

Chuong Dang TA

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About Me

Energy systems and data science enthusiast with a thermal engineering background. Expected to graduate in **September 2026** from an Erasmus Mundus MSc (**DENSYS**), with a thesis at **rebase.energy** (Stockholm) forecasting wind turbine icing power losses at 1-36 hour lead times on multi-year Swedish SCADA and ERA5-Land data, combining an extended **IEA Wind Task 19** framework with bias correction and a two-stage **LightGBM** classifier-regressor. Published author in 2 peer-reviewed Q1 journals with impact factors of 11.8 and 9.2 on hydrogen integration and decarbonisation pathways.

Education and Training

University of Lorraine, France & Politechnique of Turin, Italy - densys.univ-lorraine.fr Sep 2024 – Sep 2026
Master of Science in Decentralised and Smart Energy Systems (DENSYS)

A two-year Erasmus Mundus Joint Master's program (120 ECTS) focusing on the modeling, control, and optimization of decentralised and renewable energy systems.

Selected Coursework:

- University of Lorraine: [Data and Forecasting in Microgrids], [Optimal Local Design Energy Network].
- Politechnique of Turin: [Polygeneration and Advanced Energy Systems], [Smart Electricity Systems].

Key Projects:

- *Machine Learning (ML) Enhanced LCA of a North Sea Offshore Wind Farm*: Developed integrated LCA-ML framework achieving 12,600× computational acceleration ($R^2=98.5\%$) for rapid environmental optimization across 285 design scenarios.

Hanoi University of Science and Technology (HUST), Vietnam - hust.edu.vn/en Aug 2018 – Jan 2023
Bachelor in Thermal Engineering

Graduated **1st/218** with a CGPA of 3.54/4.00 from Vietnam's leading technical university. Core studies covered thermodynamics, heat transfer, district heating and cooling systems, and power plant systems.

Bachelor Thesis: “*Techno-Economic Analysis of Internal Combustion Engines Using Diesel and LNG*” (Grade: 9.5/10)

Scientific Research - ORCID: 0009-0009-7530-7430

- Dang-Chuong Ta; Thanh-Hoang Le; Long Van Phan; Hoang-Luong Pham, “Feasibility Analysis of Hydrogen Co-Firing in Vietnam’s Gas Power Plants for the Period 2035–2050,” *Energy Conversion and Management*, Impact Factor: 11.8, **2025**. DOI: [10.1016/j.enconman.2025.120192](https://doi.org/10.1016/j.enconman.2025.120192)
- Dang-Chuong Ta; Thanh-Hoang Le; Hoang-Luong Pham, “An Assessment of the Potential for Large-Scale Hydrogen Export from Vietnam to Asian Countries: Techno-Economic Analysis, Transport Options, and Energy Carrier Comparison,” *International Journal of Hydrogen Energy*, Impact Factor: 9.2, **2024**. DOI: [10.1016/j.ijhydene.2024.04.033](https://doi.org/10.1016/j.ijhydene.2024.04.033)
- (Ongoing) Dang-Chuong Ta et al., “Wind Farm-Scale Forecasting of Turbine Icing Power Losses Using Multi-Ridge Regression Models,” based on MSc thesis research at rebase.energy - extending the turbine-level classifier-regressor framework with multi-ridge regression models and upscaling to wind farm-level forecasts.

Work Experience

rebase.energy, Stockholm, Sweden

Jul 2026 – Present

Research Intern - Wave Energy Converter Power Forecasting

- Developing power forecasting models for Wave Energy Converters, benchmarking multiple ridge-regularised and tree-based models (**Ridge Regression**, **Random Forest**, **LightGBM**), Probabilistic Forecasting Models (**Quantile Regression**, **Quantile Regression Forests**, **Boostrapped residuals**).

Master Thesis Student

- **Icing Detection & Feature Engineering:** Established icing labels on multi-year Swedish turbine SCADA data using an extended **IEA Wind Task 19 Sigmoid Performance Ratio** framework. Diagnosed inter-annual non-stationarity and wind speed-temperature overlap between icing and non-icing regimes, and corrected SCADA-ERA5-Land biases via **Quantile Mapping** and **LightGBM**. Applied **Spearman** correlation and **SHAP** screening across multiple physical feature groups to remove unstable predictors.
- **Icing Power-Loss Forecasting:** Built a two-stage **LightGBM** classifier-regressor, trained with walk-forward cross-validation over multiple winters, to forecast wind power icing losses at **1-36 hour** lead times. Benchmarked Persistence, Oracle, Realistic NWP, and SCADA-only scenarios on a blind winter test set, showing local SCADA signals dominate near-term skill while NWP forecasts are essential for longer horizons - a key trade-off for operational resilience under changing conditions.

Selected Projects

- **Probabilistic Electricity Price Forecasting & Stochastic Storage Optimisation** - chuongta.github.io/EnergyForecasting
Self-directed blog series on Danish DK1 day-ahead prices: probabilistic forecasting with Quantile Regression, Quantile Regression Forests, and bootstrapped residuals, evaluated via walk-forward cross-validation, pinball loss, CRPS, and calibration diagrams; the resulting quantile forecasts then drive a two-stage stochastic battery dispatch model in Pyomo, benchmarked against naive and perfect-foresight baselines.

Technical Skills

- **Machine Learning:** Supervised, unsupervised, and reinforcement learning; hybrid, physics-informed models for energy system forecasting and predictive maintenance.
- **Data Science & Optimisation:** Applied **MILP, MINLP, and heuristic algorithms** (e.g., genetic algorithms) in Pyomo to optimize renewable energy systems.
- **Technical Toolset:** Python (PyTorch, Scikit-learn, TensorFlow, Pyomo, PyWake), MATLAB/Simulink, Modelica, QBlade, HOMER Pro, GIS, Aspen Plus, Typst, LaTeX.

Honors & Awards

- **Erasmus Mundus scholarship** for DENSYS Joint Master Program
- **JNED Award** for research on Japan's nuclear facilities (2023)

Short Courses & Certifications

- Wind Energy- Technical University of Denmark (DTU)
- 4th Training Course on Nuclear Power Plant Technology - The International Nuclear Energy Development of Japan Co., Ltd (JINED) (studied in Vietnam and Japan)
- Optimisation with Python: Complete Pyomo with Bootcamp A-Z
- Hydro, Wind & Solar Power - École Polytechnique de Paris

Language

- Vietnamese (Native)
- English (IELTS 7.5 - Full Professional)
- German (A2), French (A1)

Referees

Prof. Fabrice Lemoine - Chair of the DENSYS Erasmus Mundus Joint Master Degree, Université de Lorraine

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Marta Gandiglio - Associate Professor, Department of Energy (DENERG), Politecnico di Torino

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