Armand **Kassaï Koupaï**

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)　　　　　　　Paris, France
Advisor: Patrick Gallinari　　　　　　　　　　　　　　　　　　　　　*Nov 2022 – Now*
• PhD thesis – Physics-based Deep Learning for parametric PDEs and multi-physics: in and out-of-distribution generalization

MSc in Data Science [w/ distinction]– University of Bristol　　　　　Bristol, UK
• Machine Learning, Deep learning, NLP, statistics, probability　　　September 2020 – September 2021

Diplôme d'ingénieur (MSc) – ENSEA　　　　　　　　　　　　　Cergy-Pontoise, France
• Signal Processing, Computer Science, Applied mathematics　　　September 2018 – September 2021

Selected Publications

Zebra: In-Context and Generative Pretraining for Solving Parametric PDEs　　**2024**
Louis Serrano, <u>Armand Kassaï Koupaï</u>, Thomas X Wang, Pierre Erbacher, Patrick Gallinari　　*Preprint*

GEPS: Boosting Generalization in Parametric PDE Neural Solvers through Adaptive Conditioning　　**2024**
<u>Armand Kassaï Koupaï</u>, Jorge Misfut Benet, Yuan Yin, Jean-Noël Vittaut, Patrick Gallinari　　*NeurIPS 2024*

Learn to adapt parametric solvers under incomplete physics　　**2024**
<u>Armand Kassaï Koupaï</u>, Yuan Yin, Patrick Gallinari　　*ICLR Workshop 2024*

Operator learning with neural fields: Tackling pdes on general geometries　　**2023**
Louis Serrano, Lise Le Boudec, <u>Armand Kassaï Koupaï</u>, Thomas X Wang, Yuan Yin,　　*NeurIPS 2023*
Jean-Noël Vittaut, Patrick Gallinari

Self-supervised multimodal fusion transformer for passive activity recognition　　**2022**
<u>Armand Kassaï Koupaï</u>, Mohammud J Bocus, Raul Santos-Rodriguez, Robert J Piechocki, Ryan McConville　　*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　　*Sorbonne Université*
Machine Learning (40h) • Master level • Lecturer　　　　　　　　　*École Lerebours*
Introduction to Artificial Intelligence (40h) • Bachelor level • Lecturer　　*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*