



## Contact



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## Education

### ● PhD in Applied Math

Sorbonne Université, Paris, France  
2022

### ● Master of Data Science

Université Paris Diderot, Paris, France  
2018

### ● Engineer of Applied Math

ENSIIE, Evry, France  
2018

### ● Bachelor of Pure Math

Royal University of Phnom Penh, Cambodia  
2014

## Language

Khmer: mother tongue

English: fluent

French: conversational

## Other skills

Critical thinking

Teamwork

Communication

Time management

# SOTHEA HAS

## PhD in Applied Mathematics

## Summary

I specialize in theoretical and applied Machine Learning (ML), Statistics, and Data Science, with a strong focus on atmospheric science (postdoctoral research). I am proficient in **Python** (including library development), **PyTorch**, **R**, **C++**, and **MATLAB**. My recent research interests focus on the theories and applications of Variational Autoencoders (VAE) and generative models such as Stable Diffusion within atmospheric science.

## Experience

### ● Postdoctoral researcher Sep 2022 - Present

Laboratoire de Météorologie Dynamique - ENS

- Reconstructing balloon-observed gravity wave momentum fluxes using ML and inputs from ERA5.
- Extracting important features for the reconstruction.
- Physical interpretation.

### ● PhD research Aug 2018 - Aug 2022

LPSM - Sorbonne Université

- Combine supervised and unsupervised methods for energy modeling.
- Aggregation methods.
- Build "**gradientcobra**" python library.

### ● Teaching assistant Sep 2018 - Mar 2024

UFR Mathématiques - Université Paris Cité

- Data Analysis with R and Rstudio.
- Data Mining with R and Rstudio.
- Exploratory Data Analysis with R and Rstudio.
- Algorithm and Programming with Python.
- Big Data Technologies with Python and Spark.
- Statistical Inference and Data Modeling.

## Publication

- Estimating balloon-observed gravity wave momentum fluxes using ML & input from ERA5. *Published in JGR - Atmosphere, 2024.*
- Gradient COBRA: A kernel-based consensual aggregation for regression. *Published in Journal of Data Science, Statistics and Visualization, 2023.*
- A consensual aggregation of randomly projected high-dimensional features of predictions. *Available in HAL, 2022.*
- Machine learning methods applied to the global modeling of event-driven pitch angle diffusion coefficients during high-speed streams. *Published in Frontiers Physics, 2022.*
- KFC: A clusterwise supervised learning procedure based on aggregation of distances. *Published in Journal of Statistical Computation and Simulation, 2021.*