Academic Leadership for Assistant Professors	Helwan University	2012
17	Scientific Project Management	Helwan University	2012

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E-mail : Mohamed.Hamdy@ntnu.no
Tel. +4792052876



NTNU – Trondheim
Norwegian University of
Science and Technology

Faculty of Social and Educational Sciences
Department of Education and Lifelong Learning, Educational Development Unit

We hereby certify that

Mohamed Hamdy

has completed

Module within NTNU's Program for Pedagogical Basic Competence

Within NTNU's basic educational competence program, a selection of optional modules is offered. The modules are developed in consultation with Uniped, academic environments at the faculties and support units according to requirements and guidelines for module development. The programme council for the educational development unit has the responsibility for approving modules offered within the program.

The following module is completed spring 2021:

Development of pedagogical portfolio (20 hours)

Description of the module:

The requirements for pedagogical competence have been tightened through changes in regulations concerning appointment and promotion to teaching and research posts. In the case of both an application for a position and a promotion to a position, there will be a requirement that the pedagogical competence is documented in an overall presentation in the form of a pedagogical portfolio. In this module, participants will have the opportunity to start work on developing their own pedagogical portfolio. We will facilitate discussions and reflections related to what pedagogical competence can be, how this can be developed over time, and how the development can be documented and assessed.

It is important to point out that developing a pedagogical portfolio from the start will take much more time than the 20 hours in this module.

Trondheim, 15 June 2021

Marte B. Johansen

Marte Bratseth Johansen
Module responsible

Marit R. Pettersen

Marit R. Pettersen
Higher Executive Officer

Resume

Prof. Dr. M Sc. Eng. Mohamed Hamdy
Full professor, strategic leader, and a member of the innovation committee
at the Faculty of Engineering in the Norwegian University of Science and Technology (NTNU),
E-mail : Mohamed.Hamdy@ntnu.no
Tel. +4792052876



NTNU – Trondheim
Norwegian University of
Science and Technology

Faculty of Social Sciences and Technology Management
Department of Education and Lifelong Learning, Educational Development Unit

We hereby certify that

Mohamed Hamdy

has completed

NTNU's Educational Program for New Academic Staff (PEDUP)

The program was conducted from
September 2018 through May 2019

The aim of the program is to make participants familiar with educational concepts, models and theory relevant to higher education contexts. Considerable effort is invested in helping participants better understand the interplay between components in their own teaching and learning environment with the ultimate purpose of improving students' learning.

The program is organized into five seminars of two to three days duration with mandatory assignments to be completed throughout. The total workload is estimated to 100 hours. All participants also participate in a peer mentoring exercise related to teaching or course design. Raising awareness of issues in teaching, learning and assessment is seen as a precondition for future engagement in course design revisions conducive to improved student learning.

Trondheim, 8 May 2019



Marte Bratseth Johansen
Program Leader Uniped



Marit R. Pettersen
Higher Executive Officer