

Dr Stefano Landini

Lecturer in Mechanical Engineering currently working on thermal management of Li-Ion batteries, thermal energy storage, two-phase heat transfer for cooling applications, and renewable energy systems for off-grid remote communities. My research areas are energy systems and storage integration, renewable energy technologies, heat transfer, thermal management, phase change cooling, energy/exergy/economic analysis, and optimisation of energy systems.

Find me on: [UEA Research Portal](#), [LinkedIn](#), [ORCID](#), [Scopus](#), [Google Scholar](#)

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CURRENT EMPLOYMENT

Lecturer in Mechanical Engineering
Director of Admissions & Internationalisation
PhD, FHEA, MIET, AMEI
University of East Anglia, Norwich, UK
School of Engineering, Mathematics and Physics

Nov 2021 / Now

- **Lecturing.** UG modules: ENG-4008Y Thermodynamics, ENG-6009B Energy Storage; PGT modules: ENG-7001A Energy Engineering Fundamentals, ENG-7100B Electricity Generation, Distribution, and Storage.
- **Admissions.** Recently introduced Mechanical and Electrical/Electronic UCAS entry point leading to +17 and +4 Y1 direct entry in 2024-25 intake respectively. New strategy for clearing leading to 56 FY entry for 2024-25. Overall, 2024-25 intake targets topped for FY, Y1, PGT.
- **Internationalisation.** Introduced Study Abroad programmes for all four BEng Engineering pathways. Engaging with international partners (e.g. India, China, Saudi Arabia) for research and dual BEng degrees, signed 10 MoUs in past 2 years with international partners, set up 2 x dual degrees BEng 2+2
- **Supervision.** Currently supervising 5 x PhD (2 external), 2 x MSc, 4 x BEng in projects related to heat transfer, thermal management, and renewable energy systems.
- **Advising, Mentoring.** Currently Academic Advisor for 4 x FY, 6 x Y1, 4 x Y2, 7 x Y3, 3 x PhD

RESEARCH PUBLICATIONS

- G. D. Valasai, A. W. Mahar, M. N. Chandio, A. A. Kumbhar, A. U. Qureshi, S. A. Shaikh, [S. Landini](#), “*Design and Development of Geothermal-Based Cooling System for Human Comfort*” Asian J. Sci. Eng. Technol. 2024, 3, 68-82.
Contribution: conceptualisation, methodology, writing – review, supervision
- M. Ismail, J.R. Panter, [S. Landini](#), “*Numerical investigation of fin geometries on the effectiveness of passive, phase-change material –based thermal management systems for lithium-ion batteries*”, Appl. Therm. Eng., vol. 262, no. March, p. 125216, 2025.
Contribution: conceptualisation, methodology, CFD simulations, analysis, writing, revision
- G. D. Valasai, [S. Landini](#), M. N. Chandio, A. A. Kumbhar, S. A. Bhatti, S. Ahmed, “*Reducing Carbon Emissions and Costs of Electricity with Solar PV Systems in QUEST Nawabshah, Pakistan Administration Building*”, Journal of Computing & Biomedical Informatics, 2024
Contribution: conceptualisation, methodology, writing – review, supervision
- S. Arun, R.J.Boche, P. Nambiar, P. Ekka, P. Panalkar, V. Kumar, A. Roy, [S. Landini](#), “*Numerical and Experimental Investigation on Performance of Thermal Energy Storage Integrated Micro-Cold Storage Unit*”, Appl. Sci. 2024, 14, 5166
Contribution: conceptualisation, methodology, writing – review, supervision
- G.D. Valasai, [S. Landini](#), M.N. Chandio, A.A. Kumbhar, S.A. Bhatti, S. Ahmed, “*Reducing Carbon Emissions and Costs of Electricity with Solar PV Systems in QUEST Nawabshah, Pakistan Administration Building*”, JCB, vol. 7, no. 02, Sep. 2024.
Contribution: conceptualisation, methodology, writing – review, supervision
- R Khalid, [S Landini](#), GD Valasai, F Khalid, P Sandwell “*Towards equitable and inclusive energy systems for remote off-grid communities: a socio-technical assessment of solar power for village Helario in Tharparkar, Pakistan*”, Renewable and Sustainable Energy Transition, 100067, 2023
Contribution: conceptualisation, methodology, data analysis, writing, revision
- L.F. Marie, [S. Landini](#), D. Bae, V. Francia, T.S. O'Donovan “*Advances in thermochemical energy storage and fluidised beds for domestic heat*”, J. Energy Storage, vol. 53, no. September, p. 105242, 2022
Contribution: conceptualisation, methodology, literature review, writing, revision
- [S. Landini](#), T. O'Donovan “*Experimental Investigation of Lithium-Ion Cells Ageing under Isothermal Conditions for Optimal Lifetime Performance*”, J. Energy Storage, vol. 48, no. April, p. 103680, 2022.
Contribution: conceptualisation, methodology, experimental testing, analysis, writing, revision
- [S. Landini](#) et al., “*Effect of geometry and thermal mass of Direct-Metal-Laser-Sintered aluminium Heat Exchangers filled with phase change materials on Lithium-Ion cells' passive cooling*”, Appl. Therm. Eng., vol. 195, no. August, p. 117151, 2021.
Contribution: conceptualisation, methodology, experimental testing, analysis, writing, revision
- [S. Landini](#), T. O'Donovan “*Novel experimental approach for the characterisation of Lithium-Ion cells performance in isothermal conditions*”, Energy, vol. 214, no. January, p. 118965, 2021.
Contribution: conceptualisation, methodology, experimental testing, analysis, writing, revision
- [S. Landini](#) et al. “*Optimization of Thermal Management of Li-Ion Cells with Phase Change Materials*”. In: Wen, C., Yan, Y. (eds) Advances in Heat Transfer and Thermal Engineering . Springer, Singapore, 2021

Contribution: conceptualisation, methodology, experimental testing, analysis, writing, revision

- S. Landini et al., "Passive cooling of Li-Ion cells with direct-metal-laser-sintered aluminium heat exchangers filled with phase change materials," Appl. Therm. Eng., vol. 173, no. February, p. 115238, 2020.

Contribution: conceptualisation, methodology, experimental testing, analysis, writing, revision

- S. Landini, J. Leworthy, T. O'Donovan, "A Review of Phase Change Materials for the Thermal Management and Isothermalisation of Lithium-Ion Cells," J. Energy Storage, vol. 25, no. February, p. 100887, 2019.

Contribution: conceptualisation, methodology, literature review, writing, revision

CONFERENCES

- S. Landini, J. Panter, A. Roy, G.D. Valasai, M. Ismail, "Strategies for hybrid immersion cooling of light electric vehicle battery packs: a numerical investigation", 10th World Congress on Momentum, Heat & Mass Transfer, 2025
- G. D. Valasai, S. Landini, Danish Ali, "Net-Zero Emissions Strategy Using Leap: A Case Study Of Pakistan", 3rd IAEE MENA Conference: Domestic Energy & Economic Transformations in a Transitioning World, 2024
- K. Zengin, T. O'Donovan, S. Landini, "The effect of flow rate on thermal, electrical and overall performance of solar hybrid PVT panels", International Conference on Energy, Environment and Storage of Energy (ICEESEN), 2024
- D. Guarda, S. Mancin, S. Landini, "CFD Analysis Of A PCM-Based Thermal Management Systems For A Li-Ion Pouch Cell", MNF2K23 Micro & Nano Flows Conference, 2023
- A. Askounis, S. Landini, J. Panter, "Inclination Effect On The Internal Flows And Evaporation Kinetics Of Droplets", MNF2K23 Micro & Nano Flows Conference, 2023
- S. Landini, T. O'Donovan, F. Ghani, "Thermo-fluid dynamics optimisation of tapered helically-coiled solar thermal collectors", 17th UK Heat Transfer Conference, 2022
- D. Guarda, S. Landini, et al. "Numerical study of PCM based TMS for Li-Ion cells", PCM2021 13th IIR- Phase Change Materials and Slurries for Refrigeration and Air Conditioning Conference, 2021
- S. Landini et al., "Optimisation of thermal management of Li-Ion cells with phase change materials", 16th UK Heat Transfer Conference, 2019

GRANTS

AWARDED

- R214053 Royal Society Research Grant 2025 R1: Composite Phase Change Material for Latent-Heat Thermal Energy Storage applications, 2025, PI, £29,947, Mar 2025 - Mar 2026
- R211898 UKRI EPSRC Capital Fund 2023: Core Carbonate Chemistry Equipment, 2023, Co-I, awarded by, £445,036
- British Council's Researcher Links Climate Challenge Workshop Grant ID 710884527: *Delivering a Sustainable Energy Transition for Pakistan*, 2021, £20,000

UNDER REVIEW

- R213918: Trial by Fire: Optimising Battery Safety Through Hybrid Cooling in 2-Wheeled EV Battery Packs, 2025, PI, submitted to Royal Society (£6,000)

Overall, 9 applications submitted since 2022 (Royal Society, EPSRC, InnovateUK, Leverhulme)

AWARDS

- ETP PECRE Research Exchange Award 2019
- James-Watt Scholarship for PG Research, Heriot-Watt University
- Lombardy Region Award 2011 for the project "The Green Gym"

TEACHING EXPERIENCE

MSc Teaching Assistant & Dissertation Supervisor
Heriot-Watt University, Edinburgh, UK

Jan 2018 / July 2021

- tutoring, mentoring, lecturing, and marking for EPS MSc modules: Foundation of Energy, Renewable Energy Engineering, Economics of Renewable, Demand Management and Energy Storage, Advanced Renewable Energy Technologies, Environmental Impact Assessment
- MSc dissertations supervision

EDUCATION

PhD Mechanical Engineering
Heriot-Watt University, Edinburgh UK
EPS PG Research James Watt Scholarship

Sept 2017 / Apr 2021

- Thesis: Optimisation of Li-ion cells performance by a novel Thermal Management System
Li-Ion cells performance depends on temperature. At cold temperatures, low efficiency and fast ageing are experienced. At hot temperatures, high efficiency but fast ageing and risk of explosion are reported. So, what is the optimal temperature range which maximises a Li-Ion cell efficiency and minimises its ageing? In my PhD, I developed a novel experimental test rig to cycle Li-Ion batteries at constant and uniform battery temperature for hundreds of cycles. By tracking their performance variation, I aim to find an optimal operating temperature range.
- ETP PECRE Research Exchange Award 2019. Project in collaboration with CC Thermal Energy Storage HSLU Luzern on passive cooling of Li-Ion cells with direct-metal-laser-sintered aluminium heat exchangers filled with phase change materials.

MSc Renewable Energy Engineering, Distinction
Heriot-Watt University, Edinburgh UK

Sept 2015 / Sept 2016

- **Modules Included:** Renewable Energy Technologies, Heat Transfer and Heat Exchangers, Environmental Impact Assessment, Economics of Renewable Energy, Demand Management & Energy Storage.
- **Dissertation:** “Availability Variation over the Operating Life of a Wind Farm”, with *Natural Power Ltd.* Statistical analysis of SCADA data to find statistically significant proxy variables to predict the change of wind farms availability over the life time of each asset and to develop a model, with the goal of improving the economic pre-feasibility analysis in the wind power market.

MSc Energy Engineering - Grade 110/110

Oct 2012 / Dec 2014

Polytechnic of Milan, Italy

- **Modules Included:** Thermodynamics, Chemical Processes, Turbomachinery, Heat and Mass Transfer, Computational Fluid Dynamics, Energetic, Exergetic and Economic Analysis
- **MSc Dissertation:** “Techno-economic analysis of geothermal binary systems”, with *Sorgenia Spa.* Energetic, Exergetic, and Economic Analysis of a Binary ORC Geothermal Power Plant with production of geothermal fluid by gas-lifting.
- **Project:** “Solar Energy System for Domestic Hot Water production”, Energetic and economic simulations of a solar thermal system with TRNSYS software for a sport center in Lombardy

BEng Energy Engineering – Grade 107/110

Sept 2009 / Sept 2012

Polytechnic of Milan, Italy

- **Modules Included:** Calculus, Physics, Statistics, Fluid Mechanics, Thermodynamics, Chemistry, Numerical Methods for engineering, Turbomachinery, Air-treatment, Power Plants
- **Project:** “The Green-Gym – An auto-sustainable building using RES”, with *EnergyLab*, Milan, Italy. Award: *Lombardy Award*. Team-leader of an 8-member group for a 6-month multidisciplinary project.

TECHNICAL & SOFTWARE SKILLS

Technical

- Energy and Exergy Analysis
- Techno-economic Optimisation
- Thermal Management and Systems Design
- Phase Change Cooling
- Fluid Dynamics
- Thermodynamics
- Computational Fluid Dynamics (CFD)
- Experimental Approach

Software

- MATLAB
- Simulink
- LabVIEW
- ANSYS
- AutoCAD Inventor
- Microsoft Office
- Minitab
- Arduino

Languages

- English - Bilingual
- Italian – Native

Summary of responsibilities and achievements

My academic education is composed of four degrees, including BEng and MSc in Energy Engineering from the Polytechnic of Milan (23rd QS Ranking globally for Engineering), MSc in Renewable Energy Engineering, and PhD in Mechanical Engineering from Heriot-Watt University. After obtaining my PhD in April 2021, I worked as PDRA in an Innovate-UK Energy Catalyst project on novel solar thermal collectors for decarbonisation of hot water with SolarisKit Ltd. Then, I have been appointed as Lecturer in Mechanical Engineering at the School of Engineering, Mathematics and Physics (EMP) of University of East Anglia (UEA) in November 2021 where I currently work.

My teaching activities have included the development and delivery of learning materials and assessments for both UG and PGT modules. Since I joined UEA, I have been lecturing several modules including ENG-4008Y Thermodynamics (BEng Year 1), ENG-6009B Energy Storage (BEng Year 3), ENG-7001A Foundation of Energy (MSc), ENG-7100B Electricity Generation and Distributions (MSc) and supervising 4 BEng dissertations and 2 MSc dissertations per year. Importantly, I have obtained the title of FHEA in December 2023. In addition, I am developing a new module in Thermofluids (BEng Year 2) which will be available from 2025-26. For all my modules, I am careful in incorporating advances in the subject area to make the topic interesting, research-led, updated, and engaging. In parallel with teaching, I am involved in advising students (4 x FY, 6 x Y1, 4 x Y2, 7 x Y3, 3 x PhD) to facilitate an effective and timely support for their studies, wellbeing, and engagement, the latter being crucial for their academic progression.

My key research activities focus on thermal energy storage, thermal management of batteries and electronics, and two-phase cooling, both numerically and experimentally. Using my initial research funds, an awarded UEA SCI 2022 Capital Fund and EPSRC 2023 Capital Fund grants in collaboration with the School of Environmental Sciences (445k£), I have set up my own lab (Thermofluids) as PI comprising numerical and experimental facilities, including arbitrary power supplies, thermal baths, a climatic chamber, National Instruments DAQ systems, a high-vacuum system, thermal conductivity metering and sensing, hydraulics, and control systems. This allowed me to develop different test rigs to investigate novel thermal management of batteries, thermal energy storage units based on phase change materials, and loop heat pipes cooling. Thanks to my proactive engagement with the research community and the Faculty of Science PGR, I am currently supervising 3 PhD students and co-supervising 2 international PhD students with the University of Pau (France) and Symbiosis Institute of Technology in Pune (India). I have published several works in high-impact factor journals (J. Energy Storage, Appl. Therm. Eng, Energy, RSET) with UK and several overseas academic institutions. These publications exemplified works that produced best practice in open research, including sharing new experimental data,

methods, and design practices. My research collaboration network have allowed me to work not only within my specific discipline but crucially in multidisciplinary projects in collaboration with overseas partners (universities and NGOs) on the social impact of renewable energy systems for remote off-grid rural communities.

Since I joined UEA, I have also been working as Admissions and Internationalisation Director of EMP Engineering, being part of the Executive Team and working actively with all Directorships. As Admissions Director, I am also contributing to the UEA's Equality and Diversity activities. Leading the Admissions Directorship, I am in full charge of Engineering student recruitment for both UG and PGT. This involves activities such as open days, applicants days, clearing and confirmation, course catalogues review, student application decisions, online workshops/webinars for national (e.g. Channel Talent) and international applicants, creation of new courses and/or variants (in collaboration with the Director of Learning and Teaching), leading the Year Abroad programmes, creation of dual degrees and TNE agreements with international partners, marketing in collaboration with the Marketing Officers, and liaising with the Director of Outreach to enhance our presence in secondary schools.