

# MOHCINE DRAOU

## PhD in Energy Engineering

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### SUMMARY

RESUME I am a PhD Graduate in the field of energy and thermal engineering. My area of research focuses on energy usage in buildings. This Resume briefly presents my profile and skills. However, for more information about the projects I am/was part of as well as the developed tools and applications, I invite the reader to visit my personal blog above or my LinkedIn profile.

### EXPERIENCE

#### R&D: Prediction PLanning and Management of Energy Performance

##### PPIaME

11/2022 - 12/2024 Morocco

- PPIaME is a project focused on constructing two prototype buildings in Morocco, specifically in the climate of Benguerir (Hot Climate) and Mount of Oukaimeden (Cold Climate), to assess their energy performances
- My task is to design solar energy systems for these buildings and implement energy demand side management strategies

#### Internship: Flamme plus (Ex. Eco Plus performance)

##### Energy Engineer

09/2018 - 02/2019 Marrakech

- Technical and economic Feasibility, Sizing, and Installation of an 8 kWp photovoltaic system at the secondary school (Lycée Aouda Essaadia) Marrakech
- Design of HVAC system and quantification of the thermal loads for several buildings (Villas, Hotels, Riads...etc.)

#### Internship: Heliantha Solar (Ex. ROBOSOL)

##### Apprenticeship

06/2017 - 08/2017 Location

- Management of an online store selling solar energy systems products and solutions for homeowners and farmers
- Creation and monitoring of Facebook advertising campaigns

### EDUCATION

#### PhD in Energy Engineering, ProcEDE Laboratory

##### Cadi Ayyad University, Marrakech (FSTG)

01/2021 - 01/2024 Marrakech, Morocco

- Research Topic: Energy demand side management and thermal energy storage of a residential hot water tank using excess photovoltaic production.
- Summary: The objective of this thesis is to develop a control strategy to maximize Photovoltaic self-consumption in a residential context by exploiting the flexible demand of an electric water heater. For this, a water heater model and a forecast of hot water consumption is used to predict the future temperature of the water and manage its state (on and off) according to the photovoltaic excess energy.
- Scholarship: PPIaME Project. (UCA, UM6P, AUI, GEP, OCP, CNRST)

#### Master's degree in Water, Energy and Environmental Sciences

##### High national school of Arts and Crafts, Rabat (ENSAM)

01/2019 - 05/2021 Rabat, Morocco

- Research Internship: (November 2020-mai 2021) Laboratory of Processes for Sustainable Energy and the Environment (ProcEDE)
- Supervisor: BRAKEZ Abderrahim (ProcEDE Laboratory)
- Topic: A techno-economic assessment has been conducted through numerical simulations of domestic hot water production for the six climatic zones of the Moroccan territory

#### Bachelor's degree in Energy Efficiency and Renewable Energies

##### Faculty of Sciences SEMLALIA, Marrakech (FSSM)

01/2014 - 01/2018 Marrakech

- Graduation Project: A Python-based decision-making tool for photovoltaic self-consumption (see: Nassim Autoconsommation 2019)
- Supervisor: BRAKEZ Abderrahim

### TRAINING / COURSES

#### Certificate: Energy Simulations using Ladybug Tools + Grasshopper (Dec 2023)

Udemy

#### Buildings and energy efficiency (May 2023)

Summer School (Offenburg University of Applied Sciences, GEP Morocco)

#### CFD simulations in COMSOL Multiphysics (Jan 2025)

Udemy

#### Mastering TRNSYS (Sep 2021)

Udemy

#### Intermediate Machine Learning, Feature Engineering, Data Visualization (Jan 2022)

Kaggle

### DEVELOPED TOOLS

#### Nassim Autoconsommation (2019):

A tool written in Python whose goal is to generate a schedule for each household appliance in order to maximize the self-consumption rate. The algorithm shifts the load profile of each consumer according to the prediction of photovoltaic production generated from a meteorological API.

#### - Nassim Home (2021-2024):

Implementation of a home automation system through an open-source operating system (Home Assistant), for intelligent energy management as an everyday scenario of Nassim Autoconsommation. In parallel, an approach based on machine learning (ML) algorithms, was applied to the real data generated by Nassim Home (Energy, Temperature, Lighting... Etc.). The aim was to set up a day-ahead machine learning methodology.

#### - PVfitlib.com (2025)

An online tool targeting professionals of the Photovoltaic industry. The aim is to provide an intuitive and comprehensive tool for sizing residential grid-tied PV systems. The webapp includes sizing strategies, load shifting approach, economic assessments and more.

### SKILLS

ANSYS	CFD	COMSOL	
	COMSOL Multiphysics	Ladybug tools	HVAC
MATLAB	Python	RETScreen	
Home Assistant	TRNSYS	Open Studio	
Energyplus	PVgis	PVlib	

### LANGUAGES

#### English

Advanced (American Language Center Marrakech) ●●●●●

#### French

Advanced (Institute française Marrakech) ●●●●●

#### Darija

Native ●●●●●