Kien van Ho

Physics-informed ML | Energy Systems Engineering

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Engineer with 3 years of practical experience through internships, a working-student role and an industry thesis at Siemens Energy, Mercedes-Benz and PSI Metals and an Erasmus Mundus double master's (summa cum laude) in renewable energy integration. Builds physics-informed ML models in Python – at Siemens Energy cutting mean absolute log error by 20 % versus the physics baseline. Seeking an entry-level role in ML and data science or energy-systems engineering for the energy transition.

EDUCATION

Erasmus Mundus Master ME3+: Management and Engineering of Environment and Energy **09/2024 - 09/2026**
IMT Atlantique Nantes, FR & BME Budapest, HU

- Double M.Sc.: Mechanical Engineering Modelling & Process and Bioprocess Engineering; **summa cum laude**

B.Sc. Engineering Science **10/2020 - 07/2024**
Technische Universität Berlin, *Berlin, DE*

- Final grade 1.4 (German scale); specialisation in Mechatronics
- Publication: Data-driven design: predicting functional attributes in early-stage automotive engineering (*Proc. Design Society*, 2025)

EXPERIENCE & PROJECTS

Independent Project: RAG System **09/2026 - present**
Geoberlin (surveying engineering firm), *Berlin, DE*

- Designing and building a retrieval-augmented generation (RAG) system for a surveying engineering firm

Master's Thesis: Physics-Informed ML & Fracture Mechanics **02/2026 - 08/2026**
Siemens Energy, *Mülheim an der Ruhr, DE*

- Built a reproducible Python ML workflow (TensorFlow, scikit-learn, pandas) to predict crack growth in gas turbine components, with physically constrained models and documented limits of validity
- Engineered physics-based features from 56 experimental samples and compared hybrid and neural models with nested cross-validation, reducing mean absolute log error by 20 % versus the physics baseline

Project Lead: Digital Twin of a Dual-Fuel Engine **02/2025 - 06/2025**
IMT Atlantique Nantes & GreenTwins, *Nantes, FR*

- Led a team of three; physics-based model plus ML for efficiency, exhaust temperature and CH4/CO2 flows per fuel mix
- Compared with lab data as a consistency check; prototype in Python, FastAPI and Docker on the GreenTwins platform

Intern: Production Digitalisation **02/2024 - 08/2024**
Mercedes-Benz AG, *Berlin, DE*

- Physics-based Python model of a universal robot in engine assembly; validated neural network for its energy use
- Showed through trajectory modelling that optimised instead of arbitrary robot paths could cut energy use by up to 15 %

Intern: Planning & Industrialisation of the Axial-Flux Machine **02/2023 - 02/2024**
Mercedes-Benz AG, *Berlin, DE*

- Designed extraction and filtration solutions for new production facilities
- Analysed critical process parameters; Power BI dashboard for monitoring and predictive maintenance of a press

Working Student: Software Development **02/2022 - 02/2023**
PSI Metals GmbH, *Berlin, DE*

- Tested and optimised an industrial user interface for a production plant, working with the project team and business partners
- Adapted data models with PL/SQL routines; built and maintained the project database

COURSE PROJECTS & LEADERSHIP

Energy & process (M.Sc.): V2G scenario model for Berlin's evening peak; drinking-water plant design for Karachi (team of six: research and sizing calculations); CHP and Power-to-Gas case analyses
Company Consulting Team: Student consultant and head of quality management: process digitalisation at three SMEs
ISG Berlin: 3 years heading sub-organisations, 1 year on the board (600+ members); two conferences with 100+ attendees

TECHNICAL SKILLS

Machine Learning: Physics-informed & hybrid ML, neural networks, nested CV; TensorFlow, scikit-learn, PyTorch (basic)
Programming & Tools: Python, SQL, MATLAB, FastAPI, Docker, Git, RAG/LLMs, Claude Code
Energy & Engineering: Renewable integration, energy storage, V2G, smart grids, power-to-gas; Power BI, Aspen, Solid Edge
Languages: German (native), Vietnamese (native), English (C1–C2), French (B2)