

# Armand Kassai Koupai

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French Nationality

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## PROFILE

French PhD student working on data related challenges with academic experience in Deep Learning, notably as an AI Scientist and Researcher in Radar fusion at the University of Bristol and as a PhD student at Sorbonne Université. I am particularly interested in new methods to improve generalization of neural networks, notably for solving physical systems.

## EDUCATION

### Sorbonne Université – MLIA team at ISIR

Paris, France

*PhD student under the supervision of Patrick Gallinari*

2022 – Now

- Topic: Out-of-distribution generalization: learning to generalize neural PDE solvers to unseen parameters

### University of Bristol

Bristol, United Kingdom

*Master of Science*

2020 – 2021

- Grade: Distinction
- Relevant Coursework: Statistical Computing and Empirical Methods (R programming), Large-Scale Data Engineering(AWS Certified Cloud Practitioner), Introduction to Artificial Intelligence (Python), Text Analytics (Python), Visual Analytics (Python), and Technology/Innovation/Business/Society (TIBS)

### École Nationale Supérieure de l'électronique et de ses applications, ENSEA

Cergy-Pontoise, France

**A leading engineering school in electronical and computing engineering ("Grande École")**

2018 – 2020

*Master of Electrical and Computing Engineering / Diplôme d'Ingénieur*

- Grade: First Class
- Relevant Coursework: Measure and Probability Theory, Fourier Analysis, C programming, Signal processing (Matlab), Random Signal Processing (Matlab), Statistics and optimisation, Object-oriented programming (JAVA), Information Theory and multimedia compression (Matlab).

### Classe préparatoire aux grandes écoles d'ingénieur

Paris, France

**Two competitive years studying sciences subjects to be prepared for a nationwide exam**

2016 – 2018

- Grade: First Class
- Relevant Coursework: Mathematics, Physics, Chemistry, Science engineering, Computing (Python & SQL), Philosophy

## WORK EXPERIENCE

### University of Bristol

Bristol, United Kingdom

#### Research Scientist and Researcher in Radar Fusion

November 2021 – May 2022

Working for the OPERA project under the supervision of Robert Piechocki, professor of Wireless Systems at the University of Bristol, in collaboration with UCL and the University of Oxford.

- Build data pipelines to process raw time series data from different sensors and get different image feature representations using signal processing techniques;
- Research and development of software models for sensor and image features fusion in Python, notably using vision transformers with a fully supervised and a self-supervised approach;
- Contribute to written reports and technical publications for the OPERA project.

### SustainEcho Data Engineer Intern

Paris, France

May 2020 – August 2020

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

- Benchmark of the best ontologies and data cleaning and processing of the ConceptNet's data (Python);
- Build a database from INSEE, ConceptNet and SustainEcho's data using Elasticsearch;
- Query the database and create links between similar content using an n-gram model;
- Creation of a graph Database using the links created, on Neo4j.

### Renault Group

Guyancourt, France

#### Signal Processing Intern

July 2019 – August 2019

French multinational automobile manufacturer established in 1899. Assisted the R&D team specialized in Sound and NVH (Noise vibration and harshness).

- Checked the adequacy of the Arkamys signal processing solution to Renault product requirements;
- Analyzed and corrected their loudness corrector by modelling signals on Matlab.

## PUBLICATIONS

- **Self-supervised multimodal fusion transformer for passive activity recognition** IET Wireless Sensor Systems  
Armand K Koupai, Mohammud J Bocus, Raul Santos-Rodriguez, Robert J Piechocki, Ryan McConville  
2022
- **Privacy in Multimodal Federated Human Activity Recognition** Preprint  
Alex Jacob, Pedro PB Gusmão, Nicholas D Lane, Armand K Koupai, Mohammud J Bocus,  
Raúl Santos-Rodríguez, Robert J Piechocki, Ryan McConville  
2022
- **Operator learning with neural fields: Tackling PDEs on general geometries** NeurIPS Conference  
Louis Serrano, Lise Le Boudec, Armand Kassai Koupai, Thomas X Wang, Yuan Yin,  
Jean-Noël Vittaut, Patrick Gallinari  
2023
- **Learn to adapt Parametric Solvers under incomplete Physics** ICLR Workshop  
Armand Kassai Koupai, Yuan Yin, Patrick Gallinari  
2024

## INTERESTS

Chess – 7 years

Trips – Europe, North America, Asia and North Africa

Bodybuilding – 2 years

Guitar – 7 years