

# Armand Kassai Koupai

PhD student at Sorbonne Université, ISIR lab, MLIA team

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Currently a PhD student working on data-driven methods for solving parametric PDEs and multi-physics at Sorbonne Université. My primary focus is out-of-distribution generalization, generative modeling and foundation models for Science.

## Education

### PhD in Computer Science – Sorbonne Université (ISIR)

Advisor: Patrick Gallinari

• PhD thesis – Physics-based Deep Learning for parametric PDEs and multi-physics: in and out-of-distribution generalization

Paris, France

Nov 2022 – Now

### MSc in Data Science [w/ distinction]– University of Bristol

• Machine Learning, Deep learning, NLP, statistics, probability

Bristol, UK

September 2020 – September 2021

### Diplôme d'ingénieur (MSc) – ENSEA

• Signal Processing, Computer Science, Applied mathematics

Cergy-Pontoise, France

September 2018 – September 2021

## Selected Publications

### Zebra: In-Context and Generative Pretraining for Solving Parametric PDEs

Louis Serrano, Armand Kassai Koupai, Thomas X Wang, Pierre Erbacher, Patrick Gallinari

2024

Preprint

### GEPS: Boosting Generalization in Parametric PDE Neural Solvers through Adaptive Conditioning

Armand Kassai Koupai, Jorge Misfut Benet, Yuan Yin, Jean-Noël Vittaut, Patrick Gallinari

2024

NeurIPS 2024

### Learn to adapt parametric solvers under incomplete physics

Armand Kassai Koupai, Yuan Yin, Patrick Gallinari

2024

ICLR Workshop 2024

### Operator learning with neural fields: Tackling pdes on general geometries

Louis Serrano, Lise Le Boudec, Armand Kassai Koupai, Thomas X Wang, Yuan Yin, Jean-Noël Vittaut, Patrick Gallinari

2023

NeurIPS 2023

### Self-supervised multimodal fusion transformer for passive activity recognition

Armand Kassai Koupai, Mohammud J Bocus, Raul Santos-Rodriguez, Robert J Piechocki, Ryan McConville

2022

IET WSS

## Experience

### University of Bristol

AI Scientist and Researcher in Radar Fusion

Nov 2021– Nov 2022

- Working for the OPERA project under the supervision of Robert Piechocki, in collaboration with UCL and the University of Oxford.

• Research on self-supervised learning, multi-modality fusion, transformers

### SustainEcho

Data engineer intern

May 2019 – August 2019

- The first platform that uses AI to automate the Carbon Footprint of construction projects directly from measurements.

• Tools: ElasticSearch, Python (NLP), Neo4j

### Renault Group

Signal processing intern

June 2018-August 2018

- French multinational automobile manufacturer established in 1899. Assisted the R&D team specialized in Sound

• Tools: Matlab

## Community service

### Teaching

Introduction to Data Science (40h) • Bachelor level • Teacher assistant

Machine Learning (40h) • Master level • Lecturer

Introduction to Artificial Intelligence (40h) • Bachelor level • Lecturer

Sorbonne Université

École Lerebours

École Lerebours

### Conference reviewer

ICML 2024 - NeurIPS 2024 - ICLR 2025 - AISTATS 2025

## Skills

**Programming languages:** Python, Java, C, Shell

**Packages:** Pytorch, Scikit-Learn, Jax, Numpy, Pandas

**Tools:** Linux, Latex, Git, JupyterLab, Weights and Biases

**Languages:** French, English, Persian